

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**
Washington, D.C. 20549

FORM 20-F

☐ **REGISTRATION STATEMENT PURSUANT TO SECTION 12(b) OR (g) OF THE SECURITIES EXCHANGE ACT OF 1934**
OR

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2020

OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from _____ to _____

OR

☐ **SHELL COMPANY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

Date of event requiring this shell company report _____

Commission file number: 001-16429

ABB Ltd

(Exact name of registrant as specified in its charter)

Switzerland

(Jurisdiction of incorporation or organization)

Affolternstrasse 44

CH-8050, Zurich, Switzerland

(Address of principal executive offices)

Richard A. Brown

Affolternstrasse 44

CH-8050, Zurich, Switzerland

Telephone: +41-43-317-7111

Facsimile: +41-43-317-7992

(Name, Telephone, E-mail and/or Facsimile number and Address of Company Contact Person)

Securities registered or to be registered pursuant to Section 12(b) of the Act:

| Title of each class | Trading Symbol(s) | Name of each exchange on which registered |
|---|-------------------|---|
| American Depositary Shares, each representing one Registered Share | ABB | New York Stock Exchange |
| Registered Shares, par value CHF 0.12 | N/A | New York Stock Exchange* |

Securities registered or to be registered pursuant to Section 12(g) of the Act: None.

Securities for which there is a reporting obligation pursuant to Section 15(d) of the Act: None.

Indicate the number of outstanding shares of each of the issuer's classes of capital or common stock as of the close of the period covered by the annual report:

2,030,834,169 Registered Shares

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☒ No ☐

If this report is an annual or transition report, indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934. Yes ☐ No ☒

Note – Checking the box above will not relieve any registrant required to file reports pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934 from their obligations under those Sections.

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or an emerging growth company. See definition of "large accelerated filer," "accelerated filer," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer ☒

Accelerated filer ☐

Non-accelerated filer ☐

Emerging growth company ☐

If an emerging growth company that prepares its financial statements in accordance with U.S. GAAP, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards† provided pursuant to Section 13(a) of the Exchange Act. ☐

† The term "new or revised financial accounting standard" refers to any update issued by the Financial Accounting Standards Board to its Accounting Standards Codification after April 5, 2012.

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☒

Indicate by check mark which basis of accounting the registrant has used to prepare the financial statements included in this filing:

U.S. GAAP ☒

International Financial Reporting Standards as issued by the International Accounting Standards Board ☐

Other ☐

If "Other" has been checked in response to the previous question, indicate by check mark which financial statement item the registrant has elected to follow.

Item 17 ☐ Item 18 ☐

If this is an annual report, indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

* Listed on the New York Stock Exchange not for trading or quotation purposes, but only in connection with the registration of American Depositary Shares pursuant to the requirements of the Securities and Exchange Commission.

TABLE OF CONTENTS

| | <u>Page</u> |
|---|-------------|
| PART I | 4 |
| Item 1. Identity of Directors, Senior Management and Advisers | 4 |
| Item 2. Offer Statistics and Expected Timetable | 4 |
| Item 3. Key Information | 4 |
| Item 4. Information on the Company | 17 |
| Item 4A. Unresolved Staff Comments | 34 |
| Item 5. Operating and Financial Review and Prospects | 35 |
| Item 6. Directors, Senior Management and Employees | 81 |
| Item 7. Major Shareholders and Related Party Transactions | 133 |
| Item 8. Financial Information | 133 |
| Item 9. The Offer and Listing | 135 |
| Item 10. Additional Information | 135 |
| Item 11. Quantitative and Qualitative Disclosures About Market Risk | 143 |
| Item 12. Description of Securities Other than Equity Securities | 145 |
| PART II | 146 |
| Item 13. Defaults, Dividend Arrearages and Delinquencies | 146 |
| Item 14. Material Modifications to the Rights of Security Holders and Use of Proceeds | 146 |
| Item 15. Controls and Procedures | 146 |
| Item 16A. Audit Committee Financial Expert | 147 |
| Item 16B. Code of Ethics | 147 |
| Item 16C. Principal Accountant Fees and Services | 148 |
| Item 16D. Exemptions from the Listing Standards for Audit Committees | 148 |
| Item 16E. Purchase of Equity Securities by Issuer and Affiliated Purchasers | 149 |
| Item 16F. Change in Registrant's Certifying Accountant | 149 |
| Item 16G. Corporate Governance | 149 |
| Item 16H. Mine Safety Disclosure | 149 |
| PART III | 150 |
| Item 17. Financial Statements | 150 |
| Item 18. Financial Statements | 150 |
| Item 19. Exhibits | 151 |

INTRODUCTION

ABB Ltd is a corporation organized under the laws of Switzerland. In this Annual Report on Form 20-F (Annual Report), “the ABB Group,” “the Group,” “ABB,” the “Company,” “we,” “our” and “us” refer to ABB Ltd and its consolidated subsidiaries (unless the context otherwise requires). We also use these terms to refer to ABB Asea Brown Boveri Ltd and its subsidiaries prior to the establishment of ABB Ltd as the holding company for the entire ABB Group in 1999, as described in this Annual Report under “Item 4. Information on the Company—Introduction—History of the ABB Group”. Our American Depositary Shares (each representing one registered share of ABB Ltd) are referred to as “ADSs”. The registered shares of ABB Ltd are referred to as “shares”. Our principal corporate offices are located at Affolternstrasse 44, CH-8050 Zurich, Switzerland, telephone number +41-43-317-7111.

FINANCIAL AND OTHER INFORMATION

The Consolidated Financial Statements of ABB Ltd, including the Notes thereto, as of December 31, 2020 and 2019, and for each of the years in the three-year period ended December 31, 2020, (our Consolidated Financial Statements) have been prepared in accordance with United States generally accepted accounting principles (U.S. GAAP).

In this Annual Report: (i) “\$,” “U.S. dollar” and “USD” refer to the lawful currency of the United States of America; (ii) “CHF” and “Swiss franc” refer to the lawful currency of Switzerland; (iii) “EUR” and “euro” refer to the lawful currency of the participating member states of the European Economic and Monetary Union (Eurozone); (iv) “SEK” and “Swedish krona” refer to the lawful currency of Sweden; (v) “Chinese renminbi” and “CNY” refer to the lawful currency of the People’s Republic of China; (vi) “AED” refers to the lawful currency of the United Arab Emirates; (vii) “INR” and “Indian Rupee” refer to the lawful currency of India, and (viii) “HKD” refers to the Hong Kong dollar. Information contained on, or that can be accessed through, our Web site does not constitute a part of this annual report and is not incorporated by reference herein.

Except as otherwise stated, all monetary amounts in this Annual Report are presented in U.S. dollars. Where specifically indicated, amounts in Swiss francs have been translated into U.S. dollars. These translations are provided for convenience only, and they are not representations that the Swiss franc could be converted into U.S. dollars at the rate indicated. The twelve o’clock buying rate in the City of New York for cable transfers as certified for customs purposes by the Federal Reserve Bank of New York for Swiss francs on December 31, 2020, was \$1.00 = CHF 0.8841. The twelve o’clock buying rate for Swiss francs on February 19, 2021, was \$1.00 = CHF 0.8948.

FORWARD-LOOKING STATEMENTS

This Annual Report includes forward-looking statements within the meaning of the United States Private Securities Litigation Reform Act of 1995. We intend such forward-looking statements to be covered by the safe harbor provisions for forward-looking statements contained in Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended (Exchange Act). These forward-looking statements can be identified by the use of forward-looking terminology, including the terms “believes,” “estimates,” “anticipates,” “expects,” “intends,” “may,” “will,” or “should” or, in each case, their negative, or other variations or comparable terminology. These forward-looking statements include all matters that are not historical facts. They appear in a number of places throughout this Annual Report and include statements regarding our intentions, beliefs or current expectations concerning, among other things, our results of operations, financial condition, liquidity, prospects, growth, dispositions, strategies and the countries and industries in which we operate.

These forward looking statements include, but are not limited to, statements about our financial condition and performance, operating results, liquidity and our ability to fund our business operations and initiatives, the impact of the COVID-19 pandemic on our business, capital expenditure and debt service obligations, plans regarding our capital structure, ability to take advantage of market opportunities and drive growth, our products and service offerings and their anticipated performance and impact across various industries and consumer segments, anticipated benefits to the shareholders, planned divestments, acquisitions and integration, and related synergies and other benefits, investment and risk management strategies, volatility in the credit markets, oil prices, foreign currency exchange rates and other market conditions, trends and opportunities, industry trends and expectations, including the Energy and Fourth Industrial Revolutions and changing consumer behavior and demands, our ability to respond to changing business and economic conditions, our comparative advantages, our commitments and contingencies, availability of raw materials, and other plans, goals, strategies, priorities and initiatives related to our business, including our brand management initiative, the implementation of ABB Way, and cost-saving measures, as well as, the following:

- statements in “Item 3. Key Information—Dividends and Dividend Policy” regarding our policy on future dividend payments,
- statements in “Item 3. Key Information—Risk Factors,”
- statements in “Item 5. Operating and Financial Review and Prospects” regarding our management objectives, including our outlook, as well as trends in results, prices, volumes, operations, margins and overall market trends, and
- statements in “Item 8. Financial Information—Legal Proceedings” regarding the outcome of certain legal and compliance matters.

By their nature, forward-looking statements involve risks and uncertainties because they relate to events and depend on circumstances that may or may not occur in the future. We caution you that forward-looking statements are not guarantees of future performance and that our actual results of operations, financial condition and liquidity, and the development of the countries and industries in which we operate, may differ materially from those described in or suggested by the forward-looking statements contained in this Annual Report. In addition, even if our results of operations, financial condition and liquidity, and the development of the countries and industries in which we operate, are consistent with the forward-looking statements contained in this Annual Report, those results or developments may not be indicative of results or developments in subsequent periods. Important factors that could cause actual results to differ materially from our expectations are contained in cautionary statements in this Annual Report and include, without limitation, the following:

Business, economic and industry risks

- Our business is exposed to risks associated with the COVID-19 pandemic.
- Our business is exposed to risks associated with the volatile global economic environment and political conditions.
- Our operations in emerging markets expose us to risks associated with conditions in those markets.
- We may encounter difficulty in managing our business due to the global nature of our operations.
- We operate in very competitive and rapidly changing markets and could be adversely affected if we fail to keep pace with technological changes.
- Industry consolidation could result in more powerful competitors and fewer customers.
- Increases in costs or limitation of supplies of raw materials may adversely affect our financial performance.
- Our multi-national operations expose us to the risk of fluctuations in currency exchange rates.

- The uncertainties relating to the United Kingdom's new relationship with the European Union and its potential impact on the relationship between Switzerland and the European Union, may have a negative effect on cross-border trade and our business.

Operational risks

- Increased information technology (IT) security threats and more sophisticated cyber-attacks could pose a risk to our systems, networks, products, solutions and services.
- Our business strategy may include making strategic divestitures. There can be no assurance that any divestitures will provide business benefit.
- Anticipated benefits of historical, existing and potential future mergers, acquisitions, joint ventures or strategic alliances may not be realized.
- There is no guarantee that our ongoing efforts to reduce costs will be successful.
- Illegal behavior by any of our employees or agents could have a material adverse impact on our consolidated operating results, cash flows, and financial position as well as on our reputation and our ability to do business.
- We may be the subject of product liability claims.
- Undertaking long-term, technically complex projects or projects that are dependent upon factors not wholly within our control could adversely affect our profitability and future prospects.
- If we are unable to obtain performance and other guarantees from financial institutions, we may be prevented from bidding on, or obtaining, some contracts, or our costs with respect to such contracts could be higher.
- Our hedging activities may not protect us against the consequences of significant fluctuations in exchange rates, interest rates or commodity prices on our earnings and cash flows.

Legal and regulatory risks

- An inability to protect our intellectual property rights could adversely affect our business.
- Failure to comply with evolving data privacy and data protection laws and regulations or to otherwise protect personal data, may adversely impact our business and financial results.
- Examinations by tax authorities and changes in tax regulations could result in lower earnings and cash flows.
- We are subject to environmental laws and regulations in the countries in which we operate. We incur costs to comply with such regulations, and our ongoing operations may expose us to environmental liabilities.
- We could be affected by future laws or regulations enacted to address climate change concerns as well as the physical effects of climate change.

General risk factors

- If we are unable to attract and retain qualified management and personnel then our business may be adversely affected.
- Our business subjects us to considerable potential exposure to litigation and legal claims and could be materially adversely affected if we incur legal liability.

We urge you to read the other important factors set forth under sections of this Annual Report entitled “Item 3. Key Information—Risk Factors,” “Item 4. Information on the Company” and “Item 5. Operating and Financial Review and Prospects” for a more complete discussion of the important factors that could affect our future performance and the countries and industries in which we operate. In light of these risks, uncertainties and assumptions, the forward-looking circumstances described in this Annual Report and the assumptions underlying them may not occur.

Except as required by law or applicable stock exchange rules or regulations, we undertake no obligation to update or revise publicly any forward-looking statement, whether as a result of new information, future events or otherwise. All subsequent written and oral forward-looking statements attributable to us or to persons acting on our behalf are expressly qualified in their entirety by the cautionary statements referred to above and contained elsewhere in this Annual Report.

PART I

Item 1. Identity of Directors, Senior Management and Advisers

Not applicable

Item 2. Offer Statistics and Expected Timetable

Not applicable

Item 3. Key Information

SELECTED FINANCIAL DATA

The following table presents our selected financial and operating information at the dates and for each of the periods indicated. We report our financial results in U.S. dollars. Due to our global operations, a significant amount of our revenues, expenses, assets and liabilities are denominated in other currencies. As a consequence, movements in exchange rates between currencies may affect our profitability, the comparability of our results between periods, as well as the reported carrying value of our assets and liabilities. You should read the following information together with the information contained in “Item 5. Operating and Financial Review and Prospects,” as well as our Consolidated Financial Statements and the Notes thereto, included elsewhere in this Annual Report.

Our selected financial data in the following tables as well as financial information in “Item 5. Operating and Financial Review and Prospects” is presented in accordance with U.S. GAAP and have been derived from our published Consolidated Financial Statements. Our Consolidated Financial Statements as of and for each of the years ended December 31, 2020, 2019 and 2018, were audited by KPMG AG. Our Consolidated Financial Statements as of December 31, 2017, and for each of the years ended December 31, 2017 and 2016, were audited by Ernst & Young AG. Our Consolidated Financial Statements as of December 31, 2016 have not been audited following the reclassification in 2018 of the Power Grids business from continuing operations to discontinued operations.

INCOME STATEMENT DATA:

| (\$ in millions, except per share data in \$) | 2020 | 2019 | 2018 | 2017 | 2016 |
|---|-----------------|-----------------|-----------------|-----------------|-----------------|
| Total revenues | 26,134 | 27,978 | 27,662 | 25,196 | 24,929 |
| Total cost of sales | (18,256) | (19,072) | (19,118) | (17,350) | (17,396) |
| Gross profit | 7,878 | 8,906 | 8,544 | 7,846 | 7,533 |
| Selling, general and administrative expenses | (4,895) | (5,447) | (5,295) | (4,765) | (4,532) |
| Non-order related research and development expenses | (1,127) | (1,198) | (1,147) | (1,013) | (967) |
| Impairment of goodwill | (311) | — | — | — | — |
| Other income (expense), net | 48 | (323) | 124 | 162 | (105) |
| Income from operations | 1,593 | 1,938 | 2,226 | 2,230 | 1,929 |
| Interest and dividend income | 51 | 67 | 72 | 73 | 71 |
| Interest and other finance expense | (240) | (215) | (262) | (234) | (201) |
| Losses from extinguishment of debt | (162) | — | — | — | — |
| Non-operational pension (cost) credit | (401) | 72 | 83 | 33 | (38) |
| Income from continuing operations before taxes | 841 | 1,862 | 2,119 | 2,102 | 1,761 |
| Income tax expense | (496) | (772) | (544) | (583) | (526) |
| Income from continuing operations, net of tax | 345 | 1,090 | 1,575 | 1,519 | 1,235 |
| Income from discontinued operations, net of tax | 4,860 | 438 | 723 | 846 | 799 |
| Net income | 5,205 | 1,528 | 2,298 | 2,365 | 2,034 |
| Net income attributable to noncontrolling interests | (59) | (89) | (125) | (152) | (135) |
| Net income attributable to ABB | 5,146 | 1,439 | 2,173 | 2,213 | 1,899 |
| <i>Amounts attributable to ABB shareholders:</i> | | | | | |
| Income from continuing operations, net of tax | 294 | 1,043 | 1,514 | 1,441 | 1,172 |
| Income from discontinued operations, net of tax | 4,852 | 396 | 659 | 772 | 727 |
| Net income | 5,146 | 1,439 | 2,173 | 2,213 | 1,899 |
| <i>Basic earnings per share attributable to ABB shareholders:</i> | | | | | |
| Income from continuing operations, net of tax | 0.14 | 0.49 | 0.71 | 0.67 | 0.54 |
| Income from discontinued operations, net of tax | 2.30 | 0.19 | 0.31 | 0.36 | 0.34 |
| Net income | 2.44 | 0.67 | 1.02 | 1.04 | 0.88 |
| <i>Diluted earnings per share attributable to ABB shareholders:</i> | | | | | |
| Income from continuing operations, net of tax | 0.14 | 0.49 | 0.71 | 0.67 | 0.54 |
| Income from discontinued operations, net of tax | 2.29 | 0.19 | 0.31 | 0.36 | 0.34 |
| Net income | 2.43 | 0.67 | 1.02 | 1.03 | 0.88 |
| <i>Weighted-average number of shares outstanding (in millions) used to compute:</i> | | | | | |
| Basic earnings per share attributable to ABB shareholders | 2,111 | 2,133 | 2,132 | 2,138 | 2,151 |
| Diluted earnings per share attributable to ABB shareholders | 2,119 | 2,135 | 2,139 | 2,148 | 2,154 |

BALANCE SHEET DATA:

| | December 31, | | | | |
|---|---------------------|--------|--------|--------|--------|
| | unaudited | | | | |
| (\$ in millions) | 2020 | 2019 | 2018 | 2017 | 2016 |
| Cash and equivalents and current restricted cash | 3,601 | 3,544 | 3,445 | 4,526 | 3,644 |
| Marketable securities and short-term investments | 2,108 | 566 | 712 | 1,083 | 1,953 |
| Restricted cash - non-current | 300 | — | — | — | — |
| Total assets ⁽¹⁾ | 41,088 | 46,108 | 44,441 | 43,458 | 39,391 |
| Long-term debt (excluding current maturities of long-term debt) | 4,828 | 6,772 | 6,587 | 6,682 | 5,785 |
| Total debt ⁽²⁾ | 6,121 | 9,059 | 8,618 | 7,408 | 6,783 |
| Common stock | 188 | 188 | 188 | 188 | 192 |
| Total stockholders' equity (including noncontrolling interests) | 15,999 | 13,980 | 14,534 | 15,349 | 13,897 |

CASH FLOW DATA:

| (\$ in millions) | 2020 | 2019 | 2018 | 2017 | 2016 |
|---|---------|---------|---------|---------|---------|
| Operating activities: | | | | | |
| Net cash provided by operating activities — continuing operations | 1,875 | 1,899 | 2,352 | 2,588 | 2,607 |
| Net cash provided by (used in) operating activities — discontinued operations | (182) | 426 | 572 | 1,211 | 1,236 |
| Net cash provided by operating activities | 1,693 | 2,325 | 2,924 | 3,799 | 3,843 |
| Investing activities: | | | | | |
| Net cash used in investing activities — continuing operations | (2,272) | (651) | (2,908) | (1,118) | (1,108) |
| Net cash provided by (used in) investing activities — discontinued operations | 9,032 | (164) | (177) | (332) | (197) |
| Net cash provided by (used in) investing activities | 6,760 | (815) | (3,085) | (1,450) | (1,305) |
| Financing activities: | | | | | |
| Net cash used in financing activities — continuing operations | (8,206) | (1,328) | (741) | (1,688) | (3,308) |
| Net cash provided by (used in) financing activities — discontinued operations | 31 | (55) | (48) | (47) | (47) |
| Net cash used in financing activities | (8,175) | (1,383) | (789) | (1,735) | (3,355) |

(1) Total assets includes assets held for sale and in discontinued operations. See “Note 3 - Discontinued operations” to our Consolidated Financial Statements.

(2) Total debt is equal to the sum of short-term debt (including current maturities of long-term debt) and long-term debt.

DIVIDENDS AND DIVIDEND POLICY

Payment of dividends is subject to general business conditions, ABB's current and expected financial condition and performance and other relevant factors including growth opportunities. ABB's current dividend policy is to pay a rising, sustainable annual dividend per share over time.

The unconsolidated statutory financial statements of ABB Ltd are prepared in accordance with the Swiss Code of Obligations. Based on these financial statements, dividends may be paid only if ABB Ltd has sufficient distributable profits from previous years or sufficient free reserves to allow the distribution of a dividend. As a holding company, ABB Ltd's main sources of income are dividend and interest payments from its subsidiaries.

At December 31, 2020, the total unconsolidated stockholders' equity of ABB Ltd was CHF 9,063 million, including CHF 260 million representing share capital, CHF 12,032 million representing reserves and CHF 3,229 million representing a reduction of equity for own shares (treasury stock). Of the reserves, CHF 3,229 million relating to own shares and CHF 52 million representing 20 percent of share capital, are restricted and not available for distribution.

With respect to the years ended December 31, 2016, 2017, 2018 and 2019, ABB Ltd paid a dividend of CHF 0.76 (USD 0.76) per share, CHF 0.78 (USD 0.81) per share, CHF 0.80 (USD 0.79) per share and CHF 0.80 (USD 0.82) per share, respectively. The USD amounts for each of the foregoing dividend payments made in CHF have been translated using the average rates of the months in which the dividends were paid.

With respect to the year ended December 31, 2020, ABB Ltd's Board of Directors has proposed to pay a dividend of CHF 0.80 per share to shareholders. The distribution is subject to approval by shareholders at ABB Ltd's 2021 Annual General Meeting (AGM).

For further information on dividends and dividend policy see "Item 6. Directors, Senior Management and Employees—Shareholders—Shareholders' rights—Shareholders' dividend rights".

RISK FACTORS

You should carefully consider all of the information set forth in this Annual Report and the following description of risks and uncertainties that we currently believe may exist. Our business, financial condition or results of operations could be adversely affected by any of these risks. Additional risks of which we are unaware or that we currently deem immaterial may also impair our business operations. This Annual Report also contains forward-looking statements that involve risks and uncertainties. Our results could differ materially from those anticipated in these forward-looking statements as a result of certain factors, including those described below and elsewhere in this Annual Report. See "Forward-Looking Statements".

Business, economic and industry risks

Our business is exposed to risks associated with the COVID-19 pandemic.

The novel coronavirus (COVID-19) pandemic has had, and continues to have, significant impacts on the global economy including on demand for products, operational predictability, the movement of people and products across borders, supply chains and the cost of capital. Given the global nature of our business, COVID-19 has adversely impacted our revenues and operating margins in all of our businesses and is expected to continue to do so at least in the short term. In particular, our service businesses have been materially impacted and some customer industries, most notably cruise operators, are operating significantly below their normal levels. The ultimate extent to which the pandemic impacts our business, liquidity, results of operations and financial condition will depend on future developments, which are highly uncertain and cannot be predicted with confidence, including the availability and effectiveness of vaccines, future mutations of the COVID-19 virus and any resulting impact on the effectiveness of vaccines, the duration and extent of the pandemic and waves of infection, travel restrictions and social distancing, the duration and extent of business closures and business disruptions and the effectiveness of actions taken to contain, treat and prevent the disease. If we or our customers experience prolonged shutdowns or other business disruptions, our business, liquidity, results of operations and financial condition may be materially adversely affected and our ability to access the capital markets may be limited.

Our business is exposed to risks associated with the volatile global economic environment and political conditions.

Adverse changes in economic or political conditions, particularly in locations where our customers or operations are located, as well as concerns about global trade, global health crises, developments in energy prices, and terrorist activities, could have a material adverse effect on our business, financial condition, results of operations and liquidity and may adversely impact the demand for our products and services. These and other factors may prevent our customers and suppliers from obtaining the financing required to pursue their business activities as planned, which may force them to modify, delay or cancel plans to purchase or supply our products or services. In addition, if our customers do not generate sufficient revenue, or fail to timely obtain access to the capital markets, they may not be able to pay, or may delay payment of, the amounts they owe us. Customers with liquidity issues may lead to additional bad debt expense for us, which may adversely affect our results of operations and cash flows. We are also subject to the risk that the counterparties to our credit agreements and hedging transactions may go bankrupt if they suffer catastrophic demand on their liquidity that prevents them from fulfilling their contractual obligations to us.

Our business environment is influenced also by numerous other economic or political uncertainties which may affect the global economy and the international capital markets. In periods of slow economic growth or decline, our customers are more likely to buy less of our products and services, and as a result we are more likely to experience decreased revenues. Our Businesses are affected by the level of investments and demand in the markets that we serve, principally utilities, industry and transport & infrastructure. At various times during the last several years, we also have experienced, and may experience in the future, gross margin declines in certain businesses, reflecting the effect of factors such as competitive pricing pressures, inventory write-downs, charges associated with the cancellation of planned expansion and increases in component and manufacturing costs resulting from higher labor and material costs borne by our manufacturers and suppliers that, as a result of competitive pricing pressures or other factors, we are unable to pass on to our customers. Economic downturns also may lead to restructuring actions and associated expenses. Uncertainty about future economic conditions makes it difficult for us to forecast operating results and to make decisions about future investments.

In addition, we are subject to the risks that our business operations in or with certain countries may be adversely affected by trade tariffs, trade or economic sanctions or other restrictions imposed on these countries, including the trade tensions between the United States and China in recent years. These could lead to increased costs for us or for our customers or limit our ability to do business in or with certain countries. In addition, actual or potential investors that object to certain of these business operations may adversely affect the price of our shares by disposing or deciding not to purchase our shares. These countries may from time to time include countries that are identified by the United States as state sponsors of terrorism. If any countries where or with whom we do business are subject to such sanctions or restrictions, our business, consolidated operating results, financial condition and the trading price of our shares may be adversely affected. In 2020, our total revenues from business with countries identified by the U.S. government as state sponsors of terrorism represented significantly less than 1 percent of our total revenues. Based on the amount of revenues and other relevant quantitative and qualitative factors, we have determined that our business in 2020 with countries identified by the U.S. government as state sponsors of terrorism was not material.

Our operations in emerging markets expose us to risks associated with conditions in those markets.

A significant amount of our operations is conducted in the emerging markets in South America, Asia, and the Middle East and Africa. In 2020, approximately 40 percent of our consolidated revenues were generated from these emerging markets. Operations in emerging markets can present risks that are not encountered in countries with well-established economic and political systems, including:

- economic instability, which could make it difficult for us to anticipate future business conditions in these markets, cause delays in the placement of orders for projects that we have been awarded and subject us to volatile geographic markets,
- political or social instability, which could make our customers less willing to make cross-border investments in such regions and could complicate our dealings with governments regarding permits or other regulatory matters, local businesses and workforces,
- boycotts and embargoes that may be imposed by the international community on countries in which we do business or where we seek to do business could adversely affect the ability of our operations in those countries to obtain the materials necessary to fulfill contracts and our ability to pursue business or establish operations in those countries,
- foreign state takeovers of our and our customers' facilities,
- significant fluctuations in interest rates and currency exchange rates,
- the imposition of unexpected taxes or other payments on our revenues in these markets,
- our inability to obtain financing and/or insurance coverage from export credit agencies, and
- the introduction of exchange controls and other restrictions by foreign governments.

Additionally, political and social instability resulting from increased violence in certain countries in which we do business has raised concerns about the safety of our personnel. These concerns may hinder our ability to send personnel abroad and to hire and retain local personnel. Such concerns may require us to increase security for personnel traveling to and working in affected countries or to restrict or wind-down operations in such countries, which may negatively impact us and result in higher costs and inefficiencies.

Consequently, our exposure to the conditions in or affecting emerging markets may adversely affect our business, financial condition, results of operations and liquidity.

We may encounter difficulty in managing our business due to the global nature of our operations.

We operate in approximately 100 countries around the world and, as of December 31, 2020, employed about 105,600 people, of which approximately 47 percent were located in the Europe region, approximately 27 percent in the Asia, Middle East and Africa region and approximately 26 percent in the Americas region. To manage our day-to-day operations, we must deal with cultural and language barriers and assimilate different business practices. Due to our global nature, we deal with a range of legal and regulatory systems some of which are less developed and less well-enforced than others. The laws and regulations to which we are subject can change rapidly and in unexpected directions. All of this may impact our ability to protect our contractual, intellectual property and other legal rights. In addition, we are required to create compensation programs, employment policies and other administrative programs that comply with the laws of multiple countries. We also must communicate, monitor and uphold group-wide standards and directives across our global network, including in relation to our suppliers, subcontractors and other relevant stakeholders. Our failure to manage successfully our geographically diverse operations could impair our ability to react quickly to changing business and market conditions and to enforce compliance with group-wide standards and procedures.

We operate in very competitive and rapidly changing markets and could be adversely affected if we fail to keep pace with technological changes.

We operate in very competitive and rapidly changing markets where we regularly need to innovate and develop products, systems, services and solutions that address the business challenges and needs of our customers. The nature of these challenges varies across the geographic markets and product areas that we serve. The markets for our products and services are characterized by evolving industry standards, which may require us to modify our products and systems. The continual development of advanced technologies for new products and product enhancements is an important way in which we remain competitive and maintain acceptable pricing levels. If we fail to keep pace with technological changes in the industrial sectors that we serve, we may experience lower revenues, price erosion and lower margins.

Our primary competitors are sophisticated companies with significant resources that may develop products and services that are superior to our products and services or may adapt more quickly than we do to new technologies, industry changes or evolving customer requirements. We are also facing increased competition from low cost competitors in emerging markets, which may give rise to increased pressure to reduce our prices. Our failure to anticipate or respond quickly to technological developments or customer requirements could adversely affect our business, results of operations, financial condition and liquidity.

Industry consolidation could result in more powerful competitors and fewer customers.

Competitors in the industries in which we operate are consolidating. In particular, the automation industry is undergoing consolidation that is reducing the number but increasing the size of companies that compete with us. As our competitors consolidate, they likely will increase their market share, gain economies of scale that enhance their ability to compete with us and/or acquire additional products and technologies that could displace our product offerings.

Our customer base also is undergoing consolidation. Consolidation within our customers' industries (such as the marine and cruise industry, automotive, aluminum, steel, pulp and paper and pharmaceutical industries and the oil and gas industry) could affect our customers and their relationships with us. If one of our competitors' customers acquires any of our customers, we may lose that business. Additionally, as our customers become larger and more concentrated, they could exert pricing pressure on all suppliers, including us. If we were to lose market share or

customers or face pricing pressure due to consolidation of our customers, our results of operations and financial condition could be adversely affected.

Increases in costs or limitation of supplies of raw materials may adversely affect our financial performance.

We purchase large amounts of commodity-based raw materials, including steel, copper, aluminum and oil. Prevailing prices for such commodities are subject to fluctuations due to changes in supply and demand and a variety of additional factors beyond our control, such as global political and economic conditions. Historically, prices for some of these raw materials have been volatile and unpredictable, and such volatility is expected to continue. Therefore, commodity price changes may result in unexpected increases in raw material costs, and we may be unable to increase our prices to offset these increased costs without suffering reduced volumes, revenues or operating income. We do not fully hedge against changes in commodity prices and our hedging procedures may not work as planned.

We depend on third parties to supply raw materials and other components and may not be able to obtain sufficient quantities of these materials and components, which could limit our ability to manufacture products on a timely basis and could harm our profitability. The risk that we may not be able to obtain raw materials or other components is increased by the COVID-19 pandemic. For some raw materials and components, we rely on a single supplier or a small number of suppliers. If one of these suppliers were unable to provide us with a raw material or component we need, our ability to manufacture some of our products could be adversely affected until we are able to establish a new supply arrangement. We may be unable to find a sufficient alternative supply channel in a reasonable time period or on commercially reasonable terms, if at all. If our suppliers are unable to deliver sufficient quantities of materials on a timely basis, the manufacture and sale of our products may be disrupted, we may be required to assume liability under our agreements with customers and our sales and profitability could be materially adversely affected.

Our multi-national operations expose us to the risk of fluctuations in currency exchange rates.

Currency exchange rate fluctuations have had, and could continue to have, a material impact on our operating results, the comparability of our results between periods, the value of assets or liabilities as recorded on our Consolidated Balance Sheet and the price of our securities. Volatility in exchange rates makes it harder to predict exchange rates and perform accurate financial planning. Changes in exchange rates can unpredictably and adversely affect our consolidated operating results and could result in exchange losses.

Currency Translation Risk. The results of operations and financial position of most of our non-U.S. companies are initially recorded in the currency of the country in which each such company resides, which we call “local currency”. That financial information is then translated into U.S. dollars at the applicable exchange rates for inclusion in our Consolidated Financial Statements. The exchange rates between local currencies and the U.S. dollar can fluctuate substantially, which could have a significant translation effect on our reported consolidated results of operations and financial position.

Increases and decreases in the value of the U.S. dollar versus local currencies will affect the reported value of our local currency assets, liabilities, revenues and expenses in our Consolidated Financial Statements, even if the value of these items has not changed in local currency terms. These translations could significantly and adversely affect our results of operations and financial position from period to period.

Currency Transaction Risk. Currency risk exposure also affects our operations when our sales are denominated in currencies that are different from those in which our manufacturing or sourcing costs are incurred. In this case, if, after the parties agree on a price, the value of the currency in which the price is to be paid were to weaken relative to the currency in which we incur manufacturing or sourcing costs, there would be a negative impact on the profit margin for any such transaction. This transaction risk may exist regardless of whether there is also a currency translation risk as described above.

Currency exchange rate fluctuations in those currencies in which we incur our principal manufacturing expenses or sourcing costs may adversely affect our ability to compete with companies whose costs are incurred in other currencies. If our principal expense currencies appreciate in value against such other currencies, our competitive position may be weakened.

The uncertainties relating to the United Kingdom's new relationship with the European Union and its potential impact on the relationship between Switzerland and the European Union, may have a negative effect on cross-border trade and our business.

The United Kingdom has withdrawn from the European Union and has negotiated the terms of such departure (the UK-EU Trade and Cooperation Agreement or TCA). The TCA is subject to formal approval by the European Parliament and the Council of the European Union before it comes into effect and has been applied provisionally since January 1, 2021. Because the agreement merely sets forth a framework in many respects and will require complex additional bilateral negotiations between the United Kingdom and the European Union as both parties continue to work on the rules for implementation, significant political and economic uncertainty remains and this has had and may continue to have a material effect on cross-border trade with the United Kingdom and with the European Union. Lack of clarity about future United Kingdom laws and regulations, potentially divergent national laws, the possibility of increased regulatory complexities, or future developments in the European Union could depress economic activity, reduce demand for our products and services, restrict our access to capital, and diminish or eliminate barrier-free access between the United Kingdom and other European Union member states or among the European economic area overall. Furthermore, the TCA may influence discussions on open trade and political matters between Switzerland and the European Union. Any of these factors could have an adverse effect on our business, financial condition and results of operations.

Operational risks

Increased information technology (IT) security threats and more sophisticated cyber-attacks could pose a risk to our systems, networks, products, solutions and services.

We have observed a global increase in IT security threats and more sophisticated cyber-attacks, which pose a risk to the security of systems and networks and the confidentiality, availability and integrity of data stored and transmitted on those systems and networks. Despite our efforts, we have experienced, and may in the future experience, cyber-attacks against us and we have incurred and will continue to incur substantial costs to reduce the cyber risks to our systems, networks, products, solutions and services. Similarly, we have observed a continued increase in attacks generally against industrial control systems as well as against our customers and the systems we supply to them, which pose a risk to the security of those systems and networks. Future attacks could potentially lead to the compromising of confidential information, disruption of our business, improper use or downtime of our systems and networks or those we supplied to our customers, manipulation, corruption, inaccessibility and destruction of data, defective products or services, production downtimes and supply shortages. Such attacks may also expose us to loss of business, claims or regulatory action. Any such impact in turn could adversely affect our reputation, competitiveness and results of operations. Our insurance coverage may not be adequate to cover all the costs related to cyber security attacks or disruptions resulting from such events. Due to the nature of these security threats, the nature and scope of the impact of any future incident cannot be predicted.

Our business strategy may include making strategic divestitures. There can be no assurance that any divestitures will provide business benefit.

Our strategy includes divesting certain businesses. The divestiture of an existing business could reduce our future profits and operating cash flows and make our financial results more volatile. We may also retain certain obligations or grant indemnities in connection with a divestment. We may not find suitable purchasers for our non-core businesses and may continue to pay operating costs associated with these businesses. Failed attempts to divest non-core businesses may distract management's attention from other business activities, erode employee morale and customers' confidence, and harm our business. A divestiture could also cause a decline in the price of our shares and increased reliance on other elements of our core business operations. Whether we realize the anticipated benefits of a divestment, including our divestment in 2020 of 80.1 percent of the Power Grids business, depends on whether we successfully manage the related risks. If we do not successfully manage the risks associated with a divestiture, our business, financial condition, and results of operations could be adversely affected.

Anticipated benefits of historical, existing and potential future mergers, acquisitions, joint ventures or strategic

alliances may not be realized.

As part of our overall strategy, we may, from time to time, acquire businesses or interests in businesses, including noncontrolling interests, or form joint ventures or create strategic alliances. Whether we realize the anticipated benefits, including operating synergies and cost savings, from these transactions, including our acquisition in 2018 of General Electric Company's Industrial Solutions business, depends, in part, upon the integration between the businesses involved, the performance and development of the underlying products, capabilities or technologies, our correct assessment of assumed liabilities and the management of the operations in question. Accordingly, our financial results could be adversely affected by unanticipated performance and liability issues, transaction-related charges, amortization related to intangibles, charges for impairment of long-term assets and partner performance.

There is no guarantee that our ongoing efforts to reduce costs will be successful.

We seek continued cost savings through operational excellence and supply chain management. Lowering our cost base is important for our business and future competitiveness. However, there is no guarantee that we will achieve this goal. If we are unsuccessful and the shortfall is significant, there could be an adverse effect on our business, financial condition, and results of operations.

Illegal behavior by any of our employees or agents could have a material adverse impact on our consolidated operating results, cash flows, and financial position as well as on our reputation and our ability to do business.

Certain of our employees or agents have taken, and may in the future take, actions that violate or are alleged to violate the U.S. Foreign Corrupt Practices Act of 1977 (FCPA), legislation promulgated pursuant to the 1997 Organisation for Economic Co-operation and Development (OECD) Convention on Combating Bribery of Foreign Public Officials in International Business Transactions, applicable antitrust laws and other applicable laws or regulations. For more information regarding investigations of past actions taken by certain of our employees, see "Item 8. Financial Information—Legal Proceedings". Such actions have resulted, and in the future could result, in governmental investigations, enforcement actions, civil and criminal penalties, including monetary penalties and other sanctions, and civil litigation. It is possible that any governmental investigation or enforcement action arising from such matters could conclude that a violation of applicable law has occurred, and the consequences of any such investigation or enforcement action may have a material adverse impact on our consolidated operating results, cash flows and financial position. In addition, such actions, whether actual or alleged, could damage our reputation and ability to do business.

Further, detecting, investigating and resolving such actions could be expensive and could consume significant time and attention of our senior management. While we are committed to conducting business in a legal and ethical manner, our internal control systems at times have not been, and in the future may not be, completely effective to prevent and detect such improper activities by our employees and agents. We are subject to certain ongoing investigations by governmental agencies.

We may be the subject of product liability claims.

We may be required to pay for losses or injuries purportedly caused by the design, manufacture or operation of our products and systems. Additionally, we may be subject to product liability claims for the improper installation of products and systems designed and manufactured by others.

Product liability claims brought against us may be based in tort or in contract, and typically involve claims seeking compensation for personal injury or property damage. Claims brought by commercial businesses are often made also for financial losses arising from interruption to operations. Depending on the nature and application of many of the products we manufacture, a defect or alleged defect in one of these products could have serious consequences. For example:

- If the products produced by our electricity-related businesses are defective, there is a risk of fire, explosions and power surges, and significant damage to electricity generating, transmission and distribution facilities as well as electrical shock causing injury or death.

- If the products produced by our automation-related businesses are defective, our customers could suffer significant damage to facilities and equipment that rely on these products and systems to properly monitor and control their manufacturing processes. Additionally, people could be exposed to electrical shock and/or other harm causing injury or death.
- If any of our products contain hazardous substances, then there is a risk that such products or substances could cause injury or death.
- If any of our protective products were to fail to function properly, there is a risk that such failure could cause injury or death.

If we were to incur a very large product liability claim, our insurance protection might not be adequate or sufficient to cover such a claim in terms of paying any awards or settlements, and/or paying for our defense costs. Further, some claims may be outside the scope of our insurance coverage. If a litigant were successful against us, a lack or insufficiency of insurance coverage could result in an adverse effect on our business, financial condition, results of operations and liquidity. Additionally, a well-publicized actual or perceived issue relating to us or our products could adversely affect our market reputation, which could result in a decline in demand for our products and reduce the trading price of our shares. Furthermore, if we were required or we otherwise determined to make a product recall, the costs could be significant.

Undertaking long-term, technically complex projects or projects that are dependent upon factors not wholly within our control could adversely affect our profitability and future prospects.

We derive a portion of our revenues from long-term, fixed price and turnkey projects and from other technically complex projects that can take many months, or even years, to complete. Such contracts typically involve substantial risks, including the possibility that we may underbid and consequently have no means of recouping the actual costs incurred, and the assumption of a large portion of the risks associated with completing related projects, including the warranty obligations. Some projects involve technological risks, including in cases where we are required to modify our existing products and systems to satisfy the technical requirements of a project, integrate our products and systems into the existing infrastructure and systems at the installation site, or undertake ancillary activities such as civil works at the installation site. Our revenue, cost and gross profit realized on such contracts can vary, sometimes substantially, from our original projections for numerous reasons, including:

- unanticipated issues with the scope of supply, including modification or integration of supplied products and systems that may require us to incur incremental expenses to remedy such issues,
- the quality and efficacy of our products and services cannot be tested and proven in all situations and environments and may lead to premature failure or unplanned degradation of products,
- changes in the cost of components, materials or labor,
- difficulties in obtaining required governmental permits or approvals,
- delays caused by customers, force majeure or local weather and geological conditions, including the ongoing COVID-19 pandemic and natural disasters,
- shortages of construction equipment,
- changes in law or government policy,
- supply bottlenecks, especially of key components,
- suppliers', subcontractors' or consortium partners' failure to perform or delay in performance,
- diversion of management focus due to responding to unforeseen issues, and

- loss of follow-on work.

These risks are exacerbated if a project is delayed because the circumstances upon which we originally bid and quoted a price may have changed in a manner that increases our costs or other liabilities relating to the project. In addition, we sometimes bear the risk of delays caused by unexpected conditions or events. Our project contracts often subject us to penalties or damages if we cannot complete a project in accordance with the contract schedule. In certain cases, we may be required to pay back to a customer all or a portion of the contract price as well as potential damages (which may significantly exceed the contract price), if we fail to meet contractual obligations.

If we are unable to obtain performance and other guarantees from financial institutions, we may be prevented from bidding on, or obtaining, some contracts, or our costs with respect to such contracts could be higher.

In the normal course of our business and in accordance with industry practice, we provide a number of guarantees including bid bonds, advance payment bonds or guarantees, performance bonds or guarantees and warranty bonds or guarantees, which guarantee our own performance. These guarantees may include guarantees that a project will be completed on time or that a project or particular equipment will achieve other defined performance criteria. If we fail to satisfy any defined criteria, we may be required to make payments in cash or in kind. Performance guarantees frequently are requested in relation to large projects.

Some customers require that performance guarantees be issued by a financial institution. In considering whether to issue a guarantee on our behalf, financial institutions consider our credit ratings. If, in the future, we cannot obtain such a guarantee from a financial institution on commercially reasonable terms or at all, we could be prevented from bidding on, or obtaining, some contracts, or our costs with respect to such contracts could be higher, which would reduce the profitability of the contracts. If we cannot obtain guarantees on commercially reasonable terms or at all from financial institutions in the future, there could be a material impact on our business, financial condition, results of operations or liquidity.

Our hedging activities may not protect us against the consequences of significant fluctuations in exchange rates, interest rates or commodity prices on our earnings and cash flows.

Our policy is to hedge material currency exposures by entering into offsetting transactions with third-party financial institutions. Given the effective horizons of our risk management activities and the anticipatory nature of the exposures intended to be hedged, there can be no assurance that our currency hedging activities will fully offset the adverse financial impact resulting from unfavorable movements in foreign exchange rates. In addition, the timing of the accounting for recognition of gains and losses related to a hedging instrument may not coincide with the timing of gains and losses related to the underlying economic exposures.

As a resource-intensive operation, we are exposed to a variety of market and asset risks, including the effects of changes in commodity prices and interest rates. We monitor and manage these exposures as an integral part of our overall risk management program, which recognizes the unpredictability of markets and seeks to reduce the potentially adverse effects on our business. As part of our effort to manage these exposures, we may enter into commodity price and interest rate hedging arrangements. Nevertheless, changes in commodity prices and interest rates cannot always be predicted or hedged.

If we are unable to successfully manage the risk of changes in exchange rates, interest rates or commodity prices or if our hedging counterparties are unable to perform their obligations under our hedging agreements with them, then changes in these rates and prices could have an adverse effect on our financial condition and results of operations.

Legal and regulatory risks

An inability to protect our intellectual property rights could adversely affect our business.

Our intellectual property rights are fundamental to all of our businesses. We generate, maintain, utilize and enforce a substantial portfolio of trademarks, trade dress, patents and other intellectual property rights globally. Intellectual property protection is subject to applicable laws in various local jurisdictions where interpretations and protections vary or can be unpredictable and costly to enforce. We use our intellectual property rights to protect the

goodwill of our products, promote our product recognition, protect our proprietary technology and development activities, enhance our competitiveness and otherwise support our business goals and objectives. However, there can be no assurance that the steps we take to obtain, maintain and protect our intellectual property rights will be adequate. Our intellectual property rights may fail to provide us with significant competitive advantages, particularly in foreign jurisdictions that do not have, or do not enforce, strong intellectual property rights. The weakening of protection of our trademarks, trade dress, patents and other intellectual property rights could adversely affect our business. We also may engage in legal action to protect our own intellectual property rights, and enforcing our rights may require considerable time, money and oversight, and existing laws in the various countries in which we provide services or solutions may offer only limited protection.

Failure to comply with evolving data privacy and data protection laws and regulations or to otherwise protect personal data, may adversely impact our business and financial results.

We are subject to many rapidly evolving privacy and data protection laws and regulations around the world including the General Data Protection Regulation (GDPR) in Europe as well as the California Data Privacy Act and the California Privacy Rights Act (effective in January 2023) in the United States. This requires us to operate in a complex environment where there are significant constraints on how we can process personal data across our business. The GDPR, which became effective in May 2018, has established stringent data protection requirements for companies doing business in or handling personal data of individuals in the European Union. The GDPR imposes obligations on data controllers and processors including the requirement to maintain a record of their data processing and to implement policies and procedures as part of their mandated privacy governance framework. Breaches of the GDPR could result in substantial fines, which in some cases could be up to four percent of our worldwide revenue. In addition, a breach of the GDPR or other data privacy or data protection laws or regulations could result in regulatory investigations, reputational damage, orders to cease/change our use of data, enforcement notices, as well as potential civil claims including class action type litigation. We have invested, and continue to invest, human and technology resources in our data privacy and data protection compliance efforts. There can be no assurance that any such actions will be sufficient to prevent cybersecurity breaches, disruptions, unauthorized release of sensitive information or corruption of data. Despite such actions, there is a risk that we may be subject to fines and penalties, litigation and reputational harm if we fail to properly process or protect the data or privacy of third parties or comply with the GDPR or other applicable data privacy and data protection regimes.

Examinations by tax authorities and changes in tax regulations could result in lower earnings and cash flows.

We operate in approximately 100 countries and therefore are subject to different tax regulations. Changes in tax laws could result in a higher tax expense and higher tax payments. Furthermore, this could materially impact our tax-related receivables and liabilities as well as deferred income tax assets and liabilities. In addition, the uncertainty of the tax environment in some regions could limit our ability to enforce our rights. As a globally operating organization, we conduct business in countries subject to complex tax rules, which may be interpreted in different ways. Future interpretations or developments of tax regimes may affect our tax liabilities, returns on investments and business operations. We are regularly examined by tax authorities in various jurisdictions. An adverse decision by a tax authority could cause a material adverse effect on our business, financial condition and results of operations.

We are subject to environmental laws and regulations in the countries in which we operate. We incur costs to comply with such regulations, and our ongoing operations may expose us to environmental liabilities.

Our operations are subject to U.S., European and other laws and regulations governing the discharge of materials into the environment or otherwise relating to environmental protection. Our manufacturing facilities use and produce paint residues, solvents, metals, oils and related residues. We use petroleum-based insulation in transformers and chloroparaffins as a flame retardant. We have manufactured and sold, and we are using in some of our factories, certain types of transformers and capacitors containing polychlorinated biphenyls (PCBs). These are considered to be hazardous substances in many jurisdictions in which we operate. We may be subject to substantial liabilities for environmental contamination arising from the use of such substances. All of our manufacturing operations are subject to ongoing compliance costs in respect of environmental matters and the associated capital expenditure requirements.

In addition, we may be subject to significant fines and penalties if we do not comply with environmental laws and regulations, including those referred to above. Some environmental laws provide for joint and several or strict

liability for remediation of releases of hazardous substances, which could result in us incurring a liability for environmental damage without regard to our negligence or fault. Such laws and regulations could expose us to liability arising out of the conduct of operations or conditions caused by others, or for our acts which were in compliance with all applicable laws at the time the acts were performed. Additionally, we may be subject to claims alleging personal injury or property damage as a result of alleged exposure to hazardous substances. Changes in the environmental laws and regulations, or claims for damages to persons, property, natural resources or the environment, could result in substantial costs and liabilities to us.

We could be affected by future laws or regulations enacted to address climate change concerns as well as the physical effects of climate change.

Existing or pending laws and regulations intended to address climate change concerns could materially affect us in the future. We have incurred, and may need to incur additional costs to comply with these laws and regulations and any non-compliance could adversely affect our reputation and result in significant fines. We could also be affected indirectly by increased prices for goods or services provided to us by companies that are directly affected by these laws and regulations and pass their increased costs through to their customers. At this time, we cannot estimate what impact such costs may have on our business, results of operations or financial condition. We could also be affected by the physical consequences of climate change itself, although we cannot estimate what impact those consequences might have on our business or operations. Any such changes could also impact our ability to achieve our 2030 Sustainability targets as well as the related costs and resources necessary to do so.

General risk factors

If we are unable to attract and retain qualified management and personnel then our business may be adversely affected.

Our success depends in part on our continued ability to hire, assimilate and retain highly qualified personnel, particularly our senior management team and key employees. Competition for highly qualified management and technical personnel remains intense in the industries and regions in which we operate. If we are unable to attract and retain members of our senior management team and key employees, including in connection with our ongoing organizational transformation, this could have an adverse effect on our business.

Our business subjects us to considerable potential exposure to litigation and legal claims and could be materially adversely affected if we incur legal liability.

We are subject to, and may become a party to, a variety of litigation or other claims. Our business is subject to the risk of claims involving current and former employees, customers, partners, subcontractors, suppliers, competitors, shareholders, government regulatory agencies or others through private actions, class actions, whistleblower claims, administrative proceedings, regulatory actions or other proceedings. Our acquisition activities have in the past and may in the future be subject to litigation or other claims. While we maintain insurance for certain potential liabilities, such insurance does not cover all types and amounts of potential liabilities and is subject to various exclusions as well as caps on amounts recoverable.

Item 4. Information on the Company

INTRODUCTION

About ABB

ABB is a leading global technology company that energizes the transformation of society and industry to achieve a more productive, sustainable future. By connecting software to its electrification, robotics, automation and motion product portfolio, ABB pushes the boundaries of technology to drive performance to new levels. With a history of excellence stretching back more than 130 years, ABB's success is driven by about 106,000 employees.

Our business is international in scope and we generate revenues in numerous currencies. We operate in over 100 countries across three regions: Europe, the Americas, and Asia, Middle East and Africa. We are headquartered in Zurich, Switzerland.

We manage our company through our four Business Areas: Electrification, Industrial Automation, Motion and Robotics & Discrete Automation. For a breakdown of our consolidated revenues (i) by Business Area, (ii) by geographic region, and (iii) by product type, see "Item 5. Operating and Financial Review and Prospects—Analysis of Results of Operations—Revenues" and "Note 23 - Operating segment and geographic data" to our Consolidated Financial Statements. Until June 30, 2020, we also operated the Power Grids business, which is reported as discontinued operations in the Consolidated Financial Statements (see "Discontinued operations" section below). On July 1, 2020, we completed the divestment of 80.1 percent of the Power Grids business to Hitachi Ltd (Hitachi). We retain a 19.9 percent ownership interest through our investment in Hitachi ABB Power Grids Ltd (Hitachi ABB Power Grids) which beneficially owns or controls all the subsidiaries of the Power Grids business.

Our principal corporate offices are located at Affolternstrasse 44, CH 8050 Zurich, Switzerland, telephone number +41 43 317 7111. Our agent for U.S. federal securities law purposes is ABB Holdings Inc., located at 305 Gregson Drive, Cary, North Carolina 27511. Our internet address is www.abb.com or global.abb. The United States Securities and Exchange Commission (SEC) maintains a website at www.sec.gov which contains in electronic form each of the reports and other information that we have filed electronically with the SEC.

History of the ABB Group

The ABB Group was formed in 1988 through a merger between Asea AB and BBC Brown Boveri AG. Initially founded in 1883, Asea AB was a major participant in the introduction of electricity into Swedish homes and businesses and in the development of Sweden's railway network. In the 1940s and 1950s, Asea AB expanded into the power, mining and steel industries. Brown Boveri and Cie. (later renamed BBC Brown Boveri AG) was formed in Switzerland in 1891 and initially specialized in power generation and turbines. In the early to mid-1900s, it expanded its operations throughout Europe and broadened its business operations to include a wide range of electrical engineering activities.

In January 1988, Asea AB and BBC Brown Boveri AG each contributed almost all of their businesses to the newly formed ABB Asea Brown Boveri Ltd, of which they each owned 50 percent. In 1996, Asea AB was renamed ABB AB and BBC Brown Boveri AG was renamed ABB AG. In February 1999, the ABB Group announced a group reconfiguration designed to establish a single parent holding company and a single class of shares. ABB Ltd was incorporated on March 5, 1999, under the laws of Switzerland. In June 1999, ABB Ltd became the holding company for the entire ABB Group. This was accomplished by having ABB Ltd issue shares to the shareholders of ABB AG and ABB AB, the two companies that formerly owned the ABB Group. The ABB Ltd shares were exchanged for the shares of those two companies, which, as a result of the share exchange and certain related transactions, became wholly-owned subsidiaries of ABB Ltd.

As described above, on July 1, 2020, we divested 80.1 percent of our ownership in the Power Grids business to Hitachi.

ABB Ltd shares are currently listed on the SIX Swiss Exchange, the NASDAQ OMX Stockholm Exchange and the New York Stock Exchange (in the form of American Depositary Shares).

BUSINESSES

Our markets

ABB is a leading global technology company with a comprehensive and increasingly digitalized offering of electrification, motion and automation solutions. ABB's exposure to customers is geographically balanced while catering to multiple end-markets and segments. Through a full business cycle, we estimate that our end-markets combined grow at around two percent per annum. We believe that our portfolio is well positioned to benefit from secular growth drivers, including urbanization, labor shortage, shift to electrification, automation and robotization, as well as other data and digitalization trends.

The majority of our businesses are market leaders within their respective segments with approximately two-thirds of revenues coming from our Divisions where we hold a number one or two position in the relevant market. We believe market leadership is critical, as it provides an opportunity for us to be a cost leader in our markets and to also have the ability to invest more than competitors in research and development to sustain our technological leadership. For a discussion of the geographic distribution of our total revenues, see "Item 5. Operating and Financial Review and Prospects—Analysis of Results of Operations—Revenues."

Industry Market

Approximately half of our customers are industrial customers. We serve production facilities and factories all around the world from process industries such as oil and gas, pulp and paper as well as mining, to discrete industries including automotive, food and beverage and consumer electronics. Automation, software and digital services that help customers achieve improved safety, uptime, energy efficiency and productivity are key to the success of our offerings in this market. The COVID-19 pandemic has served as a prominent reminder for companies of the importance of simplicity and flexibility in automated production and has accelerated customer demand for the digital services and solutions we offer.

Industrial end-markets were materially impacted by the COVID-19 pandemic resulting in lower demand for our products and services worldwide. Global travel restrictions hindered our capability to execute our project and service businesses even while customer acceptance of remote digital services and solutions increased. In process industries, oil and gas customers, faced with a substantial decrease in commodity prices, reduced planned capital expenditures, which impacted our order levels. Other process industries, such as pulp and paper or mining were resilient in 2020.

In discrete industries, end-markets such as food and beverage, and logistics were robust. Conversely, investments in robotics by the automotive industry continued to be challenged by weak customer demand as well as uncertainty around the timing and pace of transition from traditional to electric vehicles.

Transport & Infrastructure Market

Approximately one-third of our customers operate in the transport & infrastructure market. Our expertise provides efficient, reliable and sustainable solutions for these customers, with a focus on energy efficiency and reduced operating costs.

Transport & infrastructure markets were resilient in 2020. Demand in rail for electrification and traction solutions was strong over the year. Data center markets continued to expand with ABB successful in offering bundled solutions to hyperscale and co-location customers in particular. Buildings activity was impacted by COVID-19 lockdowns. In the marine sector, we saw continued strong order demand for our market-leading electric propulsion systems, while the services business particularly suffered after the shutdown of the global cruise industry due to the COVID-19 pandemic.

EV charging markets continued to expand during the period. We received multiple orders from customers for EV charging infrastructure, including for our high-voltage direct-current (DC) fast-charging station, the Terra HP. As of December 31, 2020, we have sold more than 17,000 ABB DC fast-chargers across 80 countries.

Utilities Market

ABB delivers solutions mainly for distribution utilities and renewables customers, while continuing to service conventional power generation customers with our control and automation solutions. Following the divestment of our Power Grids business to Hitachi on July 1, 2020, our exposure to the utilities market has decreased significantly.

During 2020, business levels in the conventional power generation and renewables markets were challenged by global travel restrictions during the COVID-19 pandemic as well as a lower general demand environment, particularly for fossil fuels. Demand from electrical distribution utilities was resilient, with ongoing investments to increase grid reliability and resilience with integrating increased renewables.

We serve industry, transport & infrastructure and utilities through our operating Divisions which are included in our Business Areas. Developments in these Business Areas are discussed in more detail below. Revenue figures presented in this Businesses section are before intersegment eliminations.

Electrification Business Area

Overview

The products of the Electrification Business Area portfolio are designed to enable safe, smart, and sustainable electrification, with a full range of low- and medium-voltage products and solutions, along with pre-engineered packaged services and tailored solutions for intelligent protection and connection.

The Electrification Business Area delivers products through a global network of channel partners and end customers. Most of the Business Area's revenue is derived from distributors and approximately a quarter is derived from direct sales to end-users. The remaining revenues are generated from original equipment manufacturers (OEMs), engineering, procurement, construction (EPC) contracting companies, system integrators, utilities and panel builders. The proportion of direct compared to channel partner sales varies by segment, product technology and geographic markets.

The Electrification Business Area had approximately 50,500 employees on December 31, 2020, and generated \$11.9 billion of revenues in 2020.

Customers

The Electrification Business Area serves a wide range of customer segments, including residential, commercial, and industrial buildings, electric utilities, oil and gas, chemicals, data centers, e-mobility, renewables, food and beverage, and other industries and infrastructure.

Products and Services

The Electrification Business Area's products and services are delivered through five operating Divisions.

The Distribution Solutions Division helps utility, industry and transport & infrastructure customers improve power quality and control, reduce outage time and enhance operational reliability and efficiency. The Division offers products, solutions and services that largely serve the power distribution sector, often providing the requisite medium-voltage link between high-voltage transmission systems and low-voltage users. With ABB Ability™ enabled digital solutions at its core, the offering includes low-voltage switchgear (up to 1 kilovolt) and medium-voltage equipment (1 to 66 kilovolts), indoor and outdoor circuit breakers, reclosers, fuses, contactors, relays, instrument transformers, sensors, motor control centers, as well as a wide range of air- and gas-insulated switchgear. The Division also produces indoor and outdoor modular systems and other segment-specific solutions to facilitate efficient and reliable distribution, protection and control of power, adding value through design, engineering, project management and service. The service offering spans the entire value chain, from the moment a customer makes the first inquiry to disposal and recycling of the product, enriched by advanced digital services for asset management. Throughout the value chain, the Division provides training, technical support and customized contracts.

The Smart Power Division helps protect, control, and connect people, plants, and systems with a portfolio of low-voltage products and systems. The product offering includes electric vehicle charging infrastructure from AC wall boxes to DC fast charging, molded-case and air-circuit breakers, safety products including sensors, switches, contactors, relays, and power protection solutions such as uninterruptible power supply (UPS) solutions, status transfer switches and power distribution units.

The Smart Buildings Division helps optimize efficiency, safety, security, and comfort in homes and other buildings. The Division offers digitally enabled controls for HVAC, lighting, shutters, and security in addition to low-voltage products including conventional wiring accessories, industrial plugs and sockets, emergency lighting, DIN-rail products, and enclosures ideal for single family homes, multiple dwellings, commercial buildings, infrastructure and industrial applications.

The Installation Products Division helps manage the connection, protection and distribution of electrical power. The Division's products are engineered to provide ease of installation and perform in demanding and harsh conditions, helping to ensure safety and continuous operation for our customers and people around the world. The commercial essentials product segment includes electrical junction boxes, commercial fittings, strut and cable tray metal framing systems for commercial and residential construction. The premier industrial product segment includes multiple product lines, such as Ty-Rap®, T&B Liquidtight Systems®, PVC coated and nylon conduit systems, power connection and grounding systems, cable protection systems of conduits and fittings for harsh and industrial applications. The Division also produces cable accessories and apparatus solutions for medium-voltage applications including reclosers, switchgear, capacitor switches, current limiting fuses, faulted current indicators and distribution connectors, with products for overhead and underground distribution.

The Power Conversion Division supplies innovative critical power solutions to infrastructure customers and manufacturers of a wide range of equipment. The Division supports its customers in telecom/5G, networking, data centers, and industrial applications (such as oil and gas, utility, power generation, and robotics) in rapidly changing, disruptive environments where information, access and response times are redefining the markets. The Power Conversion Division also provides customers with reliable and efficient power that supports increasing infrastructure requirement, ensuring that data flows 24/7, while optimizing footprint, energy costs and operations. The Division supports customers by providing the latest industry insights and technology, partnering to co-develop solutions to tackle evolving challenges.

Sales and Marketing

The Electrification Business Area's global markets common sales and marketing organization creates demand across all channels and products, with a range of promotional activities and support services including account, channel, and segment sales management, commercial operations, and digital expertise.

Competition

The Electrification Business Area's principal competitors vary by product group and include Chint, Eaton, Hubbell, Legrand, LS Electric, Panasonic, Rittal, Schneider Electric and Siemens.

Capital Expenditures

The Electrification Business Area's capital expenditures for property, plant and equipment totaled \$276 million in 2020, compared to \$279 million in 2019. Investments in 2020 were primarily related to footprint changes, equipment replacement and upgrades. Geographically, in 2020, Europe represented 48 percent of the capital expenditures, followed by the Americas (41 percent) and Asia, Middle East and Africa (11 percent).

Industrial Automation Business Area

Overview

The Industrial Automation Business Area offers customers in process and maritime industries, a broad range of industry-specific integrated automation, electrification and digital solutions that are designed to optimize the productivity, energy efficiency and safety of industrial processes and operations, based on the Business Area's deep domain knowledge and expertise of each end market. The solutions include turnkey engineering, control technologies, software and lifecycle services, measurement and analytics products, marine and turbocharging offerings, Human Machine Interfaces (HMI) and integrated safety technology. The systems can link various process and information flows allowing customers to manage and control their entire business process based on real-time information. Additionally, the systems and solutions enable customers to increase production efficiency, optimize assets and reduce environmental impact.

The Industrial Automation Business Area's offerings are available as separately sold products or as part of an automation, electrification and/or instrumentation solution. For overall solutions, Industrial Automation integrates products and solutions from the Electrification, Motion and Robotics & Discrete Automation Business Areas. The Business Area's offerings are sold primarily through its direct sales force as well as third-party channels.

The Business Area had approximately 21,500 employees as of December 31, 2020, and generated revenues of \$5.8 billion in 2020.

Customers

The Industrial Automation Business Area's end customers include companies in the oil and gas, minerals and mining, metals, pulp and paper, chemicals, plastics, pharmaceuticals, food and beverage, power generation and maritime industries. These customers are looking for automation, electrification, instrumentation and digitalization offerings that deliver value mainly through lower capital costs, increased plant availability, lower life-cycle costs and lower project risks.

Products and Services

Industrial Automation offers an extensive portfolio of products, solutions, digital applications and services. These offerings can be standalone basic control to integrated collaborative systems for complex or critical processes. Solutions, such as Distributed Control System (DCS) 800Xa, provide a scalable extended automation system for process and production control, safety and production monitoring. Freelance, another solution, is a full-fledged, easy-to-use DCS for small to medium-size applications. Components for basic automation solutions, process and safety controllers, field interfaces, panels, process recorders and HMI are available through our Compact Product Suite offering. The product portfolio is complemented by services such as Automation Sentinel, a subscription-based life cycle management program that provides services to maintain and continually advance and enhance ABB Ability™ control systems (e.g. cyber security patches) and thus allows it to manage a customer's life-cycle costs. The ABB Ability™ Advanced Services offering portfolio provides individual software-based services to continuously improve automation and processes. ABB Ability™ Genix supports industries to unlock value by contextualizing and integrating data from a variety of systems, further utilizing artificial intelligence and analytics to provide deep meaningful actionable insights. In addition, ABB Ability™ Edgenius, a cloud-managed edge platform, makes real time operations data from a large number of systems and devices at the point of production available for visualization, analysis and action.

The Industrial Automation Business Area has five operating Divisions selling their offerings into the energy, process and maritime industries.

The Energy Industries Division serves the energy market with leading automation solutions for oil, gas, chemicals, pharmaceuticals, and all types of power generation. Oil, gas and chemicals solutions cover the entire hydrocarbon value chain, from exploration and production to supply, transport and distribution, as well as refining, chemicals and petrochemicals. The Division brings deep industry domain expertise coupled with the ability to integrate both automation and electrical, resulting in faster start-up times, increased facility productivity and reduced overall capital and operating costs for customers. ABB specializes in mastering the control loop and transforming client operations through actionable insights that optimize performance in real time. From the well head to the refinery, ABB Ability™ solutions aim to connect people with data to optimize performance, improve reliability, enhance efficiency and minimize environmental impact from project start-up throughout the entire plant life cycle. For the power generation market, the offering includes instrumentation, excitation and control systems. Its technologies are designed to help optimize performance, improve reliability, enhance efficiency and minimize environmental impact throughout the plant life cycle. In the pharmaceuticals and fine chemicals areas, the Division offers applications to support manufacturing, packaging, quality control and compliance with regulatory agencies. The Division also serves the water industry, including applications such as pumping stations and desalination plants.

The Process Industries Division serves the mining, minerals processing, metals, aluminum, cement, pulp and paper, and food and beverage, as well as their associated service industries. The Division brings deep industry domain expertise coupled with the ability to integrate both automation and electrical increased productivity and reduced overall capital and operating costs for customers. For mining, metals and cement customers, solutions include specialized products and services, as well as total production systems. The Division designs, plans, engineers, supplies, erects and commissions integrated electric equipment, drives, motors, high power rectifiers and equipment for automation and supervisory control within a variety of areas including mineral handling, mining operations, aluminum smelting, hot and cold steel applications and cement production. The offering for the pulp and paper industries includes control systems, quality control systems, drive systems, on-line sensors, actuators and field instruments. Digitalization solutions, including collaborative operations and augmented reality, help improve plant and enterprise productivity, and reduce maintenance and energy costs.

The Marine & Ports Division serves the marine and ports industry through its leading solutions for specialty vessels, as well as container and bulk cargo handling. For the shipping industry, the Division offers an extensive portfolio of integrated marine systems and solutions that improve the flexibility, reliability and energy efficiency of vessels. By coupling power, automation and marine software, proven fuel-efficient technologies and services that ensure maximum vessel uptime, ABB is well positioned to help improve the profitability of a customer's business throughout the entire life cycle of a fleet. The Division designs, engineers, builds, supplies and commissions automation and electrical systems for marine power generation, power distribution and electric propulsion, as well as turbochargers to improve efficiency. With ABB Ability™ Collaborative Operations Centers around the world and marine software solutions, owners and operators can run their fleets at lower fuel and maintenance cost, while improving crew, passenger, and cargo safety and overall productivity of their operations. In addition, the Division delivers automation and electrical systems for container and bulk cargo handling, from ship to gate. These systems and services help terminal operators meet the challenge of larger ships, taller cranes and bigger volumes per call, and make terminal operations safer, greener and more productive.

The Turbocharging Division manufactures and maintains turbochargers for diesel and gas engines having power levels ranging from 500 kilowatts to over 80 megawatts. The Division provides engine builders and application operators with advanced turbocharging solutions and services for efficient and flexible application operations and in compliance with the most stringent environmental requirements.

The Measurement & Analytics Division portfolio is designed to measure product properties, such as weight, thickness, color, brightness, moisture content and additive content, and includes a full line of instrumentation and analytical products to analyze, measure and record industrial and power processes. Actuators allow the customer to make automatic adjustments during the production process to improve the quality and consistency of the product. Field instruments measure properties of the process, such as flow rate, chemical content and temperature.

Sales and Marketing

The Industrial Automation Business Area's sales are primarily made through its direct sales force as well as third-party channel partners, such as distributors, system integrators and OEMs. The majority of revenues are derived through the Business Area's own direct sales channels.

Competition

The Industrial Automation Business Area's principal competitors vary by industry or product group. Competitors include: Emerson, Honeywell, Schneider Electric, Siemens, Yokogawa, General Electric, Endress + Hauser, Kongsberg, Valmet and Garrett.

Capital Expenditures

The Industrial Automation Business Area's capital expenditures for property, plant and equipment totaled \$56 million in 2020, compared to \$64 million in 2019. Principal investments in 2020 were in Turbocharging and the Measurement & Analytics Divisions. Geographically, in 2020, Europe represented 70 percent of the capital expenditures, followed by Asia, Middle East and Africa (19 percent) and the Americas (11 percent).

Motion Business Area

Overview

The Motion Business Area provides pioneering technology, products, solutions and related services to industrial customers to increase energy efficiency, improve safety and reliability, and maintain precise control over processes. The portfolio includes motors, generators and drives for a wide range of applications in all industrial sectors.

The Motion Business Area had approximately 20,900 employees as of December 31, 2020, and generated around \$6.4 billion of revenues in 2020.

Products and Services

Motion manufactures and sells drives, motors, generators, traction converters and mechanical power transmission products. Building on long-standing experience in electric powertrains, the Business Area combines domain expertise and technology to deliver the optimum solution for a wide range of applications for a comprehensive range of industrial segments. In addition, the Business Area, along with its channel partners, has an industry-leading global service presence.

The Motion Business Area's products and services are delivered through six operating Divisions.

The Motors & Generators Division offers a comprehensive product portfolio of large AC motors and generators, and IEC low-voltage (LV) and NEMA motors. The Division provides a large range of motors, from general purpose, to highly customized designs, large AC synchronous motors and high-voltage induction motors to support high efficiency, reliability and availability across all major industries and applications. The Division offers a full range of energy efficient low-voltage IEC motors, including SynRM (synchronous reluctance) motors to support customers to reduce power bills and cut emissions. The Division also provides IEC LV motor solutions that are designed to improve reliability and productivity in severe applications. Baldor-Reliance® NEMA industrial electric motors offer customers quality, reliability and efficiency. Our investments in technology, tools and processes aim to ensure the broad NEMA offering of general purpose and application-specific solutions perform as expected, every time. The Division designs and builds generators for a wide range of industries, including power generation, marine, oil and gas, mining, and data centers.

The Drive Products Division serves industries, infrastructure and machine builders with state-of-the-art drives and softstarters. With products, global scale and local presence, the Division helps customers to improve energy efficiency, productivity and safety.

The System Drives Division provides global supplies of high-power, high-performance drives, drive systems and packages for industrial process and large infrastructure applications. In addition, the Division offers global support to help customers, partners and equipment manufacturers with asset reliability, performance improvement and energy efficiency in mission critical applications.

The Service Division serves customers worldwide and aims to help customers by maximizing uptime, extending life cycle and enhancing the performance and energy efficiency of their electrical motion solutions. The Division is leading the way in digitalization by securely connecting motors and drives to help customers prevent expensive downtime while also optimizing operations' profitably, safety and reliably.

The Traction Division is a recognized leader in traction technologies that drive innovation in rail and e-mobility. A comprehensive range of high performance propulsion, auxiliary and energy storage solutions help improve energy efficiency and contributes to making transportation more sustainable.

The Mechanical Power Transmission Division offers the Dodge® brand of mounted bearings, enclosed gearing and power transmission components to help customers in robust industries increase the safety, productivity and profitability of their operations. The Division offers customized innovative solutions and advanced technologies that improve output, increase uptime, and enhance system value.

Customers

The Motion Business Area serves a wide range of customers in different industrial segments such as pulp and paper, oil and gas, metals and mining, food and beverage, transportation, power generation, marine and offshore.

Sales and Marketing

Sales are made both through direct sales forces and through channel partners, such as distributors and wholesalers, as well as installers, OEMs and system integrators. The proportion of direct sales to end users compared to channel partner sales varies among the different industries, products and geographic markets.

Competition

The principal competitors of the Motion Business Area include Schneider, Siemens, Toshiba, WEG Industries, SEW EURODRIVE and Danfoss.

Capital Expenditures

Capital expenditures in the Motion Business Area for property, plant and equipment totaled \$93 million in 2020, compared to \$110 million in 2019. Principal investments in 2020 were primarily related to equipment replacement, footprint adjustments and automation upgrades. Geographically, in 2020, Europe represented 45 percent of the capital expenditures, followed by the Americas (40 percent) and Asia, Middle East and Africa (15 percent).

Robotics & Discrete Automation Business Area

Overview

The Robotics & Discrete Automation Business Area provides robotics, and machine and factory automation including products, software, solutions and services. Revenues are generated both from direct sales to end users as well as from indirect sales mainly through system integrators and machine builders.

The Robotics & Discrete Automation Business Area had approximately 10,300 employees as of December 31, 2020 and generated \$2.9 billion of revenues in 2020.

Products and Services

The Robotics & Discrete Automation Business Area's products and services are delivered through two operating Divisions.

The Robotics Division offers a wide range of products, solutions and services such as robots, robotics application cells and smart systems, field services, spare parts, digital services, engineering and operations software. This offering provides productivity, quality, flexibility and simplicity for operations, e.g. to meet the challenge of making smaller lots of a larger number of specific products in shorter cycles for today's dynamic global markets and coping with increasing uncertainty. Robots are also used in activities or environments which may be hazardous to employee health and safety, such as repetitive or strenuous lifting, dusty, hot or cold rooms, or painting booths and can help customers overcome labor shortages. Robotics solutions are used in a wide range of segments from automotive OEMs, automotive suppliers, electronics, general industry, consumer goods, food and beverage, and warehouse/logistics center automation. They are increasingly deployed in service applications for health care, restaurants and retail. Typical robotic applications include welding, material handling, machine tending, machining, painting, picking, packing, palletizing and assembly.

The Machine Automation Division offers integrated automation solutions based on programmable logical controllers, industrial PCs, servo motion, industrial transport systems and machine vision. It also provides software for engineering and optimization. The range of solutions are mainly used by machine builders for various types of series machines, e.g. for plastics, metals, printing and packaging.

Customers

Robotics & Discrete Automation serves a wide range of customers. The main customers are active in industries such as automotive, machine building, metalworking, electronics, food and beverage and logistics. They include end-users such as manufacturers, system integrators and machine builders.

Sales and Marketing

Sales are made both through direct sales forces as well as through third-party channel partners, such as system integrators and machine builders. The proportion of direct sales compared to channel partner sales varies among the different industries, product technologies and geographic markets.

Competition

Competitors of the Robotics & Discrete Automation Business Area vary by offering. They include companies such as Fanuc, Kuka, Yaskawa, Epson, Dürr, Stäubli, Universal Robots, Rockwell Automation, Siemens Digital Factory, Mitsubishi Electric and Beckhoff.

Capital Expenditures

The Robotics & Discrete Automation Business Area's capital expenditures for property, plant and equipment totaled \$64 million in 2020, compared to \$59 million in 2019. Principal investments in 2020 were primarily related to production capacity, upgrades and equipment replacement. Geographically, in 2020, Europe represented 81 percent of the capital expenditures, followed by Asia, Middle East and Africa (16 percent) and the Americas (3 percent).

Corporate and Other

Corporate and Other includes headquarters, central research and development, real estate activities, Corporate Treasury Operations, Global Business Services (GBS), the investment in Hitachi ABB Power Grids and other minor business activities. The remaining activities of certain EPC projects which we are completing and are in a wind-down phase are also reported in Corporate and Other. In addition, the historical business activities of certain divested businesses are presented in Corporate and Other. These include the high-voltage cables business, steel structures and certain EPC contracts relating to the oil and gas industry.

Corporate headquarters and stewardship activities include the operations of our corporate headquarters in Zurich, Switzerland, as well as limited corporate-related activities in some countries. These activities cover staff functions with group-wide responsibilities, such as accounting and financial reporting, corporate finance and corporate treasury, taxes, financial planning and analysis, internal audit, legal and integrity, compliance, risk management and insurance, corporate communications, information systems and investor relations.

GBS operates shared service centers globally through a network of five hubs and consists of both expert and transactional services in the areas of human resources, finance, information services, legal, real estate, procurement and logistics, customer contact centers, global travel services and other ancillary activities. GBS also staffs and maintains front offices in most countries. The costs in GBS are incurred primarily for the benefit of the Business Areas, who are charged for their use of the services.

A significant portion of the costs for GBS and other shared corporate overhead costs are charged to the operating businesses. Up until the divestment of the Power Grids business on July 1, 2020, overhead and other management costs, including GBS costs, which would have been allocated or charged to our Power Grids business, and which were not directly attributable to this business, have not been allocated to the discontinued operation and are included in Corporate and Other as “stranded costs”.

Corporate and Other had approximately 1,600 employees at December 31, 2020.

DISCONTINUED OPERATIONS

In July 2020, we divested 80.1 percent of our Power Grids business to Hitachi Ltd. As a result, the Power Grids business is reported as discontinued operations in the Consolidated Financial Statements for all years presented. See “Note 3 - Discontinued operations” to our Consolidated Financial Statements.

Power Grids business

The former Power Grids business of ABB delivered products, systems, software and service solutions across the power value chain for utility, industry and transport & infrastructure customers.

The Power Grids business operated worldwide with a globally diversified manufacturing, engineering, and research and development footprint. Direct sales accounted for the majority of total revenues generated by the business while external channel partners such as EPCs, wholesalers, distributors and OEMs accounted for the rest.

Products and Services

The Grid Automation operation supplied substation automation products, systems and services. It also provided Supervisory Control and Data Acquisition (SCADA) systems for transmission and distribution networks as well as a range of wireless, fiber optic and powerline carrier-based telecommunication technologies for mission-critical applications and also offered grid-edge and microgrid solutions. Its enterprise software portfolio provided solutions for managing and optimizing assets, operations, logistics, financials and HR, reducing operating costs and improving productivity for customers.

The Grid Integration operation was a leading provider of integration and transmission solutions such as High Voltage Direct Current (HVDC). Another key part of the portfolio was the Flexible Alternating Current Transmission Systems (FACTS) business, which comprises Static Var Compensation (SVC) and static compensator (STATCOM) technologies to address stability and power quality issues. The Grid Integration operation's portfolio also included a range of high-power semiconductors, a core technology for power electronics deployed in HVDC, FACTS and rail applications. The Grid Integration operation also provided transmission and distribution substations and associated lifecycle services. These substations are used in utility and non-utility applications including rail, data centers and various industries. Battery energy storage solutions and shore-to-ship power supply were also part of the customer offering.

The High Voltage products operation was a provider of high voltage switchgear up to 1200 kV AC and 1100 kV DC with a portfolio spanning air-insulated, gas-insulated and hybrid technologies. It also manufactured generator circuit breakers, a key product for integrating large power plants into the grid. The portfolio also included a broad range of capacitors and filters that facilitate power quality, instrument transformers and other substation components.

The Transformers operation supplied transformers that are an integral component found across the power value chain, enabling the reliable, efficient and safe conversion of voltage levels. The product range included dry- and liquid-distribution transformers, traction transformers for rail applications and special application transformers plus related components, for example, insulation kits, bushings and other transformer accessories.

The Power Grids business also had an extensive portfolio of service offerings across the value chain. The portfolio included spare parts, condition monitoring and maintenance services, on- and off-site repairs as well as retrofits and upgrades. Advanced software-based monitoring and advisory services further enhanced the portfolio.

CAPITAL EXPENDITURES

Total capital expenditures for property, plant and equipment and intangible assets (excluding intangibles acquired through business combinations) amounted to \$694 million, \$762 million and \$772 million in 2020, 2019 and 2018, respectively. In 2020 and 2019, capital expenditures were 24 percent and 21 percent lower, respectively, than depreciation and amortization. Excluding acquisition-related amortization, capital expenditures were 6 percent higher in 2020 and 9 percent higher in 2019, respectively, than depreciation and amortization.

Capital expenditures in 2020 remained primarily focused in mature markets, reflecting the geographic distribution of our existing production facilities. Capital expenditures in Europe and North America in 2020 were driven primarily by upgrades and maintenance of existing production facilities, mainly in the U.S., Switzerland, Germany, Italy, Finland, Sweden and Austria. Capital expenditure in the U.S. was primarily driven by GEIS-related footprint changes and product conversions in the Electrification Business Area and upgrades of existing production facilities in the Motion Business Area. Expenditures in Austria included continued investment in the state-of-the-art innovation and training campus, which is planned to become one of our largest research and development centers for new automation technologies. Additionally, we started the construction of an upgraded facility in Switzerland for our Motion Business Area. This investment aims to expand our existing global center of excellence for power electronics and also expand related innovation capabilities. Capital expenditures in emerging markets continued to remain primarily concentrated in China, India and Poland, and focus on increasing existing production capacity. The construction of an advanced, automated and flexible robotics factory in China continued and is expected to be completed in 2021. This factory is designed to combine our connected digital technologies, state-of-the-art collaborative robotics and innovative artificial intelligence research. The share of emerging markets capital expenditures as a percentage of total capital expenditures in 2020 and 2019 was 22 percent and 27 percent, respectively.

At December 31, 2020, construction in progress for property, plant and equipment was \$505 million, mainly in the U.S., Switzerland, Austria, Germany and China while at December 31, 2019, construction in progress for property, plant and equipment was \$500 million, mainly in the U.S., Switzerland, Finland, Germany, Austria and Sweden.

Our capital expenditures relate primarily to property, plant and equipment. For 2021, we estimate the expenditures for property, plant and equipment will be lower than our annual depreciation and amortization charge, excluding acquisition-related amortization.

SUPPLIES AND RAW MATERIALS

We purchase a variety of supplies and products which contain raw materials for use in our production and project execution processes. The primary materials used in our products, by weight, are copper, aluminum, steel, mineral oil and various plastics. We also purchase a wide variety of fabricated products, electronic components and systems. We operate a worldwide supply chain management network with employees dedicated to this function in our Business Areas, Divisions and in key countries. Our supply chain operations consists of a number of teams, each focusing on different product categories. These category teams take advantage of opportunities to leverage the scale of ABB on a global, Business Area and/or Division level, as appropriate, to optimize the efficiency of our supply networks in a sustainable manner.

Our supply chain management organization's activities and objectives include:

- pool and leverage procurement of materials and services,
- provide transparency of ABB's global spending through a comprehensive performance and reporting system linked to our enterprise resource planning (ERP) systems,
- strengthen ABB's supply chain network by implementing an effective product category management structure and extensive competency-based training, and
- monitor and develop our supply base to ensure sustainability, both in terms of materials and processes used.

We buy many categories of products which contain steel, copper, aluminum, crude oil and other commodities. Continuing global economic growth in many emerging economies, coupled with the volatility in foreign currency exchange rates, has led to significant fluctuations in these raw material costs over the last few years. While we expect global commodity prices to remain highly volatile, we expect to offset some market volatility through the use of long-term contracts and global sourcing.

We seek to mitigate the majority of our exposure to commodity price risk by entering into derivative contracts. For example, we manage copper, silver and aluminum price risk using principally swap contracts based on prices for these commodities quoted on leading exchanges. ABB's hedging policy is designed to safeguard margins by minimizing price volatility and providing a stable cost base during order execution. In addition to using derivatives to reduce our exposure to fluctuations in raw materials prices, in some cases we can reduce this risk by incorporating changes in raw materials prices into the prices of our end products (through price escalation clauses).

Overall, during 2020, supply chain management personnel in our businesses, and in the countries in which we operate, along with the category teams, continued to focus on value chain optimization efforts in all areas, while maintaining and improving quality and delivery performance. Each Business Area quickly implemented a COVID-19 task force both in operations and supply chain management. The Business Areas experienced some delays and shortages with suppliers due to the global pandemic, however we responded to these shortages and took mitigating actions such as building up larger buffer stocks, approving new suppliers, changing supplier splits, combined with daily, weekly and monthly task force project follow up. We have been able to operate without significant disruption and support business growth while maintaining delivery schedules to our customers.

In August 2012, the SEC issued its final rules regarding "Conflict Minerals", as required by section 1502 of the Dodd-Frank Wall Street Reform and Consumer Protection Act. We initiated conflict minerals processes in 2013 and have continuously aimed at improving and tailoring the processes to our value chain. We continue to work with our suppliers and customers, to enable us to comply with the rules and disclosure obligations. Further information on ABB's Conflict Minerals policy and supplier requirements can be found under "Material Compliance" at global.abb/group/en/about.supplying.

PATENTS AND TRADEMARKS

While we are not materially dependent on any one of our intellectual properties, as a technology-driven company, we believe that intellectual property rights are crucial to protect the assets of our business. Over the past ten years, we have continued to substantially add new applications to our existing first patent filings, and we intend to continue our aggressive approach to seeking patent protection. As of December 31, 2020, we have approximately 23,900 patent applications and registrations, of which approximately 5,300 are pending applications. These patents include more than 3,100 utility model and design applications and registrations, of which approximately 250 are pending applications. In 2020, we filed more than 1,600 patents, utility model and design applications for more than 600 new inventions. Based on our existing intellectual property strategy, we believe that we have adequate control over our core technologies. The “ABB” trademarks and logo are protected in all of the countries in which we operate. We aggressively defend our intellectual property rights to safeguard the reputation associated with the ABB technology and brand. While these intellectual property rights are fundamental to all of our businesses, there is no dependency of the business on any single patent, utility model or design application.

SUSTAINABILITY ACTIVITIES

Sustainability management is one of our highest business priorities. We seek to address sustainability issues in all our business operations in order to improve our social, health, safety and environmental performance continuously, and to enhance the quality of life in the communities and countries where we operate.

Our social, health, safety and environmental efforts include:

- implementing sustainability objectives covering all relevant parts of our operations,
- joining initiatives that foster economic, environmental, social and educational development, and strengthen observance of human rights in business practice,
- making positive contributions in the communities where we operate so they welcome us and consider ABB a good neighbor, an attractive employer and a good investment,
- offering our customers eco-efficient products that save energy and are safe to use, that optimize the use of natural resources, minimize waste and reduce environmental impact over their complete life cycles,
- applying non-financial risk assessment to key business decision-making processes, and to projects,
- sharing our latest technologies with emerging markets by, for example, helping customers in developing countries implement environmentally sound processes and technologies and providing environmental awareness and safety training to our business partners,
- ensuring that our operations and processes comply with applicable environmental and health and safety standards and social legislation. Specifically, every operating unit must implement an environmental management system that seeks to continuously improve its environmental performance and a health and safety management system that similarly seeks to continuously improve health and safety performance,
- ensuring that our social, health and safety and environmental policies are communicated and implemented,
- working towards achieving best practices in occupational health and safety, and ensuring the health and safety of our employees, contractors and others involved in or affected by our activities,
- ensuring that suppliers have sustainability policies and systems that are comparable with our own, and
- continuing our program to decontaminate sites that were polluted by historical manufacturing processes.

Our eco-efficiency portfolio of products, solutions and services continues to grow. This portfolio delivers positive use-phase impacts in three areas: energy efficiency, renewable energy and resource efficiency. In 2020, ABB set the target to support customers in reducing their annual CO₂ emissions by at least 100 megatonnes by 2030. In responsible operations all reported measures are on track to achieve the 2030 targets.

To manage environmental aspects of our own operations, we have implemented environmental management systems according to the ISO 14001 standard at our manufacturing and service sites. For non-manufacturing sites we have implemented an adapted environmental management system in order to ensure management of environmental aspects and continual improvement of performance. Globally, operations at 293 sites and offices are covered by externally certified environmental management systems.

We have Environmental Product Declarations to communicate the environmental performance of our core products. These describe the significant environmental aspects and impacts of a product line, viewed over its complete life cycle. Declarations are based on Life Cycle Assessment studies, created according to the international standard ISO/TR 14025. Approximately 70 declarations for major product lines are published on our Web site www.abb.com, some of which have been externally certified.

In 2020, approximately 91 percent of our employees were covered by confirmed data gathered through ABB's formal environmental reporting system that is verified by an independent verification body. The operations of companies acquired during 2020 are not yet covered by our environmental reporting. We expect that this reporting will be implemented in 2021. The remaining parts of our business that are not yet covered by our environmental reporting system, mainly sales, have very limited environmental exposure. A total of 5 environmental incidents were reported in 2020, none of which had a material environmental impact.

In 2020, substantially all of our employees were covered by confirmed data gathered through ABB's formal social reporting system that is verified by an independent verification body. The remaining parts of our business that are not yet covered by our social reporting system, mainly sales offices in countries where we do not perform manufacturing, have very limited social exposure.

REGULATION

Our operations are subject to numerous governmental laws and regulations including those governing antitrust and competition, corruption, the environment, securities transactions and disclosures, import and export of products, currency conversions and repatriation, taxation of foreign earnings and earnings of expatriate personnel and use of local employees and suppliers.

As a reporting company under Section 12 of the Exchange Act, we are subject to the FCPA's anti-bribery provisions with respect to our conduct around the world.

Our operations are also subject to the 1997 OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions. The convention obliges signatories to adopt national legislation that makes it a crime to bribe foreign public officials. Those countries which have adopted implementing legislation and have ratified the convention include the U.S., several European nations and certain other countries in which we have significant operations.

We conduct business in certain countries known to experience governmental corruption. While we are committed to conducting business in a legal and ethical manner, our employees or agents have taken, and in the future may take, actions that violate the U.S. FCPA, legislation promulgated pursuant to the 1997 OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions, antitrust laws or other laws or regulations. These actions have resulted and could result in monetary or other penalties against us and could damage our reputation and, therefore, our ability to do business. For more information, see "Item 8. Financial Information—Legal Proceedings".

The U.S. Iran Threat Reduction and Syria Human Rights Act of 2012 requires U.S. listed companies to disclose information relating to certain transactions with Iran. In 2018, certain non-U.S. subsidiaries of ABB, in accordance with applicable laws, provided electrical equipment, automation systems and on-site services to OEMs, distributors, panel builders, EPC contracting companies and other customers for Iranian business. ABB discontinued its Iranian business on November 4, 2018. ABB is completing minor work on a long-term contract which is being performed in line with applicable sanctions. The revenues attributable to these products and services in 2020 amounted to approximately \$2 million.

ORGANIZATIONAL STRUCTURE

ABB Ltd is the ultimate parent company of the ABB Group. It is the sole shareholder of ABB Asea Brown Boveri Ltd which directly or indirectly owns the other companies in the ABB Group. The table below both sets forth, as of December 31, 2020, the name, place of incorporation and ownership interest of the significant direct and indirect subsidiaries of ABB Ltd, Switzerland. In addition, ABB Ltd also owns 19.9 percent of Hitachi ABB Power Grids Ltd. ABB's operational group structure is described above in the "Businesses" section of Item 4.

| Company name/location | Country | ABB interest % |
|---|----------------|---------------------------|
| ABB S.A., Buenos Aires | Argentina | 100.00 |
| ABB Australia Pty Limited, Moorebank, NSW | Australia | 100.00 |
| ABB Group Investment Management Pty. Ltd., Moorebank, NSW | Australia | 100.00 |
| ABB AG, Wiener Neudorf | Austria | 100.00 |
| B&R Holding GmbH, Eggelsberg | Austria | 100.00 |
| B&R Industrial Automation GmbH, Eggelsberg | Austria | 100.00 |
| ABB N.V., Zaventem | Belgium | 100.00 |
| ABB Automacao Ltda., Sorocaba | Brazil | 100.00 |
| ABB Eletricacao Ltda., Sorocaba | Brazil | 100.00 |
| ABB Bulgaria EOOD, Sofia | Bulgaria | 100.00 |
| ABB Electrification Canada ULC, Edmonton, Alberta | Canada | 100.00 |
| ABB Inc., Saint-Laurent, Quebec | Canada | 100.00 |
| ABB S.A., Santiago | Chile | 100.00 |
| ABB (China) Investment Limited, Beijing | China | 100.00 |
| ABB (China) Ltd., Beijing | China | 100.00 |
| ABB Beijing Drive Systems Co. Ltd., Beijing | China | 90.00 |
| ABB Beijing Switchgear Limited, Beijing | China | 60.00 |
| ABB Electrical Machines Ltd., Shanghai | China | 100.00 |
| ABB Engineering (Shanghai) Ltd., Shanghai | China | 100.00 |
| ABB Shanghai Free Trade Zone Industrial Co., Ltd., Shanghai | China | 100.00 |
| ABB Shanghai Motors Co. Ltd., Shanghai | China | 75.00 |

| Company name/location | Country | ABB interest % |
|--|--------------------|---------------------------|
| ABB Xiamen Low Voltage Equipment Co. Ltd., Xiamen | China | 100.00 |
| ABB Xiamen Switchgear Co. Ltd., Xiamen | China | 66.52 |
| ABB Xinhui Low Voltage Switchgear Co. Ltd., Xinhui | China | 90.00 |
| ABB s.r.o., Prague | Czech Republic | 100.00 |
| ABB A/S, Skovlunde | Denmark | 100.00 |
| ABB for Electrical Industries (ABB ARAB) S.A.E., Cairo | Egypt | 100.00 |
| Asea Brown Boveri S.A.E., Cairo | Egypt | 100.00 |
| ABB AS, Jüri | Estonia | 100.00 |
| ABB Oy, Helsinki | Finland | 100.00 |
| ABB France, Cergy Pontoise | France | 99.83 |
| ABB SAS, Cergy Pontoise | France | 100.00 |
| ABB AG, Mannheim | Germany | 100.00 |
| ABB Automation GmbH, Mannheim | Germany | 100.00 |
| ABB Automation Products GmbH, Ladenburg | Germany | 100.00 |
| ABB Beteiligungs- und Verwaltungsges. mbH, Mannheim | Germany | 100.00 |
| ABB Stotz-Kontakt GmbH, Heidelberg | Germany | 100.00 |
| B + R Industrie-Elektronik GmbH, Bad Homburg | Germany | 100.00 |
| Busch-Jaeger Elektro GmbH, Lüdenscheid | Germany | 100.00 |
| ABB Engineering Trading and Service Ltd., Budapest | Hungary | 100.00 |
| Industrial C&S Hungary Kft., Budapest | Hungary | 100.00 |
| ABB Global Industries and Services Private Limited, Bangalore | India | 100.00 |
| ABB India Limited, Bangalore | India | 75.00 |
| ABB S.p.A., Milan | Italy | 100.00 |
| ABB K.K., Tokyo | Japan | 100.00 |
| ABB Ltd., Seoul | Korea, Republic of | 100.00 |
| ABB Electrical Control Systems S. de R.L. de C.V., Monterrey | Mexico | 100.00 |
| ABB Mexico S.A. de C.V., San Luis Potosi SLP | Mexico | 100.00 |
| Asea Brown Boveri S.A. de C.V., San Luis Potosi SLP | Mexico | 100.00 |
| ABB B.V., Rotterdam | Netherlands | 100.00 |
| ABB Finance B.V., Rotterdam | Netherlands | 100.00 |
| ABB Holdings B.V., Rotterdam | Netherlands | 100.00 |
| ABB AS, Fornebu | Norway | 100.00 |
| ABB Electrification Norway AS, Skien | Norway | 100.00 |
| ABB Holding AS, Fornebu | Norway | 100.00 |
| ABB Business Services Sp. z o.o., Warsaw | Poland | 99.93 |
| ABB Industrial Solutions (Bielsko-Biala) Sp. z o.o., Bielsko-Biala | Poland | 99.93 |
| ABB Industrial Solutions (Klodzko) Sp.z o.o., Klodzko | Poland | 99.93 |
| ABB Sp. z o.o., Warsaw | Poland | 99.93 |
| Industrial C&S of P.R. LLC, San Juan | Puerto Rico | 100.00 |

| Company name/location | Country | ABB interest % |
|--|-------------------------|---------------------------|
| ABB Ltd., Moscow | Russian Federation | 100.00 |
| ABB Electrical Industries Co. Ltd., Riyadh | Saudi Arabia | 65.00 |
| ABB Pte. Ltd., Singapore | Singapore | 100.00 |
| ABB Holdings (Pty) Ltd., Modderfontein | South Africa | 100.00 |
| ABB South Africa (Pty) Ltd., Modderfontein | South Africa | 74.91 |
| Asea Brown Boveri S.A., Madrid | Spain | 100.00 |
| ABB AB, Västerås | Sweden | 100.00 |
| ABB Norden Holding AB, Västerås | Sweden | 100.00 |
| ABB Asea Brown Boveri Ltd, Zurich | Switzerland | 100.00 |
| ABB Canada EL Holding GmbH, Zurich | Switzerland | 100.00 |
| ABB Capital AG, Zurich | Switzerland | 100.00 |
| ABB Information Systems Ltd., Zurich | Switzerland | 100.00 |
| ABB Investment Holding 2 GmbH, Zurich | Switzerland | 100.00 |
| ABB Management Services Ltd., Zurich | Switzerland | 100.00 |
| ABB Schweiz AG, Baden | Switzerland | 100.00 |
| ABB Ltd., Taipei | Taiwan (Chinese Taipei) | 100.00 |
| ABB Elektrik Sanayi A.S., Istanbul | Turkey | 99.99 |
| ABB Industries (L.L.C.), Dubai | United Arab Emirates | 49.00 ⁽¹⁾ |
| ABB Holdings Limited, Warrington | United Kingdom | 100.00 |
| ABB Limited, Warrington | United Kingdom | 100.00 |
| ABB Finance (USA) Inc., Wilmington, DE | United States | 100.00 |
| ABB Holdings Inc., Cary, NC | United States | 100.00 |
| ABB Inc., Cary, NC | United States | 100.00 |
| ABB Installation Products Inc, Memphis, TN | United States | 100.00 |
| ABB Installation Products International LLC., Wilmington, DE | United States | 100.00 |
| ABB Motors and Mechanical Inc, Fort Smith, AR | United States | 100.00 |
| ABB Treasury Center (USA), Inc., Wilmington, DE | United States | 100.00 |
| Edison Holding Corporation, Wilmington, DE | United States | 100.00 |
| Industrial Connections & Solutions LLC, Cary, NC | United States | 100.00 |

(1) Company consolidated as ABB exercises full management control.

DESCRIPTION OF PROPERTY

As of December 31, 2020, we occupy real estate in around 100 countries throughout the world. The facilities consist mainly of manufacturing plants, office buildings, research centers and warehouses. A substantial portion of our production and development facilities is situated in the U.S., China, Germany, Finland, Canada, Italy, India, Sweden, Poland and Switzerland. We also own or lease other properties, including office buildings, warehouses, research and development facilities and sales offices in many countries. We own substantially all of the machinery and equipment used in our manufacturing operations.

From time to time, we have a surplus of space arising from acquisitions, production efficiencies and/or restructuring of operations. Normally, we seek to sell such surplus space which may involve leasing property to third parties for an interim period. As a result of the divestment of the Power Grids business to Hitachi Ltd, certain property, plant and equipment previously owned by ABB which related to the Power Grids business, was sold as part of the divestment. In addition, certain property, plant and equipment relating to the Power Grids business continues to be owned by ABB and is leased to Hitachi ABB Power Grids.

The net book value of our property, plant and equipment at December 31, 2020, was \$4,174 million, of which machinery and equipment represented \$1,530 million, land and buildings represented \$2,139 million and construction in progress represented \$505 million. We believe that our current facilities are in good condition and are adequate to meet the requirements of our present and foreseeable future operations.

Item 4A. Unresolved Staff Comments

None

Item 5. Operating and Financial Review and Prospects

The discussion in Item 5 below provides a comparative analysis between 2020 and 2019. See “Item 5. Operating and Financial Review and Prospects” in our Annual Report on Form 20-F for the year ended December 31, 2019, for a comparative discussion and analysis between 2019 and 2018.

MANAGEMENT OVERVIEW

The year 2020 was unprecedented due to the COVID-19 pandemic. ABB prioritized the health and safety of its employees while ensuring business continuity where possible. ABB responded to the challenges, adapting its operations to keep the vast majority running during various levels of government restrictions. This response allowed ABB to stay close to customers and to keep, where possible, to order delivery deadlines, particularly for critical infrastructure applications. Going forward we look to retain some portion of the more beneficial learnings from COVID-19, for example, by enhancing flexible working arrangements and encouraging more virtual meetings with customers.

During 2020, additional steps were taken to sustainably improve ABB’s future operating performance. Some of the key actions include the launch of the ABB Purpose, implementing the operating model the ABB Way, which increases accountability, transparency and speed by transferring operating decisions closer to customers, a review of the business portfolio as well as a review of the digital strategy.

The ABB Purpose

The ABB Purpose was launched mid-year in 2020 and captures what we stand for today and what we aspire to be in the future. We believe that ABB’s technologies and products are well aligned to key market trends and customer needs such as the electrification of transport, automated manufacturing, digital solutions and increased sustainable productivity. The Group is trusted by customers, holding number 1 or number 2 market share positions in most of the segments in which we operate. With our Purpose at the core, ABB strives to create superior value for customers, employees and shareholders. The ABB Purpose is summarized as:

- We succeed by creating superior value.
- We push the boundaries of technology to drive performance to new levels.
- We energize the transformation of society and industry to achieve a more productive, sustainable future.

The ABB Way

Under the ABB Way, we further evolve our decentralized business model in order that the mandate and accountability lie in our Divisions, strengthening performance management, consistently putting stability and profitability before growth, and driving active portfolio management.

The ABB Way comprises of a select number of common processes covering our business model, our people and culture, the ABB brand and our governance framework. It sets the stage for accountability, transparency and speed at ABB.

Closeness to customers and domain expertise sit in the Divisions, hence under the ABB Way the Divisions have been made the highest level at which operating decisions are made, prioritizing stability and profitability before growth. A Division should not focus fully on growth before having achieved a structurally stable business platform and a profitability level contributing to the Group’s targeted financial framework.

Each Division within the four Business Areas of Electrification, Industrial Automation, Motion and Robotics & Discrete Automation, now has full accountability for its results of operations and operating balance sheet. Each Division carries the responsibility for business development and research and development for leading technology to secure a number 1 or 2 market position.

The Divisions are free to collaborate where it adds efficiency, for example by sharing select business services or administrative functions. In line with this accountability, commencing in 2021 there will no longer be any shared services or functions operated centrally at a corporate level requiring cost allocations to the Business Areas. The corporate area will focus on necessary financial, strategic and governance activities, with a reduced headcount of less than 1,300 employees. Over the past two years, simplification efforts have delivered meaningful cost benefits to the Group such that by the end of 2020, we achieved net annual run rate cost savings exceeding \$500 million.

Strong performance management is key in a decentralized business model. In the middle of 2020, a new scorecard system for the Divisions and Business Areas was introduced, based on a standardized set of Key Performance Indicators. The system aids continuous improvement by increasing transparency and accountability. It is accompanied by a mandatory target to make annual productivity improvements of at least 3 percent each year.

Starting in 2021, the Annual Incentive Plans (AIPs) will be aligned to Business Area and Divisional mandates for stability and profitability before growth. For example, AIP targets in a growth Division will have a higher weighting toward the delivery of targeted orders or revenues growth, as well as the mandatory 3 percent productivity improvement.

Business portfolio review

We have further strengthened our portfolio review process to ascertain whether ultimately ABB is the best owner of businesses. Our systematic approach is based on multiple factors within the three evaluation categories: strategic attractiveness, value creation potential and fit within ABB. During 2020, the Group's continuous portfolio review process resulted in a decision to sell the businesses operated by three Divisions: Turbocharging in Industrial Automation, Mechanical Power Transmission in Motion, and Power Conversion in Electrification. Combined, these Divisions generated approximately \$1.6 billion revenues in 2020, or about 6 percent of total revenues. The divestment process will focus on seeking the best value-accretive solution for ABB and those businesses with time being a critical factor.

In addition, ABB's active portfolio management process will drive decisions within the Divisions to improve or exit areas of underperformance, supporting improved performance ambitions. Further, the Group intends to pursue strategic partnerships as well as bolt-on acquisitions, and plans to complete five or more such transactions each year, mainly in our Divisions with growth mandates.

Digital strategy

In line with our Purpose, the Group's digital strategy is focused on creating superior customer value. Our digital offering is comprised of software-enabled products and systems, as well as software and digital services, and is differentiated through our domain expertise. Our deep understanding of customers' needs and operations is based on decades-long history in a sector-focused approach, our large installed base and the global leadership position we have in many sectors.

We intend to accelerate the expansion of our digital offering that is tailored to specific sectors or applications. In line with the ABB Way this will be led by our businesses that have already successfully developed a comprehensive digital offering.

Our digital strategy drives new revenues in software and digital services that generally have a higher gross margin and additionally pull-through some of our traditional offering. Overall, this results in higher quality of revenues for the Group with improved margins and superior returns.

We continue to right-size our investments in technology according to the need of each Division. In 2020, we spent 4.3 percent of our revenues on non-order related research and development. Within our research and development spend, we expect the focus on digitalization will grow. Already, out of approximately 7,000 employees in research and development, more than 60 percent are focused on software and digitalization. Our ambition is to grow revenues derived from software and digital services at a double-digit rate going forward.

Business progress

During 2020, our financial performance was impacted by challenging general market conditions, influenced by the effects of the COVID-19 pandemic. At the same time, we focused on accelerating cost mitigation efforts, which aided profitability and cash flow generation during a tough period. Throughout the COVID-19 pandemic, our top priority has been the health and safety of our people. Substantially all of our production facilities have remained fully or partly operational and operations have been adapted as necessary for the new environment.

Orders and revenues declined in all Business Areas driven by pandemic induced headwinds and the steep drop in the oil price. Demand decreased year-on-year in all regions with the Americas seeing the largest declines, while AMEA was almost flat due to strength in China particularly towards the end of the year. While short-cycle product demand recovered relatively quickly from the sharp downturn seen at the onset of the pandemic, project and service activities continued through the year to be impacted by various travel restrictions implemented by countries around the world. As a result, the Electrification and Motion Business Areas, which are both more product-focused, showed a relatively resilient performance with annual orders in 2020 declining 9 and 3 percent respectively. Portfolio changes adversely affected Electrification by about 3 percent. Industrial Automation and Robotics & Discrete Automation faced greater challenges in end-markets such as oil and gas, conventional power generation, marine and automotive. As a result, annual orders in Robotics & Discrete Automation declined 12 percent, while Industrial Automation, benefiting from a few significant large orders in Marine, declined 4 percent in 2020. Despite the market challenges faced by the Group during 2020, our order backlog increased 7 percent.

Group profitability showed good resilience, reflecting cost reductions in all Business Areas, strong progress in Electrification with the integration of the GEIS business and turnaround of the Installation Products Division, and cost savings achieved through the ABB OS program, particularly corporate costs declining, as well as the elimination of stranded costs. A significant amount of our cost reductions were due to COVID-19 restrictions, especially for discretionary travel and certain marketing costs. The Motion Business Area maintained its track record of solid performance benefitting from a change in product mix as well as cost savings efforts. Conversely, in the Industrial Automation Business Area, the segment profit was negatively impacted by the amount recorded relating to the settlement in South Africa with Eskom in relation to the Kusile power generation project, as well as by an adverse change in product mix due to reduced service revenues. Profitability in the Robotics & Discrete Automation Business Area was impacted by lower volumes and an adverse change in product mix stemming from the continued downturn in its key end-markets such as automotive.

Within the Electrification Business Area, the integration of GEIS progressed well. Since the acquisition in 2018, we aim to deliver approximately \$200 million of cumulative annual cost synergies by 2022, of which approximately 80 percent is anticipated to come from product and technology portfolio harmonization and footprint optimization. To support this transformation, we plan to expend approximately \$410 million for the GEIS business from the acquisition date through 2022 and have, to date, spent approximately \$300 million. By the end of 2020, more than \$140 million of cost synergies have been achieved including the effects from a closure of 18 sites, primarily production plants as well as certain service facilities. Product substitutions were on track with 52 new products introduced to the market in 2020.

Several acquisitions and divestments were completed in 2020, strengthening our portfolio. In March 2020, the Electrification Business Area acquired a majority stake in Shanghai Chargedot New Energy Technology Co., Ltd, a leading Chinese e-mobility solution provider, and acquired Cylon Controls Ltd, enhancing its Smart Buildings portfolio in the commercial buildings segment. In October 2020, the Robotics & Discrete Automation Business Area acquired Codian Robotics B.V., a leading provider of delta robots, which are used primarily for high-precision pick and place applications. Codian Robotics' offering includes a hygienic design line, ideal for hygiene-sensitive industries including food and beverage and pharmaceuticals. Additionally, we completed the previously announced divestment of the solar inverters business to FIMER S.p.A (Italy) in February 2020.

We continued to make organic growth investments in a disciplined manner, prioritizing research and development while reducing administrative costs. Total non-order related research and development was \$1.1 billion in 2020, or 4.3 percent of revenues.

Capital allocation

The Board of Directors is proposing a dividend of 0.80 Swiss francs per share at the 2021 Annual General Meeting (AGM).

Our sustained capital allocation priorities are unchanged:

- funding organic growth, research and development, and capital expenditures at attractive returns,
- paying a rising, sustainable dividend per share over time,
- investing in value-creating acquisitions, and
- returning additional cash to shareholders.

Following the completion of the divestment of our Power Grids business to Hitachi on July 1, 2020, and consistent with our overall capital structure optimization program, we launched a share buyback program on July 23, 2020. As part of our plan to return cash proceeds of \$7.6-7.8 billion from the sale of the Power Grids business we initially intend to buy up to 10 percent of our issued share capital. This initial program is planned to continue until our AGM on March 25, 2021. At the AGM, we intend to request shareholder approval to cancel the shares purchased through this initial program and to announce the next steps.

As part of a capital structure optimization program, we have also been reviewing our outstanding debt and defined benefit pension structures during 2020. As a result, we executed public tenders on two outstanding bonds and redeemed and repaid outstanding amounts on two other debt obligations. During 2020, we reduced our total debt by approximately \$2.9 billion and completed the transfer of certain of the Group's defined benefit pension plan obligations to third parties, which contributed to a reduction in pension underfunding by approximately \$1.1 billion. In connection with these transactions we recorded losses on extinguishment of debt of \$162 million and non-operational pension costs of \$520 million. These transactions are an efficient way to deleverage, significantly reducing the underfunding of our pension liabilities while reducing potential negative future cash flow and income statement impacts, and improve our financial flexibility.

Short-term outlook

Market uncertainty due to COVID-19 increased through the fourth quarter of 2020. The outlook remains muted for segments such as oil and gas, conventional power generation and marine, while raw materials costs are rising. That said, there are signs of positive development in general industry and machine builders' segments, while end-markets including buildings, distribution utilities, data centers, consumer electronics and food and beverage are expected to grow robustly.

Financial framework mirrors ambition for improved performance

During 2020, we have taken resourceful action to sustainably improve the performance of ABB. We look to improve the quality of revenues, investing to expand the Group's exposure to high-growth segments and the distributor channel, as well as to expand our digital offering, while continuing to exit high-risk EPC activities. We have increased accountability, transparency and speed in decision making by transferring responsibilities to our Divisions. This is reflected in the targets within our financial framework, which guides to:

- 3 to 5 percent annual average revenues growth through economic cycle, of which approximately two-thirds is anticipated to come from organic growth, and approximately one-third from acquired growth,
- Operational EBITA margin of 13 to 16 percent,
- Return on Capital Employed (ROCE) of 15 to 20 percent,

- Cash conversion to net income of approximately 100 percent, and
- Basic EPS growth above revenue growth.

APPLICATION OF CRITICAL ACCOUNTING POLICIES

General

We prepare our Consolidated Financial Statements in accordance with U.S. GAAP and present these in U.S. dollars unless otherwise stated.

The preparation of our financial statements requires us to make assumptions and estimates that affect the reported amounts of assets, liabilities, revenues and expenses and the related disclosure of contingent assets and liabilities. We evaluate our estimates on an ongoing basis (see “Note 2 - Significant accounting policies” to our Consolidated Financial Statements for a listing of our most significant accounting estimates). Where appropriate, we base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from our estimates and assumptions.

We deem an accounting policy to be critical if it requires an accounting estimate to be made based on assumptions about matters that are highly uncertain at the time the estimate is made and if different estimates that reasonably could have been used, or if changes in the accounting estimates that are reasonably likely to occur periodically, could materially impact our Consolidated Financial Statements. We also deem an accounting policy to be critical when the application of such policy is essential to our ongoing operations. We believe the following critical accounting policies require us to make subjective judgments, often as a result of the need to make estimates regarding matters that are inherently uncertain and material to our Consolidated Financial Statements. These policies should be considered when reading our Consolidated Financial Statements.

Revenue recognition

A customer contract exists if collectability under the contract is considered probable, the contract has commercial substance, contains payment terms, the rights and commitments of both parties, and has been approved. By analyzing the type, terms and conditions of each contract or arrangement with a customer, we determine which revenue recognition method applies.

We recognize revenues when control of goods or services is transferred to customers in an amount that reflects the consideration we expect to be entitled to in exchange for these goods or services. Control is transferred when the customer has the ability to direct the use and obtain the benefits from the goods or services.

The percentage-of-completion method of accounting involves the use of assumptions and projections, principally relating to future material, labor, subcontractor and project-related overhead costs as well as estimates of the amount of variable consideration to which we expect to be entitled. As a consequence, there is a risk that total contract costs or the amount of variable consideration will, respectively, either exceed or be lower than those we originally estimated (based on all information reasonably available to us) and the margin will decrease or the contract may become unprofitable. This risk increases if the duration of a contract increases because there is a higher probability that the circumstances upon which we originally developed our estimates will change, resulting in increased costs that we may not recover. Factors that could cause costs to increase include:

- unanticipated technical problems with equipment supplied or developed by us which may require us to incur additional costs to remedy,
- changes in the cost of components, materials or labor,

- difficulties in obtaining required governmental permits or approvals,
- project modifications creating unanticipated costs,
- suppliers' or subcontractors' failure to perform, and
- delays caused by unexpected conditions or events.

Changes in our initial assumptions, which we review on a regular basis between balance sheet dates, may result in revisions to estimated costs, current earnings and anticipated earnings. We recognize these changes in the period in which the changes in estimates are determined. By recognizing changes in estimates cumulatively, recorded revenue and costs to date reflect the current estimates of the stage of completion of each project. Additionally, losses on such contracts are recognized in the period when they are identified and are based upon the anticipated excess of contract costs over the related contract revenues.

Pension and other postretirement benefits

As more fully described in "Note 17 - Employee benefits" to our Consolidated Financial Statements, we have a number of defined benefit pension and other postretirement plans and recognize an asset for a plan's overfunded status or a liability for a plan's underfunded status in our Consolidated Balance Sheets. We measure such a plan's assets and obligations that determine its funded status as of the end of the year.

Significant differences between assumptions and actual experience, or significant changes in assumptions, may materially affect the pension obligations. The effects of actual results differing from assumptions and the changing of assumptions are included in net actuarial loss within "Accumulated other comprehensive loss".

We recognize actuarial gains and losses gradually over time. Any cumulative unrecognized actuarial gain or loss that exceeds 10 percent of the greater of the present value of the projected benefit obligation (PBO) and the fair value of plan assets is recognized in earnings over the expected average remaining working lives of the employees participating in the plan, or the expected average remaining lifetime of the inactive plan participants if the plan is comprised of all or almost all inactive participants. Otherwise, the actuarial gain or loss is not recognized in the Consolidated Income Statements.

We use actuarial valuations to determine our pension and postretirement benefit costs and credits. The amounts calculated depend on a variety of key assumptions, including discount rates, mortality rates and expected return on plan assets. Under U.S. GAAP, we are required to consider current market conditions in making these assumptions. In particular, the discount rates are reviewed annually based on changes in long-term, highly-rated corporate bond yields. Decreases in the discount rates result in an increase in the PBO and in pension costs. Conversely, an increase in the discount rates results in a decrease in the PBO and in pension costs. The mortality assumptions are reviewed annually by management. Decreases in mortality rates result in an increase in the PBO and in pension costs. Conversely, an increase in mortality rates results in a decrease in the PBO and in pension costs.

Holding all other assumptions constant, a 0.25 percentage point decrease in the discount rate would have increased the PBO related to our defined benefit pension plans by \$300 million while a 0.25 percentage point increase in the discount rate would have decreased the PBO related to our defined benefit pension plans by \$289 million.

The expected return on plan assets is reviewed regularly and considered for adjustment annually based upon the target asset allocations and represents the long-term return expected to be achieved. Decreases in the expected return on plan assets result in an increase to pension costs. Holding all other assumptions constant, an increase or decrease of 0.25 percentage points in the expected long-term rate of asset return would have decreased or increased, respectively, the net periodic benefit cost in 2020 by \$24 million.

The funded status, which can increase or decrease based on the performance of the financial markets or changes in our assumptions, does not represent a mandatory short-term cash obligation. Instead, the funded status of a defined benefit pension plan is the difference between the PBO and the fair value of the plan assets. At December 31, 2020, our defined benefit pension plans were \$656 million underfunded compared to an underfunding of \$1,751 million at December 31, 2019. Our other postretirement plans were underfunded by \$98 million and \$110 million at December 31, 2020 and 2019, respectively.

We have multiple non-pension postretirement benefit plans. Our health care plans are generally contributory with participants' contributions adjusted annually. For purposes of estimating our health care costs, we have assumed health care cost increases to be 5.9 percent per annum for 2021, gradually declining to 4.9 percent per annum by 2028 and to remain at that level thereafter.

Income taxes

In preparing our Consolidated Financial Statements, we are required to estimate income taxes in each of the jurisdictions in which we operate. Tax expense from continuing operations is reconciled from the weighted-average global tax rate (rather than from the Swiss domestic statutory tax rate). As the parent company of the ABB Group, ABB Ltd, is domiciled in Switzerland, income which has been generated in jurisdictions outside of Switzerland (hereafter "foreign jurisdictions") and has already been subject to corporate income tax in those foreign jurisdictions is, to a large extent, tax exempt in Switzerland. Therefore, generally no or only limited Swiss income tax has to be provided for on the repatriated earnings of foreign subsidiaries. There is no requirement in Switzerland for a parent company of a group to file a tax return of the group determining domestic and foreign pre-tax income and as our consolidated income from continuing operations is predominantly earned outside of Switzerland, corporate income tax in foreign jurisdictions largely determines our global weighted-average tax rate.

We account for deferred taxes by using the asset and liability method. Under this method, we determine deferred tax assets and liabilities based on temporary differences between the financial reporting and the tax bases of assets and liabilities. Deferred tax assets and liabilities are measured using the enacted tax rates and laws that are expected to be in effect when the differences are expected to reverse. We recognize a deferred tax asset when it is more likely than not that the asset will be realized. We regularly review our deferred tax assets for recoverability and establish a valuation allowance based upon historical losses, projected future taxable income and the expected timing of the reversals of existing temporary differences. To the extent we increase or decrease this allowance in a period, we recognize the change in the allowance within "Income tax expense" in the Consolidated Income Statements unless the change relates to discontinued operations, in which case the change is recorded in "Income from discontinued operations, net of tax". Unforeseen changes in tax rates and tax laws, as well as differences in the projected taxable income as compared to the actual taxable income, may affect these estimates.

Certain countries levy withholding taxes, dividend distribution taxes or additional corporate income taxes (hereafter "withholding taxes") on dividend distributions. Such taxes cannot always be fully reclaimed by the shareholder, although they have to be declared and withheld by the subsidiary. Switzerland has concluded double taxation treaties with many countries in which we operate. These treaties either eliminate or reduce such withholding taxes on dividend distributions. It is our policy to distribute retained earnings of subsidiaries, insofar as such earnings are not permanently reinvested or no other reasons exist that would prevent the subsidiary from distributing them. No deferred tax liability is set up, if retained earnings are considered as indefinitely reinvested, and used for financing current operations as well as business growth through working capital and capital expenditure in those countries.

We operate in numerous tax jurisdictions and, as a result, are regularly subject to audit by tax authorities. We provide for tax contingencies whenever it is deemed more likely than not that a tax asset has been impaired or a tax liability has been incurred for events such as tax claims or changes in tax laws. Contingency provisions are recorded based on the technical merits of our filing position, considering the applicable tax laws and OECD guidelines and are based on our evaluations of the facts and circumstances as of the end of each reporting period. Changes in the facts and circumstances could result in a material change to the tax accruals. Although we believe that our tax estimates are reasonable and that appropriate tax reserves have been made, the final determination of tax audits and any related litigation could be different than that which is reflected in our income tax provisions and accruals.

An estimated loss from a tax contingency must be accrued as a charge to income if it is more likely than not that a tax asset has been impaired or a tax liability has been incurred and the amount of the loss can be reasonably estimated. We apply a two-step approach to recognize and measure uncertainty in income taxes. The first step is to evaluate the tax position for recognition by determining if the weight of available evidence indicates that it is more likely than not that the position will be sustained on audit, including resolution of related appeals or litigation processes, if any. The second step is to measure the tax benefit as the largest amount which is more than 50 percent likely of being realized upon ultimate settlement. The required amount of provisions for contingencies of any type may change in the future due to new developments.

Business combinations

The amount of goodwill initially recognized in a business combination is based on the excess of the purchase price of the acquired company over the fair value of the assets acquired and liabilities assumed. The determination of these fair values requires us to make significant estimates and assumptions. For instance, when assumptions with respect to the timing and amount of future revenues and expenses associated with an asset are used to determine its fair value, but the actual timing and amount differ materially, the asset could become impaired. In some cases, particularly for large acquisitions, we may engage independent third-party appraisal firms to assist in determining the fair values.

Critical estimates in valuing certain intangible assets include but are not limited to: future expected cash flows of the acquired business, brand awareness, customer retention, technology obsolescence and discount rates.

In addition, uncertain tax positions and tax-related valuation allowances assumed in connection with a business combination are initially estimated at the acquisition date. We re-evaluate these items quarterly, based upon facts and circumstances that existed at the acquisition date with any adjustments to our preliminary estimates being recorded to goodwill provided that we are within the twelve-month measurement period. Subsequent to the measurement period or our final determination of the tax allowance's or contingency's estimated value, whichever comes first, changes to these uncertain tax positions and tax-related valuation allowances will affect our income tax expense in our Consolidated Income Statements and could have a material impact on our results of operations and financial position. The fair values assigned to the intangible assets acquired are described in "Note 4 - Acquisitions, divestments and equity-accounted companies" as well as "Note 11 - Goodwill and intangible assets", to our Consolidated Financial Statements.

Investments in equity-accounted companies

We account for investments where we have the ability to exercise significant influence, but not control, under the equity method of accounting. Income from equity-accounted companies represents our proportionate share of net income generated by the equity-accounted investees. Differences in the basis of the investments and the separate net asset value of the investees, if any, are amortized into net income over the remaining useful lives of the underlying assets. Similar to the "Business combinations" section above, in determining the fair value of these investments, judgements and assumptions are inherent in our estimates of (i) future revenues, expenses and cash flows, (ii) discount rates, and (iii) the valuation of certain intangible assets, etc. Investments in equity-accounted companies are assessed for impairment whenever changes in the facts and circumstances indicate a loss in value has occurred, if the loss is deemed to be other than temporary. When the loss is deemed to be other than temporary, the carrying value of the equity method investment is written down to fair value. See "Note 4 - Acquisitions, divestments and equity-accounted companies", to our Consolidated Financial Statements for details of our investments in equity-accounted companies.

Goodwill and intangible assets

We review goodwill for impairment annually as of October 1, or more frequently if events or circumstances indicate the carrying value may not be recoverable. We use either a qualitative or quantitative assessment method for each reporting unit.

When performing the qualitative assessment, we first determine, for a reporting unit, factors which would affect the fair value of the reporting unit including: (i) macroeconomic conditions related to the business, (ii) industry and market trends and (iii) the overall future financial performance and future opportunities in the markets in which the business operates. We then consider how these factors would impact the most recent quantitative analysis of the reporting unit's fair value. Key assumptions in determining the fair value of the reporting unit include the projected level of business operations, the reporting unit's weighted-average cost of capital, the income tax rate and the terminal growth rate.

We adopted ABB's new operating model, the ABB Way, on July 1, 2020, which resulted in a change to the composition of reporting units. Previously, the reporting units were the same as the operating segments for Electrification, Motion and Robotics & Discrete Automation, while for the Industrial Automation operating segment the reporting units were determined to be at the Division level, which is one level below the operating segment. The ABB Way provides the Divisions with full ownership and accountability for their respective strategies, performance and resources and as a result we concluded that our reporting units would then be the 18 Divisions. This change resulted only in an allocation of goodwill within the operating segments and thus there was no change to segment level goodwill.

As a result of the new composition of the reporting units and reallocation of goodwill, an interim quantitative impairment test was conducted before and after the change as of July 1, 2020. In the "before" test, it was concluded that the fair value of our reporting units exceeded the carrying value under the historical reporting unit structure.

We then performed the impairment test immediately after the change in reporting units and the fair value of each was determined using a discounted cash flow fair value estimate based on objective information at the measurement date. The significant assumptions used to develop the estimates of fair value for each reporting unit included our best estimates of the expected future results and discount rates specific to the reporting unit. Determining the projected future cash flows required significant judgments and estimates involving variables such as future sales volumes, sales prices, production and other operating costs, capital expenditures, net working capital requirements and other economic factors such as the continued impact of the COVID-19 pandemic. The fair value estimates were based on assumptions that we believed to be reasonable, but which were inherently uncertain and thus, actual results may differ from those estimates. Sensitivity analyses were performed around certain of these assumptions in order to assess the reasonableness of the assumptions and the resulting estimated fair values.

The interim quantitative impairment test indicated that, with the exception of the Machine Automation reporting unit within the Robotics & Discrete Automation operating segment, the estimated fair values of our reporting units were substantially in excess of their carrying value. The contraction of the global economy in 2020, particularly in end-customer industries and considerable uncertainty around the continued pace of macroeconomic recovery generally led to a reduction in the fair values of the reporting units, thus also affecting the Machine Automation reporting unit. At the Division level, this reporting unit does not benefit from shared cash flows generated within an entire operating segment. In addition, the book value of the Machine Automation Division includes a significant amount of intangible assets recognized in past acquisitions, resulting in a proportionately higher book value than the other reporting unit within the Robotics & Discrete Automation Business Area. These factors led to the carrying value of the Machine Automation reporting unit exceeding its fair value. During 2020, a goodwill impairment charge of \$290 million was recorded to reduce the carrying value of this reporting unit to its implied fair value. The remaining goodwill for the Machine Automation reporting unit was \$554 million as of December 31, 2020. Since the carrying value of this reporting unit was reduced to its fair value as of July 1, 2020, any material adverse changes such as market deterioration or changes in the competitive landscape could result in future impairment charges.

At October 1, 2020 and 2019, respectively, we performed qualitative assessments and determined that it was not more likely than not that the fair value for each of these reporting units was below the carrying value. As a result, we concluded that it was not necessary to perform the quantitative impairment test.

Intangible assets are reviewed for recoverability upon the occurrence of certain triggering events (such as a decision to divest a business or projected losses of an entity) or whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. We record impairment charges other than impairments of goodwill in "Other income (expense), net" in our Consolidated Income Statements, unless they relate to a discontinued operation, in which case the charges are recorded in "Income from discontinued operations, net of tax".

NEW ACCOUNTING PRONOUNCEMENTS

For a description of accounting changes and recent accounting pronouncements, including the expected dates of adoption and estimated effects, if any, on our Consolidated Financial Statements, see “Note 2 - Significant accounting policies” to our Consolidated Financial Statements.

RESEARCH AND DEVELOPMENT

Each year, we invest significantly in research and development. Our research and development focuses on developing and commercializing the technologies, products and solutions of our businesses that are of strategic importance to our future growth. In 2020, we invested \$1,127 million, or approximately 4.3 percent of our 2020 consolidated revenues, on research and development activities in our continuing operations. We also had expenditures of \$46 million, or approximately 0.2 percent of our 2020 consolidated revenues, on order-related development activities. These are customer- and project-specific development efforts that we undertake to develop or adapt equipment and systems to the unique needs of our customers in connection with specific orders or projects.

In addition to continuous product development, and order-related engineering work, we develop platforms for technology applications in our businesses in our research and development laboratories, which operate on a global basis, such as our ABB Ability™ platform. Through active management of our investment in research and development, we seek to maintain a balance between short-term and long-term research and development programs and optimize our return on investment. We protect these results by holding patents, copyrights and other appropriate intellectual property protection.

To complement our business-focused product development, our businesses invest together in collaborative research activities covering topics such as artificial intelligence, software, sensors, control and optimization, mechatronics and robotics, power electronics, communication technologies, material and manufacturing, electrodynamics or electrical switching technologies. This results in advancing the state-of-the-art technologies used in our products and in common technology platforms that can be applied in multiple product lines.

Universities are incubators of future technology, and one task of our research and development teams is to transform university research into industry-ready technology platforms. We collaborate with multiple universities and research institutions to build research networks and foster new technologies. We believe these collaborations shorten the amount of time required to turn basic ideas into viable products, and they additionally help us to recruit and train new personnel. We have built numerous university collaborations in several continents, including long-term, strategic relationships with a number of leading institutions in the U.S., the United Kingdom, Sweden, Germany, Switzerland, Poland, India and China.

We are also leveraging our ecosystem to enhance our innovation efforts and gain speed with strategic partners with complementary competencies. In addition, we invest and collaborate with start-ups worldwide via our corporate venture arm ABB Technology Ventures and our start-up collaboration arm SynerLeap.

The result of our investment in research and development is that ABB is widely recognized for its world-class technology. Technology has been deeply embedded in our DNA since our founding and has carried us through our century-long history. It is one of the main reasons why customers and partners turn to us for help on their biggest challenges. Together with them, we continuously push technology frontiers to make things possible that were not possible before. We are committed to stay ahead to help our customers address the world’s energy challenges, transform industries to reach new levels of performance and embed sustainability, all to leave behind a world for future generations that is at least as healthy and prosperous as the one we inherited.

ACQUISITIONS AND DIVESTMENTS

Acquisitions

There were no significant acquisitions in 2020 or 2019.

Divestments

Divestment of Power Grids

On July 1, 2020, ABB completed the divestment of 80.1 percent of its former Power Grids business to Hitachi. As this divestment represented a strategic shift that had a major effect on the Company's operations and financial results, the results of operations for this business are presented as discontinued operations and the assets and liabilities are reflected as held for sale for all periods presented. For more information on the divestment of the Power Grids business see "Note 3 - Discontinued operations" to our Consolidated Financial Statements.

Divestment of solar inverters

In February 2020, ABB completed the sale of its solar inverters business to FIMER S.p.A. (Italy) for no consideration. Under the agreement, which was reached in July 2019, ABB was obligated to transfer \$143 million of cash to the buyer on the closing date. In addition, further payments totaling EUR 132 million (\$145 million at the divestment date) are required to be transferred to the buyer from 2020 through 2025. In connection with this divestment, in 2019, we recorded a loss of \$421 million, representing the excess of the carrying value over the estimated fair value of this business. In 2020, a further \$33 million was recorded for additional changes in fair value occurring prior to the date of sale. Both amounts, in the respective years are reported in "Other income (expense), net". The assets and liabilities of this business are included within assets and liabilities held for sale in our Consolidated Balance Sheet as at December 31, 2019. For more information on assets held for sale, see "Note 4 - Acquisitions, divestments and equity-accounted companies" to our Consolidated Financial Statements.

Other

In 2019, we recorded net gains (including transaction costs) of \$55 million, primarily due to the divestment of two businesses in China.

EXCHANGE RATES

We report our financial results in U.S. dollars. Due to our global operations, a significant amount of our revenues, expenses, assets and liabilities are denominated in other currencies. As a consequence, movements in exchange rates between currencies may affect: (i) our profitability, (ii) the comparability of our results between periods and (iii) the reported carrying value of our assets and liabilities.

We translate non-USD denominated results of operations, assets and liabilities to USD in our Consolidated Financial Statements. Balance sheet items are translated to USD using year-end currency exchange rates. Income statement and cash flow items are translated to USD using the relevant monthly average currency exchange rate.

Increases and decreases in the value of the USD against other currencies will affect the reported results of operations in our Consolidated Income Statements and the value of certain of our assets and liabilities in our Consolidated Balance Sheets, even if our results of operations or the value of those assets and liabilities have not changed in their original currency. As foreign exchange rates impact our reported results of operations and the reported value of our assets and liabilities, changes in foreign exchange rates could significantly affect the comparability of our reported results of operations between periods and result in significant changes to the reported value of our assets, liabilities and stockholders' equity.

While we operate globally and report our financial results in USD, exchange rate movements between the USD and the EUR, the CNY and the CHF are of particular importance to us due to (i) the location of our significant operations and (ii) our corporate headquarters being in Switzerland.

The exchange rates between the USD and the EUR, the USD and the CHF and the USD and the CNY at December 31, 2020, 2019 and 2018, were as follows:

| Exchange rates into \$ | 2020 | 2019 | 2018 |
|------------------------|------|------|------|
| EUR 1.00 | 1.23 | 1.12 | 1.15 |
| CHF 1.00 | 1.14 | 1.03 | 1.02 |
| CNY 1.00 | 0.15 | 0.14 | 0.15 |

The average exchange rates between the USD and the EUR, the USD and the CHF and the USD and the CNY for the years ended December 31, 2020, 2019 and 2018, were as follows:

| Exchange rates into \$ | 2020 | 2019 | 2018 |
|------------------------|------|------|------|
| EUR 1.00 | 1.14 | 1.12 | 1.18 |
| CHF 1.00 | 1.07 | 1.01 | 1.02 |
| CNY 1.00 | 0.14 | 0.14 | 0.15 |

When we incur expenses that are not denominated in the same currency as the related revenues, foreign exchange rate fluctuations could affect our profitability. To mitigate the impact of exchange rate movements on our profitability, it is our policy to enter into forward foreign exchange contracts to manage the foreign exchange transaction risk of our operations.

In 2020, approximately 76 percent of our consolidated revenues were reported in currencies other than the USD. The following percentages of consolidated revenues were reported in the following currencies:

- Euro, approximately 23 percent, and
- Chinese renminbi, approximately 15 percent.

In 2020, approximately 74 percent of our cost of sales and selling, general and administrative expenses were reported in currencies other than the USD. The following percentages of consolidated cost of sales and selling, general and administrative expenses were reported in the following currencies:

- Euro, approximately 22 percent, and
- Chinese renminbi, approximately 13 percent.

We also incur expenses other than cost of sales and selling, general and administrative expenses in various currencies.

The results of operations and financial position of our subsidiaries outside of the U.S. are generally accounted for in the currencies of the countries in which those subsidiaries are located. We refer to these currencies as “local currencies”. Local currency financial information is then translated into USD at applicable exchange rates for inclusion in our Consolidated Financial Statements.

The discussion of our results of operations below provides certain information with respect to orders, revenues, income from operations and other measures as reported in USD (as well as in local currencies). We measure period-to-period variations in local currency results by using a constant foreign exchange rate for all periods under comparison. Differences in our results of operations in local currencies as compared to our results of operations in USD are caused exclusively by changes in currency exchange rates.

While we consider our results of operations as measured in local currencies to be a significant indicator of business performance, local currency information should not be relied upon to the exclusion of U.S. GAAP financial measures. Instead, local currencies reflect an additional measure of comparability and provide a means of viewing aspects of our operations that, when viewed together with the U.S. GAAP results, provide a more complete understanding of factors and trends affecting the business. As local currency information is not standardized, it may not be possible to compare our local currency information to other companies' financial measures that have the same or a similar title. We encourage investors to review our financial statements and publicly filed reports in their entirety and not to rely on any single financial measure.

ORDERS

Our policy is to book and report an order when a binding contractual agreement has been concluded with a customer covering, at a minimum, the price and scope of products or services to be supplied, the delivery schedule and the payment terms. The reported value of an order corresponds to the undiscounted value of revenues that we expect to recognize following delivery of the goods or services subject to the order, less any trade discounts and excluding any value added or sales tax. The value of orders received during a given period of time represents the sum of the value of all orders received during the period, adjusted to reflect the aggregate value of any changes to the value of orders received during the period and orders existing at the beginning of the period. These adjustments, which may in the aggregate increase or decrease the orders reported during the period, may include changes in the estimated order price up to the date of contractual performance, changes in the scope of products or services ordered and cancellations of orders. The undiscounted value of future revenues we expect to generate from our orders at any point in time is represented by our order backlog.

The level of orders fluctuates from year to year. Portions of our business involve orders for long-term projects that can take months or years to complete and many larger orders result in revenues in periods after the order is booked. Consequently, the level of orders generally cannot be used to accurately predict future revenues or operating performance. Orders that have been placed can often be cancelled, delayed or modified by the customer. These actions can reduce or delay any future revenues from the order or may result in the elimination of the order.

PERFORMANCE MEASURES

We evaluate the performance of our operating segments based on orders received, revenues and Operational EBITA.

Operational EBITA represents income from operations excluding:

- amortization expense on intangibles arising upon acquisitions (acquisition-related amortization),
- restructuring, related and implementation costs,
- changes in the amount recorded for obligations related to divested businesses occurring after the divestment date (changes in obligations related to divested businesses),
- changes in estimates relating to opening balance sheets of acquired businesses (changes in pre-acquisition estimates),
- gains and losses from sale of businesses (including fair value adjustment on assets and liabilities held for sale),
- acquisition- and divestment-related expenses and integration costs,
- other income/expense relating to the Power Grids joint venture,

- certain other non-operational items, as well as
- foreign exchange/commodity timing differences in income from operations consisting of: (a) unrealized gains and losses on derivatives (foreign exchange, commodities, embedded derivatives), (b) realized gains and losses on derivatives where the underlying hedged transaction has not yet been realized, and (c) unrealized foreign exchange movements on receivables/payables (and related assets/liabilities).

Certain other non-operational items generally includes: certain regulatory, compliance and legal costs, certain asset write downs/impairments (including impairment of goodwill) and certain other fair value changes, as well as other items which are determined by management on a case-by-case basis.

See “Note 23 - Operating segment and geographic data” to our Consolidated Financial Statements for a reconciliation of the total Operational EBITA to income from continuing operations before taxes.

ANALYSIS OF RESULTS OF OPERATIONS

Our consolidated results from operations were as follows:

INCOME STATEMENT DATA:

(\$ in millions, except per share data in \$)

| | 2020 | 2019 | 2018 |
|--|--------------|--------------|--------------|
| Revenues | 26,134 | 27,978 | 27,662 |
| Cost of sales | (18,256) | (19,072) | (19,118) |
| Gross profit | 7,878 | 8,906 | 8,544 |
| Selling, general and administrative expenses | (4,895) | (5,447) | (5,295) |
| Non-order related research and development expenses | (1,127) | (1,198) | (1,147) |
| Impairment of goodwill | (311) | — | — |
| Other income (expense), net | 48 | (323) | 124 |
| Income from operations | 1,593 | 1,938 | 2,226 |
| Interest and dividend income | 51 | 67 | 72 |
| Interest and other finance expense | (240) | (215) | (262) |
| Losses from extinguishment of debt | (162) | — | — |
| Non-operational pension (cost) credit | (401) | 72 | 83 |
| Income tax expense | (496) | (772) | (544) |
| Income from continuing operations, net of tax | 345 | 1,090 | 1,575 |
| Income from discontinued operations, net of tax | 4,860 | 438 | 723 |
| Net income | 5,205 | 1,528 | 2,298 |
| Net income attributable to noncontrolling interests | (59) | (89) | (125) |
| Net income attributable to ABB | 5,146 | 1,439 | 2,173 |

Amounts attributable to ABB shareholders:

| | | | |
|---|-------|-------|-------|
| Income from continuing operations, net of tax | 294 | 1,043 | 1,514 |
| Income from discontinued operations, net of tax | 4,852 | 396 | 659 |
| Net income | 5,146 | 1,439 | 2,173 |

Basic earnings per share attributable to ABB shareholders:

| | | | |
|---|------|------|------|
| Income from continuing operations, net of tax | 0.14 | 0.49 | 0.71 |
| Income from discontinued operations, net of tax | 2.30 | 0.19 | 0.31 |
| Net income | 2.44 | 0.67 | 1.02 |

Diluted earnings per share attributable to ABB shareholders:

| | | | |
|---|------|------|------|
| Income from continuing operations, net of tax | 0.14 | 0.49 | 0.71 |
| Income from discontinued operations, net of tax | 2.29 | 0.19 | 0.31 |
| Net income | 2.43 | 0.67 | 1.02 |

A more detailed discussion of the orders, revenues, income from operations and Operational EBITA for our Business Areas follows in the sections of “Business analysis” below for Electrification, Industrial Automation, Motion, Robotics & Discrete Automation and Corporate and Other. Orders and revenues of our businesses include intersegment transactions which are eliminated in the “Corporate and Other” line in the tables below.

Orders

| (\$ in millions) | 2020 | 2019 | 2018 | % Change | |
|-------------------------------------|---------------|---------------|---------------|-------------|-----------|
| | | | | 2020 | 2019 |
| Electrification | 11,884 | 13,050 | 11,867 | (9)% | 10% |
| Industrial Automation | 6,144 | 6,432 | 6,697 | (4)% | (4)% |
| Motion | 6,574 | 6,782 | 6,725 | (3)% | 1% |
| Robotics & Discrete Automation | 2,868 | 3,260 | 3,808 | (12)% | (14)% |
| Total Business Areas | 27,470 | 29,524 | 29,097 | (7)% | 1% |
| Corporate and Other | | | | | |
| Non-core and divested businesses | (31) | (91) | 364 | n.a. | n.a. |
| Intersegment eliminations and other | (927) | (845) | (871) | n.a. | n.a. |
| Total | 26,512 | 28,588 | 28,590 | (7)% | 0% |

In 2020, total orders decreased 7 percent compared to 2019 (7 percent in local currencies). Total orders reflect the decline across all Business Areas as the COVID-19 pandemic affected most of our businesses across all regions. Measures taken by governments worldwide to contain the virus severely restrained investments, travel and consumption. The decrease was most significant in the Robotics & Discrete Automation Business Area, recording a significant decrease in orders due to COVID-19 disruptions and strong headwinds in discrete markets. The order decrease in the Electrification, Industrial Automation and Motion Business Areas was moderate. The decline in orders was most significant in the second quarter of the year, with variable recovery levels during the second half of 2020. In particular, in the Asia, Middle East and Africa region, order levels showed signs of a full recovery by the end of 2020 in most businesses. For additional information about individual Business Area order performance, refer to the relevant sections of “Business analysis” below.

We determine the geographic distribution of our orders based on the location of the ultimate destination of the products’ end use, if known, or the location of the customer. The geographic distribution of our consolidated orders was as follows:

| (\$ in millions) | 2020 | 2019 | 2018 | % Change | |
|--------------------------------|---------------|---------------|---------------|--------------|-------------|
| | | | | 2020 | 2019 |
| Europe | 9,618 | 10,509 | 10,725 | (8)% | (2)% |
| The Americas | 7,956 | 9,057 | 8,243 | (12)% | 10% |
| <i>of which: United States</i> | <i>5,971</i> | <i>6,804</i> | <i>6,135</i> | <i>(12)%</i> | <i>11%</i> |
| Asia, Middle East and Africa | 8,938 | 9,022 | 9,622 | (1)% | (6)% |
| <i>of which: China</i> | <i>4,121</i> | <i>4,118</i> | <i>4,201</i> | <i>0%</i> | <i>(2)%</i> |
| Total | 26,512 | 28,588 | 28,590 | (7)% | 0% |

In 2020, orders declined in all regions, reflecting the global impact of the COVID-19 pandemic. In the Americas orders declined 12 percent (11 percent in local currencies) and declined in all Business Areas. Orders declined in the U.S., Canada, Brazil, Mexico, Argentina and Peru, while they remained flat in Chile, driven by large orders in the Industrial Automation Business Area. In Europe, orders decreased 8 percent (9 percent in local currencies) with all Business Areas reporting order declines. Orders decreased in Germany, Switzerland, Italy, Finland and Norway while they increased in most Business Areas in Sweden, reflecting lighter local COVID-19 restrictions. In Asia, Middle East and Africa orders declined 1 percent (1 percent in local currencies) and were lower in the Robotics & Discrete Automation and Electrification Business Areas, while in the Industrial Automation and Motion Business Areas orders increased, driven by the growth in China. Total orders decreased in India, Singapore and Japan while they increased in South Korea and Australia driven by large orders in the Motion and Industrial Automation Business Areas. Orders from China remained flat.

Order backlog

| (\$ in millions) | December 31, | | | % Change | |
|----------------------------------|---------------|---------------|---------------|-----------|-----------|
| | 2020 | 2019 | 2018 | 2020 | 2019 |
| Electrification | 4,358 | 4,488 | 4,113 | (3)% | 9% |
| Industrial Automation | 5,805 | 5,077 | 4,986 | 14% | 2% |
| Motion | 3,320 | 2,967 | 2,740 | 12% | 8% |
| Robotics & Discrete Automation | 1,403 | 1,356 | 1,438 | 3% | (6)% |
| Total Business Areas | 14,886 | 13,888 | 13,277 | 7% | 5% |
| Corporate and Other | | | | | |
| Non-core and divested businesses | 139 | 192 | 555 | (28)% | (65)% |
| Intersegment eliminations | (722) | (756) | (748) | n.a. | n.a. |
| Total | 14,303 | 13,324 | 13,084 | 7% | 2% |

At December 31, 2020, consolidated order backlog was 7 percent higher (3 percent in local currencies) compared to December 31, 2019. Order backlog increased significantly in the Industrial Automation and Motion Business Areas, increased moderately in Robotics & Discrete Automation Business Area, while it decreased slightly in the Electrification Business Area. The increase in the Motion Business Area was driven by strong order growth in long-cycle businesses. Order backlog also increased in the Industrial Automation Business Area due to orders relating to specialty marine vessels. The order backlog in the Robotics & Discrete Automation Business Area increased slightly, benefiting from order intake in the 3C and automotive and automotive-related sectors.

Revenues

| (\$ in millions) | | | | % Change | |
|-------------------------------------|---------------|---------------|---------------|-------------|-----------|
| | 2020 | 2019 | 2018 | 2020 | 2019 |
| Electrification | 11,924 | 12,728 | 11,686 | (6)% | 9% |
| Industrial Automation | 5,792 | 6,273 | 6,500 | (8)% | (3)% |
| Motion | 6,409 | 6,533 | 6,463 | (2)% | 1% |
| Robotics & Discrete Automation | 2,907 | 3,314 | 3,611 | (12)% | (8)% |
| Total Business Areas | 27,032 | 28,848 | 28,260 | (6)% | 2% |
| Corporate and Other | | | | | |
| Non-core and divested businesses | (6) | 37 | 273 | n.a. | (86)% |
| Intersegment eliminations and other | (892) | (907) | (871) | n.a. | n.a. |
| Total | 26,134 | 27,978 | 27,662 | (7)% | 1% |

In 2020, revenues decreased 7 percent (6 percent in local currencies). Revenues decreased across all Business Areas with the impacts of the COVID-19 pandemic resulting in a reduction in business activity and a substantial drop in book-and-bill activities. Despite these challenges, revenues in the Electrification and Motion Business Areas reflected good execution of the order backlog as well as resilience in the short-cycle businesses, particularly in the second half of the year. For additional analysis of revenues for each of the Business Areas, refer to the relevant sections of Business analysis below.

We determine the geographic distribution of our revenues based on the location of the ultimate destination of the products' end use, if known, or the location of the customer. The geographic distribution of our consolidated revenues was as follows:

| (\$ in millions) | 2020 | 2019 | 2018 | % Change | |
|--------------------------------|---------------|---------------|---------------|-------------|-----------|
| | | | | 2020 | 2019 |
| Europe | 9,764 | 10,097 | 10,129 | (3)% | 0% |
| The Americas | 7,949 | 8,955 | 8,042 | (11)% | 11% |
| <i>of which: United States</i> | 6,027 | 6,753 | 6,005 | (11)% | 12% |
| Asia, Middle East and Africa | 8,421 | 8,926 | 9,491 | (6)% | (6)% |
| <i>of which: China</i> | 4,098 | 4,047 | 4,910 | 1% | (18)% |
| Total | 26,134 | 27,978 | 27,662 | (7)% | 1% |

In 2020, revenues decreased across all regions, reflecting the impact of the COVID-19 pandemic. In the Americas revenues decreased 11 percent (9 percent in local currencies) and were lower across all Business Areas. Revenues declined in the U.S., Canada, Brazil, Mexico, Argentina, Chile and Peru. In Europe revenues decreased 3 percent (4 percent in local currencies), partly due to the sale of the solar inverters business in 2020. In Europe, revenues decreased across all Business Areas except in the Motion Business Area, reflecting lower sales volumes in Germany, Switzerland, Italy, Norway and the United Kingdom while revenues grew in Sweden and Finland with robust execution of orders, especially in short-cycle businesses and due to lighter COVID-19 restrictions in Sweden. In Asia, Middle East and Africa revenues decreased 6 percent (5 percent in local currencies) and decreased across all Business Areas except the Motion Business Area which remained flat. Revenues decreased in Saudi Arabia, India, Australia, South Korea and Singapore while they increased in China and in Japan due to a strong execution of the order backlog and generally lower lockdown restrictions over the year, benefiting the Robotics & Discrete Automation Business Area.

Cost of sales

Cost of sales consists primarily of labor, raw materials and component costs but also includes indirect production costs, expenses for warranties, contract and project charges, as well as order-related development expenses incurred in connection with projects for which corresponding revenues have been recognized.

In 2020, cost of sales decreased 4 percent (4 percent in local currencies) to \$18,256 million and cost of sales as a percentage of revenues increased from 68.2 percent to 69.9 percent in 2020, a reduction in the gross margin percentage of 1.7 percent, partially due to the impact on sales volumes of the COVID-19 pandemic. The decrease in gross margin percentage also reflects additional losses for projects in non-core businesses and warranty charges relating to a divested business. In the Business Areas, the gross margin percentage was steady in the Electrification Business Area, benefiting from favorable changes in commodity prices in 2020. Gross margin percentages in the Robotics & Discrete Automation Business Area and the Industrial Automation Business Area were lower in 2020 compared to 2019, while in the Motion Business Area they were steady. For ABB, the gross margin did benefit partially from the results of savings from supply chain, operational excellence and the results of OS initiatives.

Selling, general and administrative expenses

The components of selling, general and administrative expenses were as follows:

| (\$ in millions) | 2020 | 2019 | 2018 |
|-------------------------------------|--------------|--------------|--------------|
| Selling expenses | 3,087 | 3,383 | 3,228 |
| General and administrative expenses | 1,808 | 2,064 | 2,067 |
| Total | 4,895 | 5,447 | 5,295 |

In 2020, general and administrative expenses decreased by 12 percent compared to 2019 (12 percent in local currencies). As a percentage of revenues, general and administrative expenses decreased to 6.9% from 7.4% in 2019. General and administrative expenses were impacted by \$152 million of restructuring and implementation expenses for the OS program and administrative expenses from the integration of the acquired GEIS business compared to \$240 million in 2019. General and administrative expenses in 2020 did benefit from a \$185 million reduction of stranded corporate costs compared to 2019 but continues to include those ongoing costs required to deliver services to Hitachi ABB Power Grids under transition service agreements, for which we are compensated and recorded \$91 million in Other income and expense, net, during 2020. Stranded costs were overhead and other management costs which could previously be allocated to the Power Grids business and were lower in 2020 as a large portion of the central costs supporting that business were transferred directly to the business. We had a decrease of general corporate function costs, including the impact of a significant reduction in travel expenses.

In 2020, selling expenses decreased 9 percent compared to 2019 (9 percent in local currencies) mainly driven by significantly reduced sales activities and related travel expenses as virtual sales meetings have been introduced to substitute face-to-face customer visits, due to the COVID-19 pandemic. This resulted in lower selling expenses across all Business Areas. These factors resulted in decreasing selling expenses as a percentage of orders received from 11.8 percent to 11.6 percent.

Non-order related research and development expenses

In 2020, non-order related research and development expenses decreased 6 percent (7 percent in local currencies) compared to 2019. Non-order related research and development expenses decreased mainly as a result of a reduction in the number of research and development employees, due to both restructuring efforts and transfer of employees to Hitachi ABB Power Grids.

In 2020, non-order related research and development expenses as a percentage of revenues remained unchanged at 4.3 percent compared to the previous year.

Impairment of goodwill

In 2020, as a result of the new composition of the reporting units and reallocation of goodwill, we recorded an impairment charge of \$311 million, the majority of which related to our Machine Automation Division within the Robotics & Discrete Automation Business Area. See “Note 11 - Goodwill and intangible assets” to our Consolidated Financial Statements.

Other income (expense), net

| (\$ in millions) | 2020 | 2019 | 2018 |
|---|-----------|--------------|------------|
| Income (loss) from equity-accounted companies | (66) | 8 | 6 |
| Income from provision of services under transition services agreement | 91 | — | — |
| Brand income from Hitachi ABB Power Grids | 60 | — | — |
| Net gain from sale of property, plant and equipment | 37 | 51 | 57 |
| Gain (loss) from change in fair value of investments in equity securities | 71 | (5) | (6) |
| Favorable resolution of an uncertain purchase price adjustment | 36 | 92 | — |
| Net gain (loss) from sale of businesses | (2) | 55 | 57 |
| Gain on liquidation of foreign subsidiary | — | — | 31 |
| Restructuring and restructuring-related expenses ⁽¹⁾ | (87) | (69) | (37) |
| Fair value adjustment on assets and liabilities held for sale | (33) | (421) | — |
| Asset impairments | (35) | (56) | (30) |
| Other income (expense) | (24) | 22 | 46 |
| Total | 48 | (323) | 124 |

(1) Excluding asset impairments

In 2020, Other income (expense), net, was a gain of \$48 million while it was a loss of \$323 million in 2019. In 2020, the amount includes the brand income from Hitachi ABB Power Grids and an income of \$91 million related to services provided to Hitachi ABB Power Grids as part of transitional service agreements. The amount also includes fair value adjustments of investments in our ABB Technology Ventures portfolio of \$73 million. Partially offsetting this were costs for restructuring and restructuring-related expenses, asset impairments and net losses of \$66 million from equity-accounted companies. The net loss from equity-accounted companies primarily reflects the loss from the Hitachi ABB Power Grids joint venture (see “Note 4 - Acquisitions, divestments and equity-accounted companies” to our Consolidated Financial Statements for additional information).

Other income (expense), net in 2019 included a loss of \$421 million for the fair value adjustment to the net assets of the solar inverters business. This was partially offset by a gain of \$92 million resulting from a favorable resolution of an uncertain purchase price adjustment related to the acquisition of GEIS.

Income from operations

| (\$ in millions) | 2020 | 2019 | 2018 | % Change | |
|--------------------------------|--------------|--------------|--------------|--------------|--------------|
| | | | | 2020 | 2019 |
| Electrification | 1,335 | 1,049 | 1,290 | 27% | (19)% |
| Industrial Automation | 344 | 700 | 853 | (51)% | (18)% |
| Motion | 989 | 1,009 | 924 | (2)% | 9% |
| Robotics & Discrete Automation | (163) | 298 | 456 | n.a. | (35)% |
| Total Business Areas | 2,505 | 3,056 | 3,523 | (18)% | (13)% |
| Corporate and Other | (927) | (1,113) | (1,302) | n.a. | n.a. |
| Intersegment elimination | 15 | (5) | 5 | n.a. | n.a. |
| Total | 1,593 | 1,938 | 2,226 | (18)% | (13)% |

In 2020 and 2019, changes in income from operations were a result of the factors discussed above and in “Business analysis” below.

Financial income and expenses

Financial income and expenses include “Interest and dividend income”, “Interest and other finance expense” and “Losses from extinguishment of debt”.

“Interest and other finance expense” includes interest expense on our debt, the amortization of upfront transaction costs associated with long-term debt and committed credit facilities, commitment fees on credit facilities, foreign exchange gains and losses on financial items and gains and losses on marketable securities. In addition, interest accrued relating to uncertain tax positions is included within interest expense. “Interest and other finance expense” excludes interest expense which has been allocated to discontinued operations.

| (\$ in millions) | 2020 | 2019 | 2018 |
|------------------------------------|-------|-------|-------|
| Interest and dividend income | 51 | 67 | 72 |
| Interest and other finance expense | (240) | (215) | (262) |
| Losses from extinguishment of debt | (162) | — | — |

In 2020, “Interest and other finance expense” increased compared to 2019. Although we incurred lower interest charges on outstanding debt due to lower interest rates and a reduction of debt outstanding, this was offset by higher foreign currency exchange losses.

In 2020, we redeemed the full amount outstanding for two bonds according to the terms of the instruments and executed public tenders for two additional bonds resulting in a partial reduction of the principal outstanding. These transactions resulted in losses on extinguishment of debt totaling \$162 million (see “Note 12 - Debt” to our Consolidated Financial Statements).

Non-operational pension (cost) credit

A non-operational pension cost of \$401 million was incurred in 2020 compared to a \$72 million credit in 2019. In 2020, we incurred charges of \$520 million for certain settlements of international pension plans (see “Note 17 - Employee benefits” to our Consolidated Financial Statements).

Income tax expense

| (\$ in millions) | 2020 | 2019 | 2018 |
|--|-------|-------|-------|
| Income from continuing operations before taxes | 841 | 1,862 | 2,119 |
| Income tax expense | (496) | (772) | (544) |
| Effective tax rate for the year | 59.0% | 41.5% | 25.7% |

In 2020, the effective tax rate increased from 41.5 percent to 59.0 percent due to several factors. First, in 2020, the distribution of income within the Group resulted in a 5 percent higher weighted-average global tax rate. Additionally, the tax rate was negatively impacted by 9 percent due to the impairment of non-deductible goodwill and 10 percent due to non-deductible charges relating to the settlement of certain defined benefit pension plans in 2020. The rate was also negatively impacted by 5 percent due to losses from extinguishment of debt which were incurred in jurisdictions with a full valuation allowance. These negative impacts were partially offset by the favorable resolution of an uncertain tax position in Asia which reduced the tax rate by 10 percent and the positive impact due to the reorganization of a business of 2 percent.

In 2019 there were impacts on the effective tax rate from recording a loss for the planned sale of the solar inverters business which reduced the weighted-average global tax rate by approximately 2 percent and an increase in the effective tax rate by 6 percent due to a change in a valuation allowance. During 2019, the effective tax rate also was negatively impacted due to amounts for the planned divestment of the Power Grids business, primarily non-deductible expenses, taxes payable due to the reorganization of the business in connection with the planned sale, changes to valuation allowances and additional taxes for unremitted earnings. Additionally, the effective tax rate was also higher due to changes in valuation allowances and changes in taxes due to interpretation of tax law and double tax treaty agreements by competent tax authorities. See “Note 16 - Income taxes” to our Consolidated Financial Statements for additional information.

Income from continuing operations, net of tax

As a result of the factors discussed above, income from continuing operations, net of tax, in 2020 decreased by \$745 million compared to 2019 to \$345 million.

Income from discontinued operations, net of tax

Income from discontinued operations, net of tax, in 2020, 2019 and 2018 was as follows:

| (\$ millions) | 2020 | 2019 | 2018 |
|---|--------------|--------------|--------------|
| Total revenues | 4,008 | 9,037 | 9,698 |
| Total cost of sales | (3,058) | (6,983) | (7,378) |
| Gross profit | 950 | 2,054 | 2,320 |
| Expenses | (808) | (1,394) | (1,326) |
| Net gain recognized on sale of the Power Grids business | 5,141 | — | — |
| Income from operations | 5,282 | 660 | 994 |
| Net interest and other finance expense | (5) | (61) | (55) |
| Non-operational pension (cost) credit | (94) | 5 | 12 |
| Income from discontinued operations before taxes | 5,182 | 605 | 951 |
| Income tax expense | (322) | (167) | (228) |
| Income from discontinued operations, net of tax | 4,860 | 438 | 723 |

On July 1, 2020, we completed the divestment of 80.1 percent of our former Power Grids business to Hitachi. As a result of the sale, substantially all Power Grids related assets and liabilities have been sold. As this divestment represented a strategic shift that would have a major effect on our operations and financial results, the results of operations for this business have been presented as discontinued operations for all periods presented. In addition, consistent with the presentation of the business as discontinued operations, during 2019 and up to the sale in 2020, we did not record depreciation or amortization on the property, plant and equipment, and intangible assets reported as discontinued operations.

In 2020, as a result of the sale of the Power Grids business, we recognized a net gain of \$5,141 million, net of transaction costs, for the sale of the entire Power Grids business which is included in Income from discontinued operations, net of tax. Included in the net gain was a cumulative translation loss relating to the Power Grids business of \$420 million which was reclassified from accumulated other comprehensive loss (see “Note 21 - Other comprehensive income” to our Consolidated Financial Statements). Certain amounts included in the net gain are estimated or otherwise subject to change in value and, as a result, we may record additional adjustments to the gain in future periods which are not expected to have a material impact on the Consolidated Financial Statements.

Until the date of the divestment, Income from discontinued operations excluded certain costs which were previously able to be allocated to the former Power Grids business. As a result, \$40 million and \$225 million for 2020 and 2019, respectively, of allocated overhead and other management costs (stranded corporate costs), which were previously able to be included in the measure of segment profit for the Power Grids business were reported as part of Corporate and Other.

The amounts shown in the table above for the full-year 2020 primarily represent the operations of the Power Grids business for six months, compared to a full year of operations for 2019 and 2018. Income from discontinued operations for 2020 and 2019 included income from operations, before tax, of \$5,182 million and \$605 million, respectively. The results in 2020 reflect the unfavorable impact of COVID-19 on the Power Grids business in the first half of the year, higher expenses when compared to the first half of 2019 and the non-operational pension cost related to the settlement of a defined benefit pension plan in 2020. In addition, in 2020 and 2019 we recorded \$322 million and \$167 million, respectively, as income tax expense within discontinued operations. In 2020, this included \$262 million in Income tax expense within discontinued operations in connection with the reorganization of the legal entity structure of the Power Grids business required to facilitate its sale.

For additional information on the divestment and discontinued operations, see “Note 3 - Discontinued operations” to our Consolidated Financial Statements.

Net income attributable to ABB

As a result of the factors discussed above, net income attributable to ABB in 2020 increased by \$3,707 million compared to 2019 to \$5,146 million.

Earnings per share attributable to ABB shareholders

| (in \$) | 2020 | 2019 | 2018 |
|---|------|------|------|
| <i>Basic earnings per share attributable to ABB shareholders:</i> | | | |
| Income from continuing operations, net of tax | 0.14 | 0.49 | 0.71 |
| Income from discontinued operations, net of tax | 2.30 | 0.19 | 0.31 |
| Net income | 2.44 | 0.67 | 1.02 |
| <i>Diluted earnings per share attributable to ABB shareholders:</i> | | | |
| Income from continuing operations, net of tax | 0.14 | 0.49 | 0.71 |
| Income from discontinued operations, net of tax | 2.29 | 0.19 | 0.31 |
| Net income | 2.43 | 0.67 | 1.02 |

Basic earnings per share is calculated by dividing income by the weighted-average number of shares outstanding during the year. Diluted earnings per share is calculated by dividing income by the weighted-average number of shares outstanding during the year, assuming that all potentially dilutive securities were exercised, if dilutive. Potentially dilutive securities comprise: outstanding written call options and outstanding options and shares granted subject to certain conditions under our share-based payment arrangements. See “Note 20 - Earnings per share” to our Consolidated Financial Statements.

Business analysis

Electrification Business Area

The financial results of our Electrification Business Area, including the operations of GEIS which was acquired in June 2018, were as follows:

| (\$ in millions) | 2020 | 2019 | 2018 | % Change | |
|-------------------------------|--------|--------|--------|----------|-------|
| | | | | 2020 | 2019 |
| Orders | 11,884 | 13,050 | 11,867 | (9)% | 10% |
| Order backlog at December 31, | 4,358 | 4,488 | 4,113 | (3)% | 9% |
| Revenues | 11,924 | 12,728 | 11,686 | (6)% | 9% |
| Income from operations | 1,335 | 1,049 | 1,290 | 27% | (19)% |
| Operational EBITA | 1,681 | 1,688 | 1,626 | 0% | 4% |

Orders

Approximately two-thirds of the Business Area's orders are for products with short delivery times; orders are usually recorded and delivered within a three-month period and thus are generally considered as short-cycle. The remainder of orders is comprised of smaller projects that require longer lead times, as well as larger solutions requiring engineering and installation. Approximately half of the Business Area's orders are received via third-party distributors; as a consequence, end-customer market data is based partially on management estimates.

In 2020, orders decreased 9 percent (9 percent in local currencies) as the global COVID-19 pandemic negatively impacted demand across all Divisions. Measures taken by governments worldwide to contain the virus severely restrained private consumption, investment, trade and travel. Orders decreased 3 percent due to the impact of the divestment of the solar inverters business in the first quarter of 2020, as well as the divestment of two joint ventures in China in the end of 2019. Investment in oil and gas related projects decreased significantly, reflecting the current economic uncertainty. Demand in the building segment was significantly impacted by global lockdowns and COVID-19 related restrictions across various markets, while residential activities showed signs of recovery during the fourth quarter. Commercial and industrial buildings suffered from weaker market conditions, which contributed to the overall order decrease. A lower level of large orders from the utility sector negatively impacted orders in the Distribution Solutions Division in 2020. The demand for data centers benefited from a positive momentum with strong contribution from colocation, cloud-based customers and hyperscale investments. Demand for electric vehicle infrastructure and urban mobility (E-bus, AC-DC chargers, Metro trains) was strong, with investment in all regions. Rail investments continued to be robust throughout the year.

The geographic distribution of orders for our Electrification Business Area was as follows:

| (\$ in millions) | 2020 | 2019 | 2018 |
|--------------------------------|---------------|---------------|---------------|
| Europe | 4,149 | 4,281 | 4,225 |
| The Americas | 4,033 | 4,653 | 3,771 |
| <i>of which: United States</i> | <i>3,065</i> | <i>3,501</i> | <i>2,746</i> |
| Asia, Middle East and Africa | 3,702 | 4,116 | 3,871 |
| <i>of which: China</i> | <i>1,819</i> | <i>1,885</i> | <i>1,776</i> |
| Total | 11,884 | 13,050 | 11,867 |

In 2020, orders decreased in all regions. Orders in Europe decreased 3 percent (3 percent in local currencies) as robust order intake in Germany and Sweden partially compensated lower order volumes in Italy, France and Spain due to the current market contraction. Demand in Asia, Middle East and Africa decreased 10 percent (10 percent in local currencies) despite a recovery in China during the second half of the year which substantially offset the COVID-19 related order drop in the first half of the year. The COVID-19 pandemic impacted total orders in the Americas significantly, decreasing 13 percent (12 percent in local currencies). Orders in the U.S., Brazil and Mexico decreased substantially. Orders in Canada were also lower but showed signs of recovery in the fourth quarter.

Order backlog

In 2020, the order backlog decreased 3 percent (5 percent in local currencies). The order backlog decreased 2 percent due to the impact of the divestment of the solar inverters business in the first quarter of 2020. The remaining order backlog decreased by 1 percent, partly due to strong backlog execution in the Distribution Solutions Division, but also reflecting the weaker order intake in most Divisions during the year.

Revenues

In 2020, revenues decreased 6 percent (6 percent in local currencies). Revenues declined across all Divisions reflecting the challenging market condition and operational environment caused by the COVID-19 pandemic. Revenues decreased 3 percent due to the impact of the divestment of the solar inverters business in the first quarter of 2020, as well as the divestment of two joint ventures in China in the end of 2019. Revenues from long-cycle businesses were impacted by COVID-19 related execution challenges such as restrictions to access customer sites, as well as customer driven delays in receiving finished goods. Revenues from data centers, e-mobility, power distribution and mining were more robust than oil and gas, and conventional power generation. Revenues from short-cycle product businesses were negatively affected by COVID-19 and decreased across most end-user segments, including residential and commercial buildings. Revenues for the Installation Products and Power Conversion Divisions, which have a high dependence on the North American market, were particularly challenged.

The geographic distribution of revenues for our Electrification Business Area was as follows:

| (\$ in millions) | 2020 | 2019 | 2018 |
|--------------------------------|---------------|---------------|---------------|
| Europe | 4,190 | 4,251 | 4,136 |
| The Americas | 4,093 | 4,635 | 3,715 |
| <i>of which: United States</i> | 3,115 | 3,555 | 2,724 |
| Asia, Middle East and Africa | 3,641 | 3,842 | 3,835 |
| <i>of which: China</i> | 1,858 | 1,749 | 1,752 |
| Total | 11,924 | 12,728 | 11,686 |

In 2020, revenues in the Americas were strongly impacted by the COVID-19 pandemic and decreased 12 percent (11 percent in local currencies) with significant declines in the U.S., Brazil and Mexico. Revenues in Europe were robust, decreasing 1 percent (2 percent in local currencies). Lower revenues in Switzerland, Italy and Spain were partially offset by growth in Germany, Sweden, Finland and Netherlands. Revenues decreased 5 percent (5 percent in local currencies) in Asia, Middle East and Africa, as the recovery in China during the second half of the year could not fully compensate revenue declines within the region, such as in India, caused by lower demand and COVID-19 pandemic driven lockdowns.

Income from operations

In 2020, income from operations increased 27 percent, mainly due to both the comparative loss of \$421 million recognized in 2019 to record the solar inverters business at fair value net of the higher gain in 2019 of \$92 million relating the receipt of cash from General Electric for a favorable resolution of an uncertainty with respect to the price paid to acquire GEIS. The COVID-19 pandemic negatively affected the Business Area with lower revenues, higher costs of underutilized manufacturing facilities as well as higher costs for various necessary safety measures and protective equipment. This was partly offset by government grants, furlough measures and a significant reduction of travel and other discretionary expenses. Income from operations in 2020 benefited from a reduction in acquisition-related expenses and integration costs compared to 2019, mainly relating to GEIS. The Business Area also benefited from lower commodity prices in 2020, although commodity headwinds gradually increased during the year. Product pricing actions across the product businesses and the benefits of savings realized from ongoing restructuring and cost savings programs also had a positive impact on operating margins. However, the Distribution Solutions Division experienced negative impacts from pricing pressure, and OS related implementation costs were higher in 2020 compared to 2019. Restructuring related expenses in our operating Divisions were steady, and changes in foreign currencies, including the impacts from FX/commodity timing differences, had no significant impact on 2020 compared to 2019.

Operational EBITA

The reconciliation of Income from operations to Operational EBITA for the Electrification Business Area was as follows:

| (\$ in millions) | 2020 | 2019 | 2018 |
|--|--------------|--------------|--------------|
| Income from operations | 1,335 | 1,049 | 1,290 |
| Acquisition-related amortization | 115 | 115 | 106 |
| Restructuring, related and implementation costs | 145 | 112 | 98 |
| Changes in obligations related to divested businesses | 15 | — | — |
| Changes in pre-acquisition estimates | 11 | 22 | 19 |
| Gains and losses from sale of businesses | 4 | (42) | (81) |
| Fair value adjustment on assets and liabilities held for sale | 33 | 421 | — |
| Favorable resolution of an uncertain purchase price adjustment | (36) | (92) | — |
| Acquisition- and divestment-related expenses and integration costs | 71 | 119 | 168 |
| Certain other non-operational items | 9 | 3 | (2) |
| FX/commodity timing differences in income from operations | (21) | (19) | 28 |
| Operational EBITA | 1,681 | 1,688 | 1,626 |

In 2020, Operational EBITA remained flat (1 percent lower excluding the impacts from changes in foreign currencies) compared to 2019, primarily due to the reasons described under “Income from operations”, excluding the explanations related to the reconciling items in the table above.

Industrial Automation Business Area

The financial results of our Industrial Automation Business Area were as follows:

| (\$ in millions) | 2020 | 2019 | 2018 | % Change | |
|-------------------------------|-------|-------|-------|----------|-------|
| | | | | 2020 | 2019 |
| Orders | 6,144 | 6,432 | 6,697 | (4)% | (4)% |
| Order backlog at December 31, | 5,805 | 5,077 | 4,986 | 14% | 2% |
| Revenues | 5,792 | 6,273 | 6,500 | (8)% | (3)% |
| Income from operations | 344 | 700 | 853 | (51)% | (18)% |
| Operational EBITA | 451 | 732 | 914 | (38)% | (20)% |

Orders

In 2020, orders decreased 4 percent (4 percent in local currencies) compared to 2019 reflecting the combined effects of the COVID-19 pandemic and a lower oil price. Those effects negatively impacted orders in the Measurement & Analytics, Turbocharging, Energy Industries and Process Industries Divisions while orders in Marine & Ports Division were up primarily due to large capital investment orders, specifically for the liquefied natural gas (LNG) sector. This increase could not offset the significant decline in orders, in particular in the ongoing service business which was driven by mobility constraints caused by extensive lockdown restrictions as well as lower demand from customers to invest in the current uncertain environment. Customer investment decreased significantly in cruise, conventional power generation, oil and petrochemical, and mining sectors.

The geographic distribution of orders for our Industrial Automation Business Area was as follows:

| (\$ in millions) | 2020 | 2019 | 2018 |
|--------------------------------|--------------|--------------|--------------|
| Europe | 2,365 | 2,599 | 2,867 |
| The Americas | 1,360 | 1,627 | 1,564 |
| <i>of which: United States</i> | 770 | 995 | 990 |
| Asia, Middle East and Africa | 2,419 | 2,206 | 2,266 |
| <i>of which: China</i> | 559 | 631 | 564 |
| Total | 6,144 | 6,432 | 6,697 |

Orders in Europe decreased 9 percent (9 percent in local currencies) driven by lower orders in the Energy Industries Division due to the effect of a depressed oil price and mobility constraints, and in the Marine & Ports Division due to lower cruise orders. Orders in Asia, Middle East and Africa increased 10 percent (10 percent in local currencies) due to larger orders related to capital investments in LNG in the Marine & Ports Division. The remaining end-markets in Asia, Middle East and Africa were subdued. China orders were down in the Energy Industries, Marine & Ports and Process Industries Divisions. Orders in the Americas decreased by 16 percent (14 percent in local currencies) and decreased in all Divisions except the Marine & Ports Division. Orders in the U.S. were down in all Divisions except for the Marine & Ports Division due to a large specialty marine vessel order.

Order backlog

The order backlog at the end of 2020 was 14 percent higher (9 percent in local currencies) than at the end of 2019. All Divisions registered an increase in backlog except the Turbocharging Division which was impacted by the marine and conventional onshore oil and gas markets. The Marine & Ports Division benefited from orders for specialty marine vessels which are executed over multiple years. The Energy Industries Division's backlog increase reflected select orders for LNG solutions and the Process Industries Division's backlog benefited from the receipt of a large order in the mining market.

Revenues

In 2020, revenues decreased 8 percent (7 percent in local currencies). Revenues were lower across all Divisions compared to 2019, reflecting subdued level of book-and-bill activities. Revenues in shorter cycle businesses were particularly impacted due to the COVID-19 pandemic and service was significantly down, due to mobility constraints and difficulties in executing services described above.

The geographic distribution of revenues for our Industrial Automation Business Area was as follows:

| (\$ in millions) | 2020 | 2019 | 2018 |
|--------------------------------|--------------|--------------|--------------|
| Europe | 2,395 | 2,494 | 2,534 |
| The Americas | 1,329 | 1,595 | 1,479 |
| <i>of which: United States</i> | 808 | 950 | 944 |
| Asia, Middle East and Africa | 2,068 | 2,184 | 2,487 |
| <i>of which: China</i> | 629 | 612 | 616 |
| Total | 5,792 | 6,273 | 6,500 |

In 2020, revenues were 4 percent lower (4 percent in local currencies) in Asia, Middle East and Africa, 17 percent lower (15 percent in local currencies) in the Americas and 5 percent weaker (5 percent in local currencies) in Europe compared to 2019. In Asia, Middle East and Africa, the Process Industries, Marine & Ports and Turbocharging Divisions registered strong growth in 2020. The Process Industries, Marine & Ports and Turbocharging Divisions grew strongly in China while revenues in the Energy Industries Division were negatively impacted by project-related challenges in the Kusile power generation project in South Africa. In Europe, revenues decreased across all Divisions except in the Process Industries Division. In the Americas, revenues were negatively impacted across all Divisions. Revenues in the U.S. declined significantly, reflecting the downturn in the oil and gas and cruise market segments.

Income from operations

In 2020, income from operations decreased 51 percent compared to 2019 on weaker sales volumes in all Divisions, project-related challenges in the Kusile power generation project in South Africa and legacy projects in India, and higher restructuring charges of approximately \$100 million. Income from operations was also impacted by legal costs relating to challenges in certain projects, unfavorable pricing and product mix. The Business Area benefited from the positive results of ongoing business rationalization efforts and other cost saving measures especially lower sales expenses. The changes in foreign currencies, including the effect from changes in the FX/commodity timing differences summarized in the table below, increased income from operations by 4 percent compared to 2019.

Operational EBITA

The reconciliation of Income from operations to Operational EBITA for the Industrial Automation Business Area was as follows:

| (\$ in millions) | 2020 | 2019 | 2018 |
|--|------------|------------|------------|
| Income from operations | 344 | 700 | 853 |
| Acquisition-related amortization | 4 | 4 | 6 |
| Restructuring, related and implementation costs | 125 | 21 | 35 |
| Gains and losses from sale of businesses | — | — | 3 |
| Acquisition- and divestment-related expenses and integration costs | 2 | — | 4 |
| Certain other non-operational items | 1 | 2 | 3 |
| FX/commodity timing differences in income from operations | (25) | 5 | 10 |
| Operational EBITA | 451 | 732 | 914 |

In 2020, Operational EBITA decreased 38 percent (39 percent excluding the impacts from changes in foreign currencies) compared to 2019. The change is due to the reasons described under “Income from operations”, excluding the explanations related to the reconciling items in the table above.

Motion Business Area

The financial results of our Motion Business Area were as follows:

| (\$ in millions) | 2020 | 2019 | 2018 | % Change | |
|-------------------------------|-------|-------|-------|----------|------|
| | | | | 2020 | 2019 |
| Orders | 6,574 | 6,782 | 6,725 | (3)% | 1% |
| Order backlog at December 31, | 3,320 | 2,967 | 2,740 | 12% | 8% |
| Revenues | 6,409 | 6,533 | 6,463 | (2)% | 1% |
| Income from operations | 989 | 1,009 | 924 | (2)% | 9% |
| Operational EBITA | 1,075 | 1,082 | 1,023 | (1)% | 6% |

Orders

In 2020, orders declined 3 percent (2 percent in local currencies) compared to 2019, reflecting the impact of the COVID-19 pandemic. Orders development had a mixed performance across the market segments. The Business Area benefited from rising demand in the rail sector, mainly in the Traction Division and an increase in demand in the water and waste water sector in the System Drives and Drive Products Divisions, with stable demand from traditional heavy industries such as mining and minerals and pulp and paper as well as slower demand from oil, gas and chemicals.

The geographic distribution of orders for our Motion Business Area was as follows:

| (\$ in millions) | 2020 | 2019 | 2018 |
|--------------------------------|--------------|--------------|--------------|
| Europe | 2,219 | 2,355 | 2,260 |
| The Americas | 2,276 | 2,437 | 2,490 |
| <i>of which: United States</i> | 1,898 | 2,048 | 2,105 |
| Asia, Middle East and Africa | 2,079 | 1,990 | 1,975 |
| <i>of which: China</i> | 1,077 | 987 | 929 |
| Total | 6,574 | 6,782 | 6,725 |

In 2020, in Europe orders decreased 6 percent (6 percent in local currencies) as orders declined in Finland, Russia, France, Italy and Spain. In Asia, Middle East and Africa, orders increased 4 percent (6 percent in local currencies) driven by growth in China, especially in the Drive Products Division and was partly offset by other markets. In the Americas, orders declined 7 percent (6 percent in local currencies) mainly as a result of decreased orders in the U.S., reflecting the impact of the COVID-19 pandemic.

Order backlog

The order backlog in 2020 increased 12 percent (6 percent in local currencies) compared to 2019. The order backlog increased driven by strong long-cycle order growth.

Revenues

In 2020, revenues declined 2 percent (2 percent in local currencies) compared to 2019, and were lower across most Divisions, resulting from the impacts of the COVID-19 pandemic. However, revenues reflected strong execution from the order backlog especially in the System Drives Division as well as resilience in the short-cycle business, particularly in the second half of the year.

The geographic distribution of revenues for our Motion Business Area was as follows:

| (\$ in millions) | 2020 | 2019 | 2018 |
|--------------------------------|--------------|--------------|--------------|
| Europe | 2,196 | 2,162 | 2,169 |
| The Americas | 2,225 | 2,378 | 2,436 |
| <i>of which: United States</i> | <i>1,867</i> | <i>2,009</i> | <i>2,044</i> |
| Asia, Middle East and Africa | 1,988 | 1,993 | 1,858 |
| <i>of which: China</i> | <i>1,040</i> | <i>955</i> | <i>940</i> |
| Total | 6,409 | 6,533 | 6,463 |

In 2020, revenues in Europe increased 2 percent (1 percent in local currencies) driven by increases in Poland, Spain and Sweden while sales volumes declined in Germany and Norway. In Asia, Middle East and Africa revenues remained stable as revenue growth was strong in China, partially offset by decreases in India and Saudi Arabia. In the Americas, revenues decreased 6 percent (5 percent in local currencies) mainly as a result of lower revenues in the U.S., especially in the book-and-bill business in the Motors & Generators and Mechanical Power Transmission Divisions.

Income from operations

In 2020, income from operations decreased 2 percent compared to 2019 driven primarily by lower revenues. The lower business volumes reflect the impacts of the COVID-19 pandemic on customer demand and product deliveries. These impacts were mitigated partially by continued cost discipline, lower travel expenses and a focus on operational performance. In 2020, the Motion Business Area was also impacted by higher restructuring and restructuring-related expenses. Changes in foreign currencies, including the impacts from FX/commodity timing differences summarized in the table below, positively impacted income from operations by 3 percent.

Operational EBITA

The reconciliation of Income from operations to Operational EBITA for the Motion Business Area was as follows:

| (\$ in millions) | 2020 | 2019 | 2018 |
|--|--------------|--------------|--------------|
| Income from operations | 989 | 1,009 | 924 |
| Acquisition-related amortization | 52 | 53 | 61 |
| Restructuring, related and implementation costs | 44 | 12 | 17 |
| Gains and losses from sale of businesses | — | — | 4 |
| Acquisition- and divestment-related expenses and integration costs | — | — | 2 |
| Certain other non-operational items | 17 | 14 | 10 |
| FX/commodity timing differences in income from operations | (27) | (6) | 5 |
| Operational EBITA | 1,075 | 1,082 | 1,023 |

In 2020, Operational EBITA decreased 1 percent (1 percent excluding the impact from changes in foreign currency exchange rates) primarily due to the reasons described under “Income from operations”, excluding the explanations related to the reconciling items in the table above.

Robotics & Discrete Automation Business Area

The financial results of our Robotics & Discrete Automation Business Area were as follows:

| (\$ in millions) | 2020 | 2019 | 2018 | % Change | |
|-------------------------------|-------|-------|-------|----------|-------|
| | | | | 2020 | 2019 |
| Orders | 2,868 | 3,260 | 3,808 | (12)% | (14)% |
| Order backlog at December 31, | 1,403 | 1,356 | 1,438 | 3% | (6)% |
| Revenues | 2,907 | 3,314 | 3,611 | (12)% | (8)% |
| Income (loss) from operations | (163) | 298 | 456 | n.a. | (35)% |
| Operational EBITA | 237 | 393 | 528 | (40)% | (26)% |

Orders

In 2020, orders decreased 12 percent (12 percent in local currencies). Demand levels in the Robotics and Machine Automation Divisions were negatively impacted by the COVID-19 pandemic. During the second quarter, both Divisions suffered a significant decrease in demand when activity levels declined across key end-markets, including traditional automotive and automotive-related sectors, machine builders and electronics markets. Orders showed signs of recovery in the second half of the year benefiting from select robotics investments in the 3C and automotive sectors, mostly in China, food and beverage, and logistics markets.

The geographic distribution of orders for our Robotics & Discrete Automation Business Area was as follows:

| (\$ in millions) | 2020 | 2019 | 2018 |
|--------------------------------|--------------|--------------|--------------|
| Europe | 1,424 | 1,717 | 1,870 |
| The Americas | 388 | 457 | 493 |
| <i>of which: United States</i> | 277 | 310 | 311 |
| Asia, Middle East and Africa | 1,056 | 1,086 | 1,445 |
| <i>of which: China</i> | 781 | 729 | 1,019 |
| Total | 2,868 | 3,260 | 3,808 |

In 2020, order intake for Asia, Middle East and Africa decreased 3 percent (2 percent in local currencies) compared to 2019. Strong demand in China was partially offset by order decreases in India and Japan. Demand in Europe declined 17 percent (18 percent in local currencies) as a result of the impacts from the COVID-19 pandemic, with a strong decline in orders in Germany, Italy and France. The orders in the Americas declined 15 percent (12 percent in local currencies) as a result of the large decrease of orders in the U.S. in both Divisions.

Order backlog

In 2020, the order backlog increased 3 percent (2 percent lower in local currencies) compared to 2019. In local currencies, the backlog decreased despite a recovery in order levels in both Divisions in the second half of the year, impacted by the positive momentum in 3C and automotive and automotive-related sectors.

Revenues

In 2020, revenues decreased 12 percent (13 percent in local currencies) compared to 2019. Revenues decreased in both Divisions due to lower volumes from book-and-bill business, impacted by the COVID-19 pandemic. Service revenues also decreased, driven by weak demand from automotive and automotive-related sectors partially offset by an increase in consumer segments.

The geographic distribution of revenues for our Robotics & Discrete Automation Business Area was as follows:

| (\$ in millions) | 2020 | 2019 | 2018 |
|--------------------------------|--------------|--------------|--------------|
| Europe | 1,481 | 1,680 | 1,777 |
| The Americas | 389 | 464 | 482 |
| <i>of which: United States</i> | 273 | 293 | 313 |
| Asia, Middle East and Africa | 1,037 | 1,170 | 1,352 |
| <i>of which: China</i> | 719 | 829 | 991 |
| Total | 2,907 | 3,314 | 3,611 |

In 2020, revenues decreased in all regions. The revenues from Asia, Middle East and Africa decreased 11 percent (12 percent in local currencies) compared to 2019 due to lower book-and-bill revenues and lower execution of orders in China. Revenues in Europe decreased 12 percent (13 percent in local currencies) with Italy and Germany performing poorly while revenues grew slightly in the United Kingdom and France. In the Americas, revenues declined 16 percent (13 percent in local currencies) due to a slight decrease in revenues in the U.S. in both Divisions, negatively impacted by the COVID-19 pandemic.

Income (loss) from operations

In 2020, the Business Area recorded a loss from operations of \$163 million compared to an income of \$298 million in 2019, reflecting both the impact of an impairment of goodwill in 2020 in the Machine Automation Division of \$290 million and a decrease in underlying operating performance. The operational performance was affected by lower sales volumes, an adverse change in the revenue mix, partially offset by benefits of cost reduction measures (especially selling costs) and lower travel expenses. Changes in foreign currencies, including the impacts from FX/commodity timing differences summarized in the table below, negatively impacted the loss from operations by approximately 7 percent.

Operational EBITA

The reconciliation of Income (loss) from operations to Operational EBITA for the Robotics & Discrete Automation Business Area was as follows:

| (\$ in millions) | 2020 | 2019 | 2018 |
|--|--------------|------------|------------|
| Income (loss) from operations | (163) | 298 | 456 |
| Acquisition-related amortization | 78 | 77 | 82 |
| Restructuring, related and implementation costs | 26 | 12 | 4 |
| Changes in pre-acquisition estimates | — | — | (11) |
| Acquisition- and divestment-related expenses and integration costs | — | 1 | — |
| Impairment of goodwill | 290 | — | — |
| Certain other non-operational items | 5 | 4 | 1 |
| FX/commodity timing differences in income from operations | 1 | 1 | (4) |
| Operational EBITA | 237 | 393 | 528 |

In 2020, Operational EBITA decreased 40 percent (40 percent excluding the impact from changes in foreign currency exchange rates) compared to 2019, primarily due to the reasons described under “Income (loss) from operations”, excluding the explanations related to the reconciling items in the table above.

Corporate and Other

Net loss from operations for Corporate and Other was as follows:

| (\$ in millions) | 2020 | 2019 | 2018 |
|---|--------------|----------------|----------------|
| Corporate headquarters and stewardship | (334) | (334) | (391) |
| Costs for divestment of Power Grids | (86) | (141) | — |
| Income (loss) from equity-accounted companies | (68) | 1 | — |
| Corporate research and development | (49) | (185) | (183) |
| Restructuring | (46) | (60) | (18) |
| Digital | (45) | (33) | (46) |
| OS implementation costs | (24) | (83) | (11) |
| Net gain (loss) from sale of businesses | (2) | 13 | (17) |
| Fair value adjustment on equity securities | 71 | (5) | (6) |
| Corporate brand income from Hitachi ABB Power Grids | 60 | — | — |
| Corporate real estate | 54 | 60 | 75 |
| Other corporate costs | (61) | 43 | — |
| Stranded corporate costs | (40) | (225) | (297) |
| Divested businesses and other non-core activities | (342) | (164) | (408) |
| Total Corporate and Other | (912) | (1,113) | (1,302) |

In 2020, the net loss from operations within Corporate and Other decreased by \$201 million to \$912 million compared to 2019. This reflected a reduction in stranded corporate costs and other costs eliminated due to the divestment of the Power Grids business. In 2020, we incurred significantly lower restructuring and implementation costs for the OS program and also lower costs relating to the divestment of the Power Grids business. Additionally, costs also declined for corporate research and development expenses. This was partially offset by higher losses in the non-core businesses compared to 2019 as well as the impact of recording the equity-method loss relating to the Hitachi ABB Power Grids joint venture in the second half of the year. In 2020, Corporate brand income of \$60 million was recorded relating to the use of the ABB brand by the Hitachi ABB Power Grids joint venture.

Corporate

In 2020, corporate headquarters and stewardship costs remained flat, benefiting from savings generated from results of the OS restructuring program efforts, offset by costs for current strategic projects. Costs were lower in corporate functions including: communications, finance, human resources, tax, treasury and information technology. Lower costs reflect the benefits of the reduction in country-level general management costs, spending controls adopted due to the impact of the COVID-19 pandemic and the impact of lower travel expenses and certain marketing costs.

Our investment in the Hitachi ABB Power Grids joint venture is accounted for using the equity method. Income (loss) from equity-accounted companies in 2020 primarily reflects the loss recorded from this joint venture commencing in July 2020. The equity-method loss from the joint venture reflects the amortization of the notional purchase price accounting adjustments (net of tax) which were recorded due to the fair value accounting applied on initial investment in the joint venture (see “Note 4 - Acquisitions, divestments and equity-accounted companies” to our Consolidated Financial Statements for information on the accounting for the investment in Hitachi ABB Power Grids).

Corporate research and development costs declined significantly compared to 2019. This was primarily due to the transfer of resources to the Power Grids business as well as headcount reductions resulting from restructuring initiatives under the OS program.

For further information on the OS Program see “Restructuring and other cost savings initiatives” below as well as “Note 22 - Restructuring and related expenses” to our Consolidated Financial Statements.

During 2020, we recorded net revaluation gains totaling \$71 million on investments in equity securities in our equity ventures investment portfolio.

Corporate brand income results from the granting of the use of the ABB brand to Hitachi ABB Power Grids, the fair value of which was initially determined on the date of the divestment. A portion of the proceeds received for the sale of the Power Grids business was allocated to the fair value of the granting of the use of the brand and is being amortized over the expected period of use by Hitachi ABB Power Grids.

Corporate real estate primarily includes income from property rentals and gains from the sale of real estate properties. In 2020, income from operations in Corporate real estate included gains from the sale of real estate properties of \$27 million compared to \$48 million in 2019.

Other corporate costs consists of operational costs of our Corporate Treasury Operations and certain other charges such as costs and penalties associated with legal cases and environmental expenses.

Stranded corporate costs includes the amount of allocated general and administrative and other overhead costs previously included in the measure of segment profit (Operational EBITA) for the Power Grids business which is presented as discontinued operations. These allocated costs do not qualify for being reported as costs within the discontinued operation. During 2020, stranded costs were recorded until the sale of the Power Grids business and the lower relative costs reflect the effects of transferring centralized functions directly to the Power Grids business. The remaining underlying cost base which we continue to maintain for the benefit of Hitachi ABB Power Grids is subject to transition services agreements.

Other - Divested businesses and other non-core activities

The results of operations for certain divested businesses and other non-core activities are presented in Corporate and Other. Divested businesses include the high-voltage cables business, steel structures business as well as the oil & gas EPC business. Other continuing non-core activities include the execution and wind-down of certain legacy EPC and other contracts.

In both 2020 and 2019, the amounts represent charges and losses relating to divested businesses and the winding down of the remaining EPC projects. In 2020, we recorded \$143 million for certain retained warranty obligations relating to the steel structures business and also recorded charges for certain retained commitments and guarantees in connection with the oil & gas EPC business. The loss in 2020 also reflects further operational challenges and customer obligations relating to several legacy projects including the full train retrofit business, substations and offshore wind. In 2019, we recorded additional losses for legacy substations, plant electrification EPC contracts and the full train retrofit business, which were driven by additional project cost overruns.

At December 31, 2020, our remaining non-core activities primarily include the completion of the remaining EPC contracts for substations and oil & gas as well as the completion of the remaining obligations for the full train retrofit business.

Restructuring and other cost savings initiatives

OS program

In December 2018, ABB announced a two-year restructuring program with the objective of simplifying its business model and structure through the implementation of a new organizational structure driven by its businesses. The program resulted in the elimination of the country and regional structures within the previous matrix organization, including the elimination of the three regional Executive Committee roles. The operating businesses are now responsible for both their customer-facing activities and business support functions, while the remaining Group-level corporate activities primarily focus on Group strategy, portfolio and performance management and capital allocation. As of December 31, 2020, we have incurred substantially all restructuring and related expenses related to the OS program.

During the course of the program, we implemented and executed various restructuring initiatives across all business support functions and all operating segments. The cumulative restructuring and related expenses under this program, originally estimated to be \$350 million, were reduced by \$41 million to \$309 million, mainly due to the reductions in both estimated costs and number of projects planned.

The following table outlines the costs incurred in 2020, 2019, 2018 and the cumulative costs incurred under the program per operating segment and Corporate and Other as of December 31, 2020:

| (\$ in millions) | Costs incurred in | | | Cumulative costs |
|--------------------------------|-------------------|-----------|-----------|-------------------------------------|
| | 2020 | 2019 | 2018 | incurred up to December 31, 2020 |
| Electrification | 35 | 18 | 32 | 85 |
| Industrial Automation | 37 | 3 | 21 | 61 |
| Motion | 18 | 6 | 1 | 25 |
| Robotics & Discrete Automation | 10 | 8 | — | 18 |
| Corporate and Other | 49 | 54 | 11 | 114 |
| Total | 149 | 89 | 65 | 303 |

ABB completed and has incurred substantially all costs related to the OS program as of December 31, 2020. The restructuring program resulted in run-rate cost savings of approximately \$590 million, impacting all Business Areas and Corporate and Other. These cost savings were realized mainly as reductions in cost of sales, selling, general and administrative expenses, and non-order related research and development expenses.

The majority of the remaining cash outlays as of December 31, 2020, primarily for employee severance benefits, are expected to occur in 2021.

LIQUIDITY AND CAPITAL RESOURCES

Principal sources of funding

We meet our liquidity needs principally using cash from operations, proceeds from the issuance of debt instruments (bonds and commercial paper), and short-term bank borrowings. In 2020, we also received significant funds from the sale of the Power Grids business, which was completed on July 1, 2020.

Our net debt is shown in the table below:

| (\$ in millions) | December 31, | |
|--|--------------|--------------|
| | 2020 | 2019 |
| Short-term debt and current maturities of long-term debt | 1,293 | 2,287 |
| Long-term debt | 4,828 | 6,772 |
| Cash and equivalents | (3,278) | (3,508) |
| Restricted cash - current | (323) | (36) |
| Marketable securities and short-term investments | (2,108) | (566) |
| Restricted cash - non-current | (300) | — |
| Net debt (defined as the sum of the above lines) | 112 | 4,949 |

During 2020, we significantly deleveraged the Company, driven by the receipt of \$9,241 million initial net proceeds from the sale of the Power Grids business. As a result, we reduced net debt to \$112 million at December 31, 2020, from \$4,949 million at December 31, 2019. This change was also supported by cash flows from operating activities during 2020 of \$1,693 million and by the sale of treasury stock in relation to our employee share plans for \$412 million. Partially offsetting these items were amounts for purchases of treasury shares of \$3,048 million including \$2,702 million relating to the announced buyback of our shares as well as \$1,736 million for the payment of the dividend to our shareholders. We made net purchases of property, plant and equipment and intangible assets of \$580 million (for both continuing and discontinued operations) and made payments of dividends to noncontrolling shareholders totaling \$82 million. In addition, net debt increased by \$269 million due to movements in foreign exchange rates. See “Financial position”, “Investing activities” and “Financing activities” for further details.

During March 2020, as a result of the reaction of global financial markets to the COVID-19 pandemic, access to commercial paper markets was limited. However, the bond and bank credit markets continued to be accessible at temporarily increased credit spreads. To support our short-term liquidity needs at that time, we entered into a bank-funded short-term EUR 2 billion Revolving Credit Agreement and received the proceeds on March 31, 2020, amounting to \$2,183 million, net of issuance costs. We repaid this borrowing after the completion of the sale of the Power Grids business at which time the agreement was terminated. Financial markets quickly stabilized and we were again able to access the commercial paper markets with costs commensurate to our credit rating. Through the rest of the year, we did not require access to the commercial paper markets for funding.

Our Corporate Treasury Operations is responsible for providing a range of treasury management services to our group companies, including investing cash in excess of current business requirements. At December 31, 2020 and 2019, the proportion of our aggregate “Cash and equivalents” and “Marketable securities and short-term investments” managed by our Corporate Treasury Operations amounted to approximately 53 percent and 34 percent, respectively.

Our investment strategy for cash (in excess of current business requirements) has generally been to invest in short-term time deposits with maturities of less than 3 months, supplemented at times by investments in money market funds, and in some cases, government securities. We primarily invested the proceeds received from the sale of the Power Grids business in money market funds and reduced these funds over the rest of 2020 to execute our share buyback activities and to pay back maturing debt and retire other debts in advance. We actively monitor credit risk in our investment portfolio and derivative portfolio. Credit risk exposures are controlled in accordance with policies approved by our senior management to identify, measure, monitor and control credit risks. We have minimum rating requirements for our counterparts and closely monitor developments in the credit markets making appropriate changes to our investment policy as deemed necessary. In addition to minimum rating criteria, we have strict investment parameters and specific approved instruments as well as restrictions on the types of investments we make. These parameters are closely monitored on an ongoing basis and amended as we consider necessary.

Our cash is held in various currencies around the world. Approximately 31 percent of our cash and cash equivalents held at December 31, 2020, was in U.S. dollars, while other significant amounts were held in Chinese renminbi (23 percent) and euro (21 percent).

We believe the ongoing cash flows generated from our business, supplemented, when necessary, through access to the capital markets (including short-term commercial paper) and our credit facilities are sufficient to support business operations, capital expenditures, business acquisitions, the payment of dividends to shareholders and contributions to pension plans. Consequently, we believe that our ability to obtain funding from these sources will continue to provide the cash flows necessary to satisfy our working capital and capital expenditure requirements, as well as meet our debt repayments and other financial commitments for the next 12 months. See “Disclosures about contractual obligations and commitments”.

Due to the nature of our operations, including the timing of annual incentive payments to employees, our cash flow from operations generally tends to be weaker in the first half of the year than in the second half of the year.

Debt and interest rates

Total outstanding debt was as follows:

| (\$ in millions) | December 31, | |
|--|--------------|--------------|
| | 2020 | 2019 |
| Short-term debt and current maturities of long-term debt | 1,293 | 2,287 |
| Long-term debt: | | |
| Bonds | 4,580 | 6,587 |
| Other long-term debt | 248 | 185 |
| Total debt | 6,121 | 9,059 |

The decrease in short-term debt in 2020 was due to the repayment at maturity of both the USD 300 million 2.8% Notes and the EUR 1,000 million floating rate Notes as well as a net reduction of outstanding commercial paper of \$676 million. This was partially offset by the reclassification to short-term of the USD 650 million 4.0% Notes and the CHF 350 million 2.250% Bonds.

At December 31, 2020, Long-term debt decreased \$1,944 million compared to the end of 2019 due partly to the reclassifications to short-term described above. We also reduced through public tenders or otherwise redeemed debt having a combined outstanding principal of \$1,208 million. This included partial public tenders of both our USD 750 million 3.8% Notes due 2028 and our USD 750 million 4.375% Notes due 2042 and as well as full redemptions of our USD 250 million 5.625% Notes due 2021 and our USD 450 million 3.375% Notes due 2023.

Our debt has been obtained in a range of currencies and maturities and with various interest rate terms. For certain of our debt obligations, we use derivatives to manage the fixed interest rate exposure. For example, we use interest rate swaps to effectively convert fixed rate debt into floating rate liabilities. After considering the effects of interest rate swaps, at December 31, 2020, the effective average interest rate on our floating rate long-term debt (including current maturities) of \$3,330 million and our fixed rate long-term debt (including current maturities) of \$2,638 million was 0.2 percent and 3.3 percent, respectively. This compares with an effective rate of 1.1 percent for floating rate long-term debt of \$2,221 million and 2.4 percent for fixed rate long-term debt of \$6,000 million at December 31, 2019.

For a discussion of our use of derivatives to modify the interest characteristics of certain of our individual bond issuances, see “Note 12 - Debt” to our Consolidated Financial Statements.

Credit facility

In December 2019, we replaced our previous multicurrency revolving credit facility with a new \$2 billion multicurrency revolving credit facility, maturing in 2024. In 2020, we exercised our option to extend the maturity to 2025 and retain an option which we can exercise in 2021 to further extend the maturity to 2026. No amount was drawn under the facility at December 31, 2020 and 2019. The facility is available for general corporate purposes and contains cross-default clauses whereby an event of default would occur if we were to default on indebtedness, as defined in the facility, at or above a specified threshold.

The credit facility does not contain financial covenants that would restrict our ability to pay dividends or raise additional funds in the capital markets. For further details of the credit facility, see “Note 12 - Debt” to our Consolidated Financial Statements.

Commercial paper

At December 31, 2020, we had two commercial paper programs in place:

- a \$2 billion commercial paper program for the private placement of U.S. dollar denominated commercial paper in the United States, and

- a \$2 billion Euro-commercial paper program for the issuance of commercial paper in a variety of currencies.

At December 31, 2020, \$32 million was outstanding under the \$2 billion program in the United States, compared to \$708 million outstanding at December 31, 2019.

At December 31, 2020 and 2019, no amount was outstanding under the \$2 billion Euro-commercial paper program.

European program for the issuance of debt

The European program for the issuance of debt allows the issuance of up to the equivalent of \$8 billion in certain debt instruments. The terms of the program do not obligate any third party to extend credit to us and the terms and possibility of issuing any debt under the program are determined with respect to, and as of the date of issuance of, each debt instrument. At December 31, 2020, two bonds (principal amount of EUR 700 million, due in 2023 and principal amount of EUR 750 million, due in 2024) having a combined carrying amount of \$1,821 million were outstanding under the program. At December 31, 2019, the carrying amount of these bonds was \$1,658 million.

In January 2021, we issued one additional bond under this program having a principle amount of EUR 800 million at zero interest, and a term of 9 years.

Credit ratings

Credit ratings are assessments by the rating agencies of the credit risk associated with ABB and are based on information provided by us or other sources that the rating agencies consider reliable. Higher ratings generally result in lower borrowing costs and increased access to capital markets. Our ratings are of “investment grade” which is defined as Baa3 (or above) from Moody’s and BBB– (or above) from Standard & Poor’s.

At December 31, 2020, our long-term debt was rated A3 with a Stable outlook by Moody’s compared to A2 at the end of 2019. At December 31, 2020, our long-term debt was rated A– with a Stable outlook by Standard & Poor’s compared to A at the end of 2019.

Limitations on transfers of funds

Currency and other local regulatory limitations related to the transfer of funds exist in a number of countries where we operate, including: China, Egypt, India, Indonesia, Kazakhstan, Malaysia, South Korea, Taiwan (Chinese Taipei), Thailand, Turkey and Viet Nam. Funds, other than regular dividends, fees or loan repayments, cannot be readily transferred offshore from these countries and are therefore deposited and used for working capital needs in those countries. In addition, there are certain countries where, for tax reasons, it is not considered optimal to transfer the cash offshore. As a consequence, these funds are not available within our Corporate Treasury Operations to meet short-term cash obligations outside the relevant country. The above described funds are reported as cash in our Consolidated Balance Sheets, but we do not consider these funds immediately available for the repayment of debt outside the respective countries where the cash is situated, including those described above. At December 31, 2020 and 2019, the balance of “Cash and equivalents” and “Marketable securities and other short-term investments” under such limitations (either regulatory or sub-optimal from a tax perspective) totaled approximately \$1,751 million and \$1,843 million, respectively.

During 2020, we continued to direct our subsidiaries in countries with restrictions to place such cash with our core banks or investment grade banks, in order to minimize credit risk on such cash positions. We continue to closely monitor the situation to ensure bank counterparty risks are minimized.

FINANCIAL POSITION

Balance sheets

| (\$ in millions) | December 31, | | % Change |
|---|---------------|---------------|--------------|
| | 2020 | 2019 | |
| Current assets | | | |
| Cash and equivalents | 3,278 | 3,508 | (7)% |
| Restricted cash | 323 | 36 | n.a. |
| Marketable securities and short-term investments | 2,108 | 566 | 272% |
| Receivables, net | 6,820 | 6,434 | 6% |
| Contract assets | 985 | 1,025 | (4)% |
| Inventories, net | 4,469 | 4,184 | 7% |
| Prepaid expenses | 201 | 191 | 5% |
| Other current assets | 760 | 674 | 13% |
| Assets held for sale and in discontinued operations | 282 | 9,840 | (97)% |
| Total current assets | 19,226 | 26,458 | (27)% |

For a discussion on Cash and equivalents, see sections “Liquidity and Capital Resources—Principal sources of funding” and “Cash flows” for further details.

The increase in restricted cash relates to certain amounts received on the sale of the Power Grids business which are being held in escrow pending the finalization of legal transfer of certain entities of that business to Hitachi ABB Power Grids. See “Note 3 - Discontinued operations” to our Consolidated Financial Statements.

Marketable securities and short-term investments increased as a significant portion of the proceeds received for the sale of the Power Grids business are invested in money market funds (see “Note 5 - Cash and equivalents, marketable securities and short-term investments” to our Consolidated Financial Statements).

Receivables, net, increased 6 percent primarily due to currency exchange movements. In local currency, Receivables, net, increased 2 percent.

Contract assets decreased 4 percent (9 percent in local currencies). The decrease reflects lower amounts in the non-core businesses and the Motion Business Area. This was partially offset by higher levels in the Industrial Automation and Robotics & Discrete Automation Business Areas.

Inventories, net, increased 7 percent primarily due to movements in exchange rates. In local currencies, inventory decreased 1 percent.

Current assets held for sale and in discontinued operations decreased to \$282 million from \$9,840 million due to the sale in 2020 of both the solar inverters and Power Grids businesses. The balance at December 31, 2020, relates primarily to working capital balances of certain contracts in the Power Grids business which ABB is executing for the benefit of Hitachi ABB Power Grids. For the details of the assets of the Power Grids business see “Note 3 - Discontinued operations” to our Consolidated Financial Statements.

| (\$ in millions) | December 31, | | % Change |
|--|---------------|---------------|--------------|
| | 2020 | 2019 | |
| Current liabilities | | | |
| Accounts payable, trade | 4,571 | 4,353 | 5% |
| Contract liabilities | 1,903 | 1,719 | 11% |
| Short-term debt and current maturities of long-term debt | 1,293 | 2,287 | (43)% |
| Current operating leases | 270 | 305 | (11)% |
| Provisions for warranties | 1,035 | 816 | 27% |
| Other provisions | 1,519 | 1,375 | 10% |
| Other current liabilities | 4,181 | 3,761 | 11% |
| Liabilities held for sale and in discontinued operations | 644 | 5,650 | (89)% |
| Total current liabilities | 15,416 | 20,266 | (24)% |

Accounts payable, trade, increased 5 percent due primarily to currency exchange rate movements. Excluding movements in exchange rates, the balance was steady.

The decrease in Short-term debt and current maturities of long-term debt was primarily due to repayment at maturity of both the USD 300 million 2.8% Notes and the EUR 1,000 million floating rate Notes. In addition, we reduced the amount outstanding on the U.S. commercial paper program by \$676 million. This was partially offset by a reclassification to Short-term debt and current maturities of long-term debt of the USD 650 million Notes and the CHF 350 million Bonds.

Current operating leases includes the portion of the operating lease liabilities that are due to be paid in the next 12 months. For a summary of operating lease liabilities, see “Note 14 - Leases” to our Consolidated Financial Statements.

Provisions for warranties increased 27 percent (20 percent in local currencies). The increase is mainly due to an increase of \$143 million in the warranty provision related to a divested business. For details on the change in the Provision for warranties, see “Note 15 - Commitments and contingencies” to our Consolidated Financial Statements.

Current liabilities held for sale and in discontinued operations decreased to \$644 million from \$5,650 million due to the sale in 2020 of both the solar inverters and Power Grids businesses. The amount at December 31, 2020, relates to certain working capital balances of the Power Grids business as described above. For the details of the liabilities of the Power Grids business see “Note 3 - Discontinued operations” to our Consolidated Financial Statements.

| (\$ in millions) | December 31, | | % Change |
|---|---------------|---------------|------------|
| | 2020 | 2019 | |
| Non-current assets | | | |
| Restricted cash, non-current | 300 | — | n.a. |
| Property, plant and equipment, net | 4,174 | 3,972 | 5% |
| Operating lease right-of-use assets | 969 | 994 | (3)% |
| Goodwill | 10,850 | 10,825 | 0% |
| Intangible assets, net | 2,078 | 2,252 | (8)% |
| Prepaid pension and other employee benefits | 360 | 133 | 171% |
| Investments in equity-accounted companies | 1,784 | 33 | n.a. |
| Deferred taxes | 843 | 910 | (7)% |
| Other non-current assets | 504 | 531 | (5)% |
| Total non-current assets | 21,862 | 19,650 | 11% |

Restricted cash at December 31, 2020, represents certain amounts received on the sale of the Power Grids business which have been placed in escrow, pending resolution of certain of our contractual obligations to Hitachi Ltd. See “Note 3 - Discontinued operations” to our Consolidated Financial Statements.

In 2020, Property, plant and equipment, net, increased 5 percent (flat in local currencies) as net capital expenditures (purchases net of disposals for property, plant and equipment) were at a similar level to the annual depreciation recorded in 2020.

In 2020, Goodwill was flat (decreased 2 percent in local currencies). The decrease in local currencies includes the impact of recording goodwill impairments of \$311 million in 2020.

Intangible assets, net, decreased 8 percent (11 percent in local currencies) due to the amortization recorded during the year. For additional information on goodwill and intangible assets see “Note 11 - Goodwill and intangible assets” to our Consolidated Financial Statements.

The balance for Investment in equity-accounted companies at December 31, 2020, primarily represents our remaining 19.9 percent interest in the Hitachi ABB Power Grids joint venture. For additional information on investment in equity-accounted companies see “Note 4 - Acquisitions, divestments and equity-accounted companies” to our Consolidated Financial Statements.

Prepaid pension and other employee benefits increased 171 percent reflecting changes in the funding status for pension plans primarily in Switzerland due to discretionary contributions made in 2020. For additional information on Pension and employee benefits see “Note 17 - Employee benefits” to our Consolidated Financial Statements.

In 2020, Deferred taxes, decreased 7 percent (18 percent in local currencies). For details on deferred tax assets see “Note 16 - Income taxes” to our Consolidated Financial Statements.

| (\$ in millions) | December 31, | | % Change |
|--|--------------|---------------|--------------|
| | 2020 | 2019 | |
| <i>Non-current liabilities</i> | | | |
| Long-term debt | 4,828 | 6,772 | (29)% |
| Non-current operating leases | 731 | 717 | 2% |
| Pension and other employee benefits | 1,231 | 1,793 | (31)% |
| Deferred taxes | 661 | 911 | (27)% |
| Other non-current liabilities | 2,025 | 1,669 | 21% |
| Liabilities held for sale and in discontinued operations | 197 | — | n.a. |
| Total non-current liabilities | 9,673 | 11,862 | (18)% |

Long-term debt decreased 29 percent. The decrease in 2020 reflects the reclassifications to short-term of the bonds and notes described above. In addition, we reduced our outstanding debt by \$508 million in connection with cash tender offers to the noteholders of our USD 750 million Notes, due 2028, and our USD 750 million Notes, due 2042. We also exercised our early redemption options on the full amounts outstanding of our USD 250 million Notes due 2021 and our USD 450 million Notes due 2023 under the original terms of these instruments. During 2020, Long-term debt increased 4 percent due to movements in foreign exchange rates. For additional information on Long-term debt, see “Liquidity and Capital Resources—Debt and interest rates” as well as “Note 12 - Debt” to our Consolidated Financial Statements.

Non-current operating leases includes the portion of the operating lease liabilities that are due to be paid in more than 12 months.

Pension and employee benefits decreased 31 percent (37 percent in local currencies). The decrease in 2020 primarily reflects the settlement of certain defined benefit pension obligations during 2020. For additional information on Pension and employee benefits see “Note 17 - Employee benefits” to our Consolidated Financial Statements.

For a breakdown of Other non-current liabilities, see “Note 13 - Other provisions, other current liabilities and other non-current liabilities” to our Consolidated Financial Statements.

Non-current liabilities held for sale and in discontinued operations relate to the sale in 2020 of the Power Grids business. The amount at December 31, 2020, relates to certain amounts which are expected to be payable in more than one year. For the details of the liabilities of the Power Grids business see “Note 3 - Discontinued operations” to our Consolidated Financial Statements.

Cash flows

The Consolidated Statements of Cash Flows are shown on a continuing operations basis, with the effects of discontinued operations shown in aggregate for each major cash flow activity and also include the impact from changes in restricted cash.

The Consolidated Statements of Cash Flows can be summarized as follows:

| (\$ in millions) | 2020 | 2019 | 2018 |
|---|------------|-----------|----------------|
| Net cash provided by operating activities | 1,693 | 2,325 | 2,924 |
| Net cash provided by (used in) investing activities | 6,760 | (815) | (3,085) |
| Net cash used in financing activities | (8,175) | (1,383) | (789) |
| Effects of exchange rate changes on cash and equivalents | 79 | (28) | (131) |
| Net change in cash and equivalents and restricted cash | 357 | 99 | (1,081) |

Operating activities

| (\$ in millions) | 2020 | 2019 | 2018 |
|--|--------------|--------------|--------------|
| Net income | 5,205 | 1,528 | 2,298 |
| Less: Income from discontinued operations, net of tax | (4,860) | (438) | (723) |
| Depreciation and amortization | 915 | 961 | 916 |
| Total adjustments to reconcile net income to net cash provided by operating activities (excluding depreciation and amortization) | 263 | 220 | (189) |
| Total changes in operating assets and liabilities | 352 | (372) | 50 |
| Net cash provided by operating activities — continuing operations | 1,875 | 1,899 | 2,352 |
| Net cash provided by (used in) operating activities — discontinued operations | (182) | 426 | 572 |

Cash flows from operating activities of continuing operations in 2020 provided net cash of \$1,875 million, a decrease of 1 percent from 2019. In 2020, lower cash effective net income (i.e. net income from continuing operations adjusted for depreciation, amortization and other non-cash items) which included the impacts of the cash payments made to settle certain international pension plans in 2020 as well as payments for certain project and legal settlements was offset by higher cash generated from a reduction in working capital during the year. In 2020, net cash provided by operating activities benefited from a reduction of inventory levels (in local currencies) and a more favorable timing of cash flows on long-term projects.

Cash flows from operating activities of discontinued operations in 2020 decreased to a net outflow of \$182 million compared to an inflow of \$426 million in 2019. This primarily reflects the timing of the divestment of the Power Grids business in July 2020, with 2020 primarily reflecting the cash flows in the first half of the year. This business typically generated most of its operating cash flows in the second half of the year and thus the two years are not comparable.

Investing activities

| (\$ in millions) | 2020 | 2019 | 2018 |
|---|----------------|--------------|----------------|
| Purchases of investments | (5,933) | (748) | (322) |
| Purchases of property, plant and equipment and intangible assets | (694) | (762) | (772) |
| Acquisition of businesses (net of cash acquired) and increases in cost- and equity-accounted companies | (121) | (22) | (2,664) |
| Proceeds from sales of investments | 4,341 | 749 | 567 |
| Proceeds from maturity of investments | 11 | 80 | 160 |
| Proceeds from sales of property, plant and equipment | 114 | 82 | 72 |
| Proceeds from sales of businesses (net of transaction costs and cash disposed) and cost- and equity-accounted companies | (136) | 69 | 113 |
| Net cash from settlement of foreign currency derivatives | 138 | (76) | (30) |
| Other investing activities | 8 | (23) | (32) |
| Net cash used in investing activities — continuing operations | (2,272) | (651) | (2,908) |
| Net cash provided by (used in) investing activities — discontinued operations | 9,032 | (164) | (177) |

Net cash used in investing activities for continuing operations in 2020 was \$2,272 million compared to \$651 million in 2019. The amount in 2020 reflects primarily the net investment in money market funds of amounts received from the sale of the Power Grids business as well as cash payments for purchases of property, plant and equipment. In 2020, we also recorded net investing cash flows of \$138 million for settlements of derivatives compared to net outflows of \$76 million in 2019.

The following presents purchases of property, plant and equipment and intangible assets by significant asset category:

| (\$ in millions) | 2020 | 2019 | 2018 |
|---|------------|------------|------------|
| Construction in progress | 493 | 536 | 523 |
| Purchase of machinery and equipment | 134 | 156 | 152 |
| Purchase of land and buildings | 17 | 26 | 28 |
| Purchase of intangible assets | 50 | 44 | 69 |
| Purchases of property, plant and equipment and intangible assets | 694 | 762 | 772 |

In 2020 there were no significant business acquisitions. The divestment of the solar inverters business resulted in a net cash outflow of \$143 million in 2020.

In 2020, we divested the Power Grids business and recorded net proceeds of \$9,168 million (net of transaction costs and purchase price related repayments) which are included in cash provided by investing activities from discontinued operations.

Financing activities

| (\$ in millions) | 2020 | 2019 | 2018 |
|--|----------------|----------------|--------------|
| Net changes in debt with maturities of 90 days or less | (587) | 164 | 221 |
| Increase in debt | 343 | 2,406 | 1,914 |
| Repayment of debt | (3,459) | (2,156) | (830) |
| Delivery of shares | 412 | 10 | 42 |
| Purchase of treasury stock | (3,048) | — | (250) |
| Dividends paid | (1,736) | (1,675) | (1,717) |
| Dividends paid to noncontrolling shareholders | (82) | (90) | (86) |
| Other financing activities | (49) | 13 | (35) |
| Net cash used in financing activities — continuing operations | (8,206) | (1,328) | (741) |
| Net cash provided by (used in) financing activities — discontinued operations | 31 | (55) | (48) |

Our financing cash flow activities primarily include debt transactions (both from the issuance of debt securities and borrowings directly from banks), share transactions and payments of distributions to controlling and noncontrolling shareholders. Net cash from financing activities for discontinued operations represents primarily distributions paid to noncontrolling shareholders of certain subsidiaries classified in discontinued operations and in 2020, also includes net borrowings of the discontinued operation.

In 2020, the net outflow for debt with maturities of 90 days or less related to net repayments of amounts outstanding under the U.S. commercial paper program.

In 2020, “Repayment of debt” includes the repayment at maturity of the USD 300 million 2.8% Notes and the EUR 1,000 million floating rate Notes. We also made payments of \$1,376 million in connection with early retirement of bonds including partial public tenders of both our USD 750 million 3.8% Notes due 2028 and our USD 750 million 4.375% Notes due 2042 as well as full redemptions of our USD 250 million 5.625% Notes due 2021 and our USD 450 million 3.375% Notes due 2023.

“Delivery of shares” in 2020 reflects cash received primarily from the exercise of options in connection with our Management Incentive Plan (resulting in a delivery of 16.5 million shares) and in connection with our Employee Share Acquisition Plan (resulting in a delivery of 1.4 million shares). All shares were delivered out of Treasury stock.

In 2020, “Purchase of treasury stock” reflects \$2,702 million of cash payments to purchase 109 million of our own shares in connection with the announced share buyback program. It also reflects \$346 million paid to purchase 13 million shares on the open market during 2020.

Disclosures about contractual obligations and commitments

The contractual obligations presented in the table below represent our estimates of future payments under fixed contractual obligations and commitments. These amounts may differ from those reported in our Consolidated Balance Sheet at December 31, 2020. Changes in our business needs, cancellation provisions and changes in interest rates, as well as actions by third parties and other factors, may cause these estimates to change. Therefore, our actual payments in future periods may vary from those presented below. The following table summarizes certain of our contractual obligations and principal and interest payments under our debt instruments, leases and purchase obligations at December 31, 2020:

| (\$ in millions) | Total | Less than 1 year | 1 - 3 years | 3 - 5 years | More than 5 years |
|---|---------------|---------------------|----------------|----------------|----------------------|
| Payments due by period | | | | | |
| Long-term debt obligations | 5,730 | 1,108 | 2,115 | 1,321 | 1,186 |
| Interest payments related to long-term debt obligations | 842 | 128 | 148 | 94 | 472 |
| Operating lease obligations ⁽¹⁾ | 1,083 | 282 | 371 | 210 | 220 |
| Finance lease obligations ⁽¹⁾ | 230 | 38 | 63 | 49 | 80 |
| Purchase obligations | 3,264 | 2,701 | 458 | 80 | 25 |
| Total | 11,149 | 4,257 | 3,155 | 1,754 | 1,983 |

(1) Lease obligations represent total cash payments to be made in the future, and include an implied interest expense, being the difference between undiscounted cash flows and discounted cash flows, of \$82 million and \$43 million, for operating and finance leases, respectively. See “Note 14 - Leases” to our Consolidated Financial Statements.

In the table above, the Long-term debt obligations reflect the cash amounts to be repaid upon maturity of those debt obligations. The cash obligations above will differ from Long-term debt due to the impacts of fair value hedge accounting adjustments and premiums or discounts on certain debt. In addition, finance lease obligations are shown separately in the table above while they are combined with long-term debt amounts in our Consolidated Balance Sheets.

We have determined the interest payments related to long-term debt obligations by reference to the payments due under the terms of our debt obligations at the time such obligations were incurred. However, we use interest rate swaps to modify the interest characteristics of certain of our debt obligations. The net effect of these swaps may be to increase or decrease the actual amount of our cash interest payment obligations, which may differ from those stated in the above table. For further details on our debt obligations and the related hedges, see “Note 12 - Debt” to our Consolidated Financial Statements.

Of the total of \$1,455 million unrecognized tax benefits (net of deferred tax assets) at December 31, 2020, it is expected that \$32 million will be paid within less than a year. However, we cannot make a reasonably reliable estimate as to the related future payments for the remaining amount.

Off-balance sheet arrangements

Commercial commitments

We disclose the maximum potential exposure of certain guarantees, as well as possible recourse provisions that may allow us to recover from third parties amounts paid out under such guarantees. The maximum potential exposure does not allow any discounting of our assessment of actual exposure under the guarantees. The information below reflects our maximum potential exposure under the guarantees, which is higher than our assessment of the expected exposure.

Guarantees

The following table provides quantitative data regarding our third-party guarantees. The maximum potential payments represent a worst-case scenario, and do not reflect our expected outcomes.

| | December 31, | |
|---|---|--------------|
| | 2020 | 2019 |
| (\$ in millions) | Maximum potential payments ⁽¹⁾ | |
| Performance guarantees | 6,726 | 1,860 |
| Financial guarantees | 339 | 10 |
| Indemnification guarantees ⁽²⁾ | 177 | 64 |
| Total | 7,242 | 1,934 |

(1) Maximum potential payments include amounts in both continuing and discontinued operations.

(2) Certain indemnifications provided to Hitachi in connection with the divestment of Power Grids are without limit.

The carrying amount of liabilities recorded in the Consolidated Balance Sheets reflects our best estimate of future payments, which we may incur as part of fulfilling our guarantee obligations. In respect of the above guarantees, the carrying amounts of liabilities at December 31, 2020, amounted to \$135 million, which was included in discontinued operations, while at December 31, 2019, balances were not significant.

In addition, in the normal course of bidding for and executing certain projects, we have entered into standby letters of credit, bid/performance bonds and surety bonds (collectively “performance bonds”) with various financial institutions. Customers can draw on such performance bonds in the event that we do not fulfill our contractual obligations. We would then have an obligation to reimburse the financial institution for amounts paid under the performance bonds. At December 31, 2020 and 2019, the total outstanding performance bonds aggregated to \$4.3 billion and \$6.8 billion, respectively, of which \$0.3 billion and \$3.7 billion, respectively, relate to discontinued operations. There have been no significant amounts reimbursed to financial institutions under these types of arrangements in 2020, 2019 and 2018.

For additional descriptions of our performance, financial and indemnification guarantees see “Note 15 - Commitments and contingencies” to our Consolidated Financial Statements.

Item 6. Directors, Senior Management and Employees

SUMMARY OF CORPORATE GOVERNANCE APPROACH

Corporate governance - general principles

ABB is committed to the highest international standards of corporate governance and this is reinforced in its structure, processes and rules as outlined in this section of the Annual Report. In line with this, ABB complies with the general principles as set forth in the Swiss Code of Best Practice for Corporate Governance, as well as those of the capital markets where its shares are listed and traded. In addition to the provisions of the Swiss Code of Obligations, ABB's key principles and rules on corporate governance are laid down in ABB's Articles of Incorporation, the ABB Ltd Board Regulations & Corporate Governance Guidelines (which includes the regulations of ABB's Board committees and the ABB Ltd Related Party Transaction Policy, which was prepared based on the Swiss Code of Best Practice for Corporate Governance and the independence criteria set forth in the corporate governance rules of the New York Stock Exchange), and the ABB Code of Conduct. These documents are available on ABB's website at <https://new.abb.com/about/corporate-governance>. It is the duty of ABB's Board of Directors (the Board) to review and amend or propose amendments to those documents from time to time to reflect the most recent developments and practices, as well as to ensure compliance with applicable laws and regulations. Shareholders and other interested parties may communicate with the Chairman of the Board or the independent directors by writing to ABB Ltd (Attn: Chairman of the Board / independent directors), at Affolternstrasse 44, CH-8050 Zurich, Switzerland.

Compensation governance and Board and EC compensation

Information about ABB's compensation governance as well as Board and Executive Committee (EC) compensation and shareholdings is provided in the Compensation Report that can be found in the section titled "Compensation" below.

BOARD OF DIRECTORS

Board and Board committees (2020 - 2021 board term)

| Board of Directors | | |
|--|--|-------------------------------|
| Chairman: Peter R. Voser | Matti Alahuhta | Jennifer Xin-Zhe Li |
| Vice-Chairman: Jacob Wallenberg | Gunnar Brock | Geraldine Matchett |
| | David Constable | David Meline |
| | Frederico Fleury Curado | Satish Pai |
| | Lars Förberg | |
| Finance, Audit and Compliance Committee | Governance and Nomination Committee | Compensation Committee |
| David Meline (chairman) | Jacob Wallenberg (chairman) | David Constable (chairman) |
| Gunnar Brock | Matti Alahuhta | Frederico Fleury Curado |
| Geraldine Matchett | Lars Förberg | Jennifer Xin-Zhe Li |
| Satish Pai | | |

Board governance

The Board

The Board defines the ultimate direction of the business of ABB and issues the necessary instructions. It determines the organization of the ABB Group and appoints, removes and supervises the persons entrusted with the executive management and representation of ABB. The internal organizational structure and the definition of the areas of responsibility of the Board, as well as the information and control instruments vis-à-vis the Executive Committee are set forth in the ABB Ltd Board Regulations & Corporate Governance Guidelines (available at <https://new.abb.com/about/corporate-governance>).

The Board takes decisions as a whole, supported by its three committees: the Finance, Audit and Compliance Committee (FACC), the Governance and Nomination Committee (GNC), and the Compensation Committee (CC). These committees assist the Board in its tasks and report regularly to the Board. The members of the Board committees either are required to be independent or are elected directly by the shareholders. The Board and its committees meet regularly throughout the year.

The directors and officers of a Swiss corporation are bound, as specified in the Swiss Code of Obligations, to perform their duties with all due care, to safeguard the interests of the corporation in good faith and to extend equal treatment to shareholders in like circumstances.

The Swiss Code of Obligations does not specify what standard of due care is required of the directors of a corporate board. However, it is generally held by Swiss legal scholars and jurisprudence that the directors must have the requisite capability and skill to fulfill their function, and must devote the necessary time to the discharge of their duties. Moreover, the directors must exercise all due care that a prudent and diligent director would have taken in like circumstances. Finally, the directors are required to take actions in the best interests of the corporation and may not take any actions that may be harmful to the corporation.

Although the Swiss Code of Obligations does not discuss specifically conflicts of interest for board members, the ABB Ltd Board Regulations & Corporate Governance Guidelines (available at <https://new.abb.com/about/corporate-governance>) state that board members shall avoid entering into any situation in which their personal or financial interest may conflict with the interests of ABB.

Chairman of the Board

The Chairman is elected by the shareholders to represent their interests in creating sustainable value through effective governance. In addition, the Chairman (1) takes provisional decisions on behalf of the Board on urgent matters where a regular Board decision cannot be obtained, (2) calls for Board meetings and sets the related agendas, (3) interacts with the CEO and other EC members on a more frequent basis outside of Board meetings and (4) represents the Board internally and in the public sphere.

Vice-Chairman of the Board

The Vice-Chairman is elected by the Board and handles the responsibilities of the Chairman to the extent the Chairman is unable to do so or would have a conflict of interest in doing so. He also acts as counselor/advisor to the Chairman on any matters that are Company or Board relevant and as appropriate or as the Chairman may require and with a particular focus on strategic aspects related to the Company and its business in general. In addition, the Vice-Chairman takes such other actions as may be decided by the Board or requested by the Chairman.

Finance, Audit and Compliance Committee

The FACC is responsible for overseeing (1) the integrity of ABB's financial statements, (2) ABB's compliance with legal, tax and regulatory requirements, (3) the independent auditors' qualifications and independence, (4) the performance of ABB's internal audit function and external auditors, and (5) ABB's capital structure, funding requirements and financial risk and policies.

The FACC must comprise three or more independent directors who have a thorough understanding of finance and accounting. The Chairman of the Board and, upon invitation by the committee's chairman, the CEO or other members of the Executive Committee may participate in the committee meetings, provided that any potential conflict of interest is avoided and confidentiality of the discussions is maintained. In addition, the chief integrity officer, the head of internal audit and the external auditors participate in the meetings as appropriate. The Board has determined that each member of the FACC is an audit committee financial expert as such term is defined in Form 20-F.

Governance and Nomination Committee

The GNC is responsible for (1) overseeing corporate governance practices within ABB, (2) overseeing corporate social responsibility (including health, safety and environment as well as sustainability), (3) nominating candidates for the Board, the role of CEO and other positions on the Executive Committee, and (4) succession planning and employment matters relating to the Board and the Executive Committee. The GNC is also responsible for maintaining an orientation program for new Board members and an ongoing education program for existing Board members.

The GNC must comprise three or more independent directors. The Chairman of the Board (unless he is already a member) and, upon invitation by the committee's chairman, the CEO or other members of the Executive Committee may participate in the committee meetings, provided that any potential conflict of interest is avoided and confidentiality of the discussions is maintained.

Compensation Committee

The CC is responsible for compensation matters relating to the Board and the Executive Committee.

The CC must comprise three or more directors who are elected by the shareholders. The Chairman of the Board and, upon invitation by the committee's chairman, the CEO or other members of the Executive Committee may participate in the committee meetings, provided that any potential conflict of interest is avoided and confidentiality of the discussions is maintained.

Board membership

Board composition

In proposing individuals to be elected to the Board, the Board seeks to align the composition and skills of the Board with the Company's strategic needs, business portfolio, geographic reach and culture. The Board must be diverse in all aspects including gender, nationalities, geographic/regional experience and business experience. In addition, the average tenure of the members of the Board should be well-balanced. The Board also considers the number of other mandates of each Board member to ensure that he/she will have sufficient time to dedicate to his/her role as an ABB Board member.

Elections and term of office

The members of the Board of Directors and the Chairman of the Board as well as the members of the Compensation Committee are elected by shareholders at the general meeting of shareholders for a term of office extending until completion of the next ordinary general meeting of shareholders. Members whose terms of office have expired shall be immediately eligible for re-election. Our Articles of Incorporation (available at <https://new.abb.com/about/corporate-governance>) do not provide for the retirement of directors based on their age. However, an age limit for members of the Board is set forth in the ABB Ltd Board Regulations & Corporate Governance Guidelines (although waivers are possible and subject to Board discretion) (available at <https://new.abb.com/about/corporate-governance>). If the office of the Chairman of the Board of Directors or any position on the Compensation Committee becomes vacant during a Board term, the Board of Directors may appoint (shall appoint in the case of the Chairman of the Board) another individual from among its members to that position for the remainder of that term. The Board of Directors shall consist of no less than 7 and no more than 13 members.

Members of the Board (2020-2021 board term)

| Board Member | Board Experience | | Corporate Officer Experience | | Other Business Experience | | | Global Experience | Country of Origin / Nationality | Gender | Non-Executive | Independent |
|-------------------------|--------------------------|-------------------------------|------------------------------|-----|---------------------------|-----------------|----------------|----------------------|---------------------------------|--------|---------------|-------------|
| | ABB Board Tenure (years) | Other Public Board Experience | CEO | CFO | Operations | Risk Management | Sustainability | Digital / Technology | | | | |
| Peter R. Voser | 6 | ● | ● | ● | ● | ● | ● | ● | CH | M | Yes | Yes |
| Jacob Wallenberg | 22 | ● | ● | | ● | ● | ● | ● | SE | M | Yes | Yes |
| Matti Alahuhta | 7 | ● | ● | | ● | ● | ● | ● | FI | M | Yes | Yes |
| Gunnar Brock | 3 | ● | ● | | ● | ● | ● | | SE | M | Yes | Yes |
| David Constable | 6 | ● | ● | | ● | ● | ● | | CA, US | M | Yes | Yes |
| Frederico Fleury Curado | 5 | ● | ● | | ● | ● | ● | ● | BR, PT | M | Yes | Yes |
| Lars Förberg | 4 | ● | ● | | | ● | ● | | SE, CH | M | Yes | Yes |
| Jennifer Xin-Zhe Li | 3 | ● | | ● | ● | ● | ● | ● | CN, CA | F | Yes | Yes |
| Geraldine Matchett | 3 | | ● | ● | | ● | ● | | CH, UK, FR | F | Yes | Yes |
| David Meline | 5 | ● | | ● | | ● | | | US, CH | M | Yes | Yes |
| Satish Pai | 5 | ● | ● | | ● | ● | ● | ● | IN | M | Yes | Yes |

Peter R. Voser has been a member and Chairman of ABB's Board of Directors since April 2015. He was also ABB's Chief Executive Officer from April 2019 to February 2020. He is a member of the board of directors of IBM Corporation (U.S.). He is also a member of the board of directors of Temasek Holdings (Private) Limited (Singapore) as well as chairman of the board of PSA International Pte Ltd (Singapore), one of its subsidiaries. In addition, he is the chairman of the board of trustees of the St. Gallen Foundation for International Studies. He was previously the chief executive officer of Royal Dutch Shell plc (The Netherlands). Mr. Voser was born in 1958 and is a Swiss citizen.

Jacob Wallenberg has been a member of ABB's Board of Directors since June 1999 and Vice-Chairman since April 2015. He is the chairman of the board of Investor AB (Sweden). He is vice-chairman of the boards of Telefonaktiebolaget LM Ericsson, FAM AB and Patricia Industries (all Sweden). He is also a member of the boards of directors of Nasdaq, Inc. (U.S.) and the Knut and Alice Wallenberg Foundation (Sweden) as well as a member of the nomination committee of SAS AB (Sweden). Mr. Wallenberg was born in 1956 and is a Swedish citizen.

Matti Alahuhta has been a member of ABB's Board of Directors since April 2014. He is the chairman of the board of DevCo Partners Oy and vice-chairman of the board of Metso Outotec Corporation (both Finland). He is also a member of the boards of directors of KONE Corporation (Finland) and AB Volvo (Sweden). He was previously the president and chief executive officer of KONE Corporation and he served in several executive positions at Nokia Corporation (Finland). Mr. Alahuhta was born in 1952 and is a Finnish citizen.

Gunnar Brock has been a member of ABB's Board of Directors since March 2018. He is currently chairman of the boards of Neptunia Invest AB, Mölnlycke Health Care AB and Stena AB (all Sweden). He is a member of the boards of directors of Investor AB and Patricia Industries (both Sweden). He was formerly president and chief executive officer of Atlas Copco AB (Sweden). Mr. Brock was born in 1950 and is a Swedish citizen.

David Constable has been a member of ABB's Board of Directors since April 2015. Effective January 2021, he was appointed chief executive officer of Fluor Corporation (U.S.), for which he continues to serve as a member of the board of directors. He was a member of the boards of directors of Rio Tinto plc (U.K.) and Rio Tinto Limited (Australia) until the end of 2020. He was formerly the chief executive officer and president as well as a member of the board of directors of Sasol Limited (South Africa). He joined Sasol after more than 29 years with Fluor Corporation (U.S.). Mr. Constable was born in 1961 and is a Canadian and U.S. citizen.

Frederico Fleury Curado has been a member of ABB's Board of Directors since April 2016. He is the chief executive officer of Ultrapar Participações S.A. (Brazil), the holding company of the Ultra Group of companies. Mr. Curado is a member of the board of directors of Transocean Ltd. (Switzerland). He was formerly the chief executive officer of Embraer S.A. (Brazil). Mr. Curado was born in 1961 and is a Brazilian and Portuguese citizen.

Lars Förberg has been a member of ABB's Board of Directors since April 2017. He is co-founder and managing partner of Cevian Capital. Mr. Förberg was born in 1965 and is a Swedish and Swiss citizen.

Jennifer Xin-Zhe Li has been a member of ABB's Board of Directors since March 2018. She is a member of the board of directors of Flex Ltd (Singapore/U.S.) as well as, through May 2021, of the boards of directors of Philip Morris International Inc. (U.S.) and The Hongkong and Shanghai Banking Corporation Limited (Hong Kong). Ms. Li is a founder and general partner of Changcheng Investment Partners (P.R.C.), a private investment fund. From 2008 to 2018, she served as chief financial officer of Baidu Inc. (P.R.C.) and chief executive officer of Baidu Capital (P.R.C.). Prior to that, Ms. Li spent 14 years with General Motors, holding various senior finance positions, including chief financial officer of GM China and corporate controller for GMAC North American Operations. Ms. Li was born in 1967 and is a Canadian citizen.

Geraldine Matchett has been a member of ABB's Board of Directors since March 2018. She is the co-chief executive officer (since February 2020), the chief financial officer and a member of the managing board of Royal DSM N.V. (The Netherlands). She was previously chief financial officer of SGS Ltd (Switzerland). Prior to joining SGS she worked as an auditor at Deloitte Ltd (Switzerland) and KPMG LLP (U.K.). Ms. Matchett was born in 1972 and is a Swiss, British and French citizen.

David Meline has been a member of ABB's Board of Directors since April 2016. He is the chief financial officer of Moderna Inc. (U.S.). From 2014 through 2019, Mr. Meline was the chief financial officer of Amgen Inc. (U.S.). He was formerly with the 3M Company (U.S.), where he served as chief financial officer. Prior to joining 3M, Mr. Meline worked for more than 20 years for General Motors Company (U.S.). Mr. Meline was born in 1957 and is a U.S. and Swiss citizen.

Satish Pai has been a member of ABB's Board of Directors since April 2016. He is the managing director and a member of the board of directors of Hindalco Industries Ltd. (India). He joined Hindalco in 2013 after 28 years with Schlumberger Limited (U.S.). Mr. Pai was born in 1961 and is an Indian citizen.

As of December 31, 2020, none of the Board members held any official functions or political posts. Further information on ABB's Board members can be found by clicking on the ABB Board of Directors link (available at <https://new.abb.com/about/corporate-governance>).

Board meetings and attendance

The Board and its committees have regularly scheduled meetings throughout the year. These meetings are supplemented by additional meetings (either in person or by conference call), as necessary. Board meetings are convened by the Chairman or upon request by any other board member or the CEO. Documentation covering the various items of the agenda for each Board meeting is sent out in advance to each Board member in order to allow each member time to study the covered matters prior to the meetings. Each board meeting has a private session without management or others being present. Decisions made at the Board meetings are recorded in written minutes of the meetings. Some decisions are also taken by circular resolution.

2020 was an intensive year for the Board and its committees. The table below shows the number of meetings held during 2020 by the Board and its committees, their average duration, as well as the attendance of the individual Board members. The Board meetings shown include a strategic retreat attended by the members of the Board and the EC.

2020 Board and Board Committee Meetings

| Meetings and attendance | Pre annual general meeting 2020 | | | | | Post annual general meeting 2020 | | | | |
|--------------------------|---------------------------------|------------|------|-----|------|----------------------------------|------------|------|-----|-----|
| | Board | | FACC | GNC | CC | Board | | FACC | GNC | CC |
| | Mtg. | Conf. Call | | | | Mtg. | Conf. Call | | | |
| Average duration (hours) | 10 | 1 | 2.75 | 1.5 | 1.75 | 8.5 | 1 | 3.25 | 1.5 | 1.6 |
| Number of meetings | 1 | 1 | 2 | 2 | 2 | 4 | 3 | 5 | 3 | 6 |
| Meetings attended: | | | | | | | | | | |
| Peter R. Voser | 1 | 1 | | | | 4 | 3 | | | |
| Jacob Wallenberg | 1 | 1 | | 2 | | 4 | 3 | | 3 | |
| Matti Alahuhta | 1 | 1 | | 2 | | 4 | 3 | | 3 | |
| Gunnar Brock | 1 | 1 | 2 | | | 4 | 3 | 5 | | |
| David Constable | 1 | 1 | | | 2 | 4 | 3 | | | 6 |
| Frederico Fleury Curado | 1 | 1 | | | 2 | 4 | 3 | | | 6 |
| Lars Förberg | 1 | 1 | | 2 | | 4 | 3 | | 3 | |
| Jennifer Xin-Zhe Li | 1 | 1 | | | 2 | 4 | 3 | | | 6 |
| Geraldine Matchett | 1 | 1 | 2 | | | 4 | 2 | 5 | | |
| David Meline | 1 | 1 | 2 | | | 4 | 3 | 5 | | |
| Satish Pai | 1 | 1 | 2 | | | 4 | 3 | 5 | | |

Mandates of Board members outside the ABB Group

No member of the Board may hold more than ten additional mandates of which no more than four may be in listed companies. Certain types of mandates, such as those in our subsidiaries, those in the same group of companies and those in non-profit and charitable institutions, are not subject to those limits. Additional details can be found in Article 38 of ABB's Articles of Incorporation (available at <https://new.abb.com/about/corporate-governance>).

Business relationships between ABB and its Board members

This section describes important business relationships between ABB and its Board members, or companies and organizations represented by them. This determination has been made based on ABB Ltd's Related Party Transaction Policy. This policy is contained in the ABB Ltd Board Regulations & Corporate Governance Guidelines (available at <https://new.abb.com/about/corporate-governance>).

IBM Corporation (IBM) is an important supplier to ABB. IBM supplies ABB primarily with IT related hardware, software and services. Peter Voser is a director of IBM.

After reviewing the level of purchases from IBM, the Board has determined that ABB's business relationship with IBM is not unusual in its nature or conditions and does not constitute a material business relationship. As a result, the Board concluded that all members of the Board are considered to be independent directors. This determination was made in accordance with ABB Ltd's Related Party Transaction Policy which was prepared based on the Swiss Code of Best Practice for Corporate Governance and the independence criteria set forth in the corporate governance rules of the New York Stock Exchange.

Information and control systems of the Board vis-à-vis the Executive Committee

Information from the Executive Committee

In accordance with the ABB Board Regulations and Corporate Governance Guidelines (available at <https://new.abb.com/about/corporate-governance>), the CEO reports regularly to the Board about ABB's overall business and when circumstances require on any extraordinary events that may arise. This includes:

- Reports on financial results (including profit and loss, balance sheet and cash flows);
- Changes in key members of management;
- Information that may affect the supervisory or monitoring function of the Board (including on matters of strategy and compliance); and
- Significant developments in legal matters.

At each Board meeting, Board members are briefed by the Chairman, CEO, CFO and other EC members on ABB's business performance and on material developments affecting ABB. Outside of Board meetings, Board members generally channel any requests for information through the Chairman. Board members also obtain information through offsite retreats with the Executive Committee and visits to ABB sites. In addition, Board members obtain information through the Board committees in which they participate and which are also attended by relevant EC members and management representatives from human resources, finance, legal and the business.

Internal Audit

ABB has an Internal Audit team that provides independent objective assurance and other services to help ensure that ABB operates in accordance with applicable laws as well as internal policies and procedures. Internal Audit reports to the FACC and to the CFO. The FACC reviews and approves the internal audit plan, and material changes to the plan. Investigations of potential fraud and inappropriate business conduct are an integral part of the internal audit process. Depending on circumstances, Internal Audit may act together with ABB's Office of Special Investigations, which is part of ABB's integrity function. Internal Audit reports on a regular basis its main observations and recommendations to the relevant members of the EC and to the FACC as appropriate.

Risk Management

ABB has an enterprise risk management program (ERM) in place which takes into account ABB's size and complexity. ERM provides the EC and the Board with a comprehensive and holistic view of the risks facing the business. ERM involves managing the acceptance of risk to achieve the objectives of the business. The ERM process is typically cyclical in nature, conveying the idea of continuous refinement of the risk management approach in a dynamic business environment. Furthermore, ABB runs a mitigation process for the identified risks that is key to the success of this process. ERM assessments are both top down and bottom up. They cover strategic, financial, and operational risks, both current and long term. Key risks identified and managed in 2020 were those related to the COVID-19 pandemic, as well as those related to the finalization of both the transformation of the Group and the separation of the Power Grids business. ERM results are reported to the FACC and the entire Board. This information becomes part of the overall strategic and risk discussions by the Board to help create value for stakeholders.

Information to the Board and the Finance, Audit and Compliance Committee

Supervisory and control instruments vis-à-vis the auditors

Our auditors, KPMG, attend each meeting of the FACC and each meeting includes a private session between the auditors and the FACC without the management being present. In 2020, the FACC had 7 meetings (either in person or via telephone call). On at least an annual basis, the FACC reviews and discusses with the external auditors all significant relationships that the auditors have with the Company that could impair their independence. The FACC reviews the auditor engagement letter and the audit plan including discussion of scope, staffing, locations and general audit approach. The FACC also reviews and evaluates the auditors' judgment on the quality and appropriateness of the Company's accounting principles as applied in the financial reporting. In addition, the FACC approves in advance any non-audit services to be performed by the auditors.

At least annually, the FACC obtains and reviews a report by the auditors that includes discussion on:

- The Company's internal control procedures;
- Material issues, if any, raised by the most recent internal quality control review;
- Critical accounting policies and practices of the Company;
- All alternative accounting treatments of financial information that were discussed between the auditors and management as well as the related ramifications; and
- Material communications between the auditors and management such as any management letter or schedule of audit differences.

Taking into account the opinions of management the FACC evaluates the qualifications, independence and performance of the auditors. The FACC reports the material elements of its supervision of the auditors to the Board and on an annual basis recommends to the Board the auditors to be proposed for election at the shareholders meeting.

EXECUTIVE COMMITTEE

Composition of the Executive Committee (at December 31, 2020)

Björn Rosengren

Chief Executive Officer

Corporate Officers

Timo Ihamuotila

Chief Financial Officer

Sylvia Hill

Chief Human Resources Officer

Maria Varsellona

General Counsel

Theodor Swedjemark

Chief Communications Officer

Business Area Presidents

Tarak Mehta

Electrification

Peter Terwiesch

Industrial Automation

Morten Wierod

Motion

Sami Atiya

Robotics & Discrete Automation

Executive Committee responsibilities and organization

The Board has delegated the executive management of ABB to the CEO. The CEO and, under his direction, the other members of the Executive Committee are responsible for ABB's overall business and affairs and day-to-day management. The CEO reports to the Board regularly, and whenever extraordinary circumstances so require, on the course of ABB's business and financial performance and on all organizational and personnel matters, transactions and other issues material to the Group. Each member of the Executive Committee is appointed and discharged by the Board.

Members of the Executive Committee (at December 31, 2020):

Björn Rosengren was appointed Chief Executive Officer and member of the Executive Committee effective March 2020. Before joining ABB, he was the president and chief executive officer of Sandvik AB (Sweden) since 2015. Prior to that, Mr. Rosengren was the chief executive officer of Wärtsilä Corporation (Finland) from 2011 to 2015. He held a variety of management roles at Atlas Copco AB (Sweden) from 1998 to 2011. Mr. Rosengren was born in 1959 and is a Swedish citizen.

Timo Ihamuotila was appointed Chief Financial Officer and member of the Executive Committee effective April 2017. He is a member of the board of directors of SoftwareONE Holding AG (Switzerland). From 2009 to 2016, Mr. Ihamuotila was chief financial officer and an executive vice president of the Nokia Corporation (Finland). From 1999 to 2009, he held various senior roles with Nokia. Mr. Ihamuotila was born in 1966 and is a Finnish citizen.

Sylvia Hill was appointed Chief Human Resources Officer and member of the Executive Committee effective June 2019. From 2014 until June 2019 she was ABB's Head of Global HR Services and HR Transformation. From 2011 to 2014 Ms. Hill was the Head of HR for ABB's Discrete Automation division. During 2005 to 2010 she was the Head of HR and Organization Health & Safety for ABB in France and for part of that time she was also the Head of HR for the Mediterranean region. From 1993 through 2005 she held various HR roles with ABB. Ms. Hill was born in 1960 and is a German citizen.

Maria Varsellona was appointed General Counsel and member of the Executive Committee effective November 2019. She was a member of the board of directors of Nordea Bank Abp (Finland) through May 2020. From 2014 to 2019 she was the Chief Legal Officer of Nokia Corporation and from 2018 to 2019 she was also the president of Nokia Technologies. From 2013 to 2014 she was the General Counsel of Nokia Siemens Networks. During the period from 2011 to 2013 Ms. Varsellona was the Group General Counsel of Tetra Pak and from 2009 to 2010 she was the Group General Counsel of Sidel, both part of the Tetra Laval Group. From 2001 to 2009 she held various senior legal roles mainly with GE Oil & Gas. Ms. Varsellona was born in 1970 and is an Italian citizen.

Theodor Swedjemark was appointed Chief Communications Officer and member of the Executive Committee effective August 2020. He is a member of the board of directors of the Swedish Swiss Chamber of Commerce. Mr. Swedjemark assumed the role of Chief of Staff in 2017, later adding group responsibility for government relations and public affairs. During 2016, he managed the Strategic Portfolio Review of the Power Grids project. From 2006 to 2015, he held various management positions at ABB in different functions and businesses. Mr. Swedjemark was born in 1980 and is a Swedish citizen.

Tarak Mehta was appointed President of the Electrification Business effective April 2019 and has been a member of the Executive Committee since October 2010. He had previously been President of the Electrification Products division since January 2016. From October 2010 through December 2015, he was President of the Low Voltage Products division. From 2007 to 2010, he was Head of ABB's transformers business. Between 1998 and 2006, he held several management positions with ABB. Mr. Mehta was born in 1966 and is a U.S. citizen.

Peter Terwiesch was appointed President of the Industrial Automation Business effective January 2017 and has been a member of the Executive Committee since January 2015. He is a member of the board of directors of Metall Zug AG (Switzerland). He was the President of the Process Automation division from 2015 to 2016. From 2011 to 2014, Mr. Terwiesch was Head of ABB's Central Europe region. He was ABB's Chief Technology Officer from 2005 to 2011. From 1994 to 2005, he held several positions with ABB. Mr. Terwiesch was born in 1966 and is a Swiss and German citizen.

Morten Wierod was appointed President of the Motion Business and member of the Executive Committee effective April 2019. From 2015 until April 2019 he was the Managing Director of the drives business unit in the Robotics and Motion division. During 2011 to 2015, Mr. Wierod was the Managing Director of the control products business unit in the Low Voltage Products division. Between 1998 to 2011, Mr. Wierod held various management roles with ABB. Mr. Wierod was born in 1972 and is a Norwegian citizen.

Sami Atiya was appointed President of the Robotics & Discrete Automation Business effective April 2019 and has been a member of the Executive Committee since June 2016. He is a member of the board of directors of SGS SA (Switzerland). He had previously been President of the Robotics and Motion division since January 2017. From June to December 2016 he was President of the Discrete Automation and Motion division. Prior to joining ABB, Mr. Atiya held senior roles at Siemens in Germany from 1997 to 2015, including as chief executive officer of the mobility and logistics division in the infrastructure and cities sector from 2011. Mr. Atiya was born in 1964 and is a German citizen.

Effective as of January 1, 2021, *Carolina Granat* has been appointed as Chief Human Resources Officer and member of the Executive Committee of ABB. Ms. Granat was previously ABB's Global Head of People Development and prior to that she was globally responsible for Human Resources at Sandvik's Machining Solutions business area.

Further information about the members of the Executive Committee can be found by clicking on the Executive Committee link (available at <https://new.abb.com/about/corporate-governance>).

Mandates of EC members outside the ABB Group

No member of the EC may hold more than five additional mandates of which no more than one may be in a listed company. Certain types of mandates, such as those in our subsidiaries, those in the same group of companies and those in non-profit and charitable institutions, are not subject to those limits. Additional details can be found in Article 38 of ABB's Articles of Incorporation (available at <https://new.abb.com/about/corporate-governance>).

Business relationships between ABB and its EC members

This section describes important business relationships between ABB and its EC members, or companies and organizations represented by them. This determination has been made based on ABB Ltd's Related Party Transaction Policy. This policy is contained in the ABB Ltd Board Regulations & Corporate Governance Guidelines (available at <https://new.abb.com/about/corporate-governance>).

ABB has an unsecured syndicated \$2 billion, revolving credit facility. As of December 31, 2020, Nordea Bank Abp (Nordea) had committed to approximately \$105.7 million out of the \$2 billion total. In addition, ABB has regular banking business with Nordea. Maria Varsellona was a director of Nordea through May 2020.

After reviewing the banking commitments of Nordea, the Board has determined that ABB's business relationship with Nordea is not unusual in its nature or conditions and does not constitute a material business relationship. This determination was made in accordance with ABB Ltd's Related Party Transaction Policy which was prepared based on the Swiss Code of Best Practice for Corporate Governance and the independence criteria set forth in the corporate governance rules of the New York Stock Exchange.

SHARES

Share capital of ABB

At December 31, 2020, ABB's ordinary share capital (including treasury shares) as registered with the Commercial Register amounted to CHF 260,177,791.68, divided into 2,168,148,264 fully paid registered shares with a par value of CHF 0.12 per share.

ABB Ltd's shares are listed on the SIX Swiss Exchange, the NASDAQ OMX Stockholm Exchange and the New York Stock Exchange (where its shares are traded in the form of American depositary shares (ADS) – each ADS representing one registered ABB share). At December 31, 2020, ABB Ltd had a market capitalization based on outstanding shares (total number of outstanding shares: 2,030,834,169) of approximately CHF 50 billion (\$57 billion, SEK 465 billion). The only consolidated subsidiary in the ABB Group with listed shares is ABB India Limited, Bangalore, India, which is listed on the BSE Ltd. (Bombay Stock Exchange) and the National Stock Exchange of India. At December 31, 2020, ABB Ltd, Switzerland, directly or indirectly owned 75 percent of ABB India Limited, Bangalore, India, which at that time had a market capitalization of approximately INR 257 billion.

Stock exchange listings (at December 31, 2020)

| Stock exchange | Security | Ticker symbol | ISIN code |
|----------------------------------|--|--------------------|--------------|
| SIX Swiss Exchange | ABB Ltd, Zurich, share | ABBN | CH0012221716 |
| SIX Swiss Exchange | ABB Ltd, Zurich, share buyback (second trading line) | ABBNE | CH0357679619 |
| NASDAQ OMX Stockholm Exchange | ABB Ltd, Zurich, share | ABB | CH0012221716 |
| New York Stock Exchange | ABB Ltd, Zurich, ADS | ABB | US0003752047 |
| BSE Ltd. (Bombay Stock Exchange) | ABB India Limited, Bangalore, share | ABB ⁽¹⁾ | INE117A01022 |
| National Stock Exchange of India | ABB India Limited, Bangalore, share | ABB | INE117A01022 |

(1) also called Scrip ID.

Share repurchases and cancellation

Under the share buyback program announced in July 2020, ABB repurchased a total of 108,829,359 shares as per December 31, 2020, and a total of 117,012,859 shares as per February 15, 2021. ABB intends to ask the shareholders at the Annual General Meeting 2021 to approve the cancellation of 115,000,000 shares that were repurchased. In addition, ABB repurchased a total of 13,046,013 shares as per December 31, 2020, primarily for use in connection with employee share programs. Further information can be found at <https://www.abb.com/investorrelations>.

Changes to the ordinary share capital

In 2020, ABB paid a dividend of 0.80 Swiss francs per share relating to the year 2019. In 2019, ABB paid a dividend of 0.80 Swiss francs per share relating to the year 2018. In 2018, ABB paid a dividend of 0.78 Swiss francs per share relating to the year 2017.

There were no changes to ABB's ordinary share capital during 2020, 2019 and 2018.

Convertible bonds and options

ABB does not have any bonds outstanding that are convertible into ABB shares. For information about options on shares issued by ABB, please refer to "Note 19 - Stockholders' equity" to ABB's Consolidated Financial Statements.

Contingent share capital

At December 31, 2020, ABB's share capital may be increased by an amount not to exceed CHF 24,000,000 through the issuance of up to 200,000,000 fully paid registered shares with a par value of CHF 0.12 per share through the exercise of conversion rights and/or warrants granted in connection with the issuance on national or international capital markets of newly or already issued bonds or other financial market instruments. If this contingent share capital were fully issued this would increase the existing share capital by approximately 9.2 percent. The contingent share capital has not changed during the last three years.

At December 31, 2020, ABB's share capital may be increased by an amount not to exceed CHF 1,200,000 through the issuance of up to 10,000,000 fully paid registered shares with a par value of CHF 0.12 per share through the exercise of warrant rights granted to its shareholders. If this contingent share capital were fully issued this would increase the existing share capital by approximately 0.5 percent. This contingent share capital has not changed during the last three years. The Board may grant warrant rights not taken up by shareholders for other purposes in the interest of ABB.

The pre-emptive rights of the shareholders are excluded in connection with the issuance of convertible or warrant-bearing bonds or other financial market instruments or the grant of warrant rights. The then current owners of conversion rights and/or warrants will be entitled to subscribe for new shares. The conditions of the conversion rights and/or warrants will be determined by the Board.

The acquisition of shares through the exercise of warrants and each subsequent transfer of the shares will be subject to the restrictions of ABB's Articles of Incorporation (see "Limitations on transferability of shares and nominee registration" in the Shareholders section below) (available at <https://new.abb.com/about/corporate-governance>).

In connection with the issuance of convertible or warrant-bearing bonds or other financial market instruments, the Board is authorized to restrict or deny the advance subscription rights of shareholders if such bonds or other financial market instruments are for the purpose of financing or refinancing the acquisition of an enterprise, parts of an enterprise, participations or new investments or an issuance on national or international capital markets. If the Board denies advance subscription rights, the convertible or warrant-bearing bonds or other financial market instruments will be issued at the relevant market conditions and the new shares will be issued pursuant to the relevant market conditions taking into account the share price and/or other comparable instruments having a market price. Conversion rights may be exercised during a maximum ten-year period, and warrants may be exercised during a maximum seven-year period, in each case from the date of the respective issuance. The advance subscription rights of the shareholders may be granted indirectly.

At December 31, 2020, ABB's share capital may be increased by an amount not to exceed CHF 11,284,656 through the issuance of up to 94,038,800 fully paid shares with a par value of CHF 0.12 per share to employees. If this contingent share capital were fully issued this would increase the existing share capital by approximately 4.3 percent. This contingent share capital has not changed during the last three years. The pre-emptive and advance subscription rights of ABB's shareholders are excluded. The shares or rights to subscribe for shares will be issued to employees pursuant to one or more regulations to be issued by the Board, taking into account performance, functions, level of responsibility and profitability criteria. ABB may issue shares or subscription rights to employees at a price lower than that quoted on a stock exchange. The acquisition of shares within the context of employee share ownership and each subsequent transfer of the shares will be subject to the restrictions of ABB's Articles of Incorporation (see "Limitations on transferability of shares and nominee registration" in the Shareholders section below).

Authorized share capital

At December 31, 2020, ABB had an authorized share capital in the amount of up to CHF 24,000,000 through the issuance of up to 200,000,000 fully paid registered shares with a par value of CHF 0.12 each, which is valid through May 2, 2021. If the authorized share capital were fully issued, this would increase the existing share capital by approximately 9.2 percent. Aside from renewal at the 2019 AGM, the authorized share capital has not changed during the last three years. The Board is authorized to determine the date of issue of new shares, the issue price, the type of payment, the conditions for the exercise of pre-emptive rights and the beginning date for dividend entitlement. In this regard, the Board may issue new shares by means of a firm underwriting through a banking institution, a syndicate or another third party with a subsequent offer of these shares to the shareholders. The Board may permit pre-emptive rights that have not been exercised by shareholders to expire or it may place these rights and/or shares as to which pre-emptive rights have been granted but not exercised at market conditions or use them for other purposes in the interest of the Company. Furthermore, the Board is authorized to restrict or deny the pre-emptive rights of shareholders and allocate such rights to third parties if the shares are used (1) for the acquisition of an enterprise, parts of an enterprise, or participations, or for new investments, or in case of a share placement, for the financing or refinancing of such transactions; or (2) for the purpose of broadening the shareholder constituency in connection with a listing of shares on domestic or foreign stock exchanges. The subscription and the acquisition of the new shares, as well as each subsequent transfer of the shares, will be subject to the restrictions of ABB's Articles of Incorporation (available at <https://new.abb.com/about/corporate-governance>).

SHAREHOLDERS

Shareholder structure

As of December 31, 2020, the total number of shareholders directly registered with ABB Ltd was approximately 102,000 and another 397,000 shareholders held shares indirectly through nominees. In total as of that date, ABB had approximately 499,000 shareholders.

Significant shareholders

Investor AB, Sweden, held 265,385,142 ABB shares as of December 31, 2020 (refer to Investor's year-end 2020 report available at <https://www.investorab.com/investors-media/reports-presentations>). This holding represents approximately 12.2 percent of ABB's total share capital and voting rights as registered in the Commercial Register on December 31, 2020. The number of shares held by Investor AB does not include shares held by Mr. Jacob Wallenberg, the chairman of Investor AB and a director of ABB, in his individual capacity.

Cevian Capital II GP Limited, Jersey, disclosed that as of August 3, 2020, it held 105,988,662 ABB shares. This holding represents approximately 4.89 percent of ABB's total share capital and voting rights as registered in the Commercial Register on December 31, 2020.

BlackRock Inc., U.S., disclosed that as of August 31, 2017, it, together with its direct and indirect subsidiaries, held 72,900,737 ABB shares. This holding represents 3.36 percent of ABB's total share capital and voting rights as registered in the Commercial Register on December 31, 2020.

The Capital Group Companies Inc., USA, disclosed that as of November 4, 2020, it, together with its direct and indirect affiliates, held 65,680,803 ABB shares. This holding represents 3.03 percent of ABB's total share capital and voting rights as registered in the Commercial Register on December 31, 2020.

At December 31, 2020, to the best of ABB's knowledge, no other shareholder held 3 percent or more of ABB's total share capital and voting rights as registered in the Commercial Register on that date.

ABB Ltd has no cross shareholdings in excess of 5 percent of capital, or voting rights with any other company.

Announcements related to disclosure notifications made by shareholders during 2020 can be found via the search facility on the platform of the Disclosure Office of the SIX Swiss Exchange: <https://www.ser-ag.com/en/resources/notifications-market-participants/significant-shareholders.html#/>.

Under ABB's Articles of Incorporation (available at <https://new.abb.com/about/corporate-governance>), each registered share represents one vote. Significant shareholders do not have different voting rights. To our knowledge, we are not directly or indirectly owned or controlled by any government or by any other corporation or person.

Shareholders' rights

Shareholders have the right to receive dividends, to vote and to execute such other rights as granted under Swiss law and the Articles of Incorporation (available at <https://new.abb.com/about/corporate-governance>).

Right to vote

ABB has one class of shares and each registered share carries one vote at the general meeting. Voting rights may be exercised only after a shareholder has been registered in the share register of ABB as a shareholder with the right to vote, or with Euroclear Sweden AB (Euroclear), which maintains a subregister of the share register of ABB.

A shareholder may be represented at the Annual General Meeting by its legal representative, by another shareholder with the right to vote or by the independent proxy elected by the shareholders (unabhängiger Stimmrechtsvertreter). If the Company does not have an independent proxy, the Board of Directors shall appoint the independent proxy for the next General Meeting of Shareholders. All shares held by one shareholder may be represented by one representative only.

For practical reasons shareholders must be registered in the share register no later than 6 business days before the general meeting in order to be entitled to vote. Except for the cases described under “Limitations on transferability of shares and nominee registration” below, there are no voting rights restrictions limiting ABB’s shareholders’ rights.

Annual General Meeting/COVID-19

ABB’s top priority is protecting the health of its shareholders and employees. Therefore, due to the extraordinary circumstances and in accordance with applicable Swiss COVID-19 legislation, shareholders were not able to attend ABB’s Annual General Meeting 2020 in person, but could exercise their shareholder rights via the independent proxy only. The Board of Directors has resolved that for ABB’s Annual General Meeting 2021, in accordance with applicable Swiss COVID-19 legislation, the same procedures shall apply.

Shareholders’ dividend rights

The unconsolidated statutory financial statements of ABB Ltd are prepared in accordance with Swiss law. Based on these financial statements, dividends may be paid only if ABB Ltd has sufficient distributable profits from previous years or sufficient free reserves to allow the distribution of a dividend. Swiss law requires that ABB Ltd retain at least 5 percent of its annual net profits as legal reserves until these reserves amount to at least 20 percent of ABB Ltd’s share capital. Any net profits remaining in excess of those reserves are at the disposal of the shareholders’ meeting.

Under Swiss law, ABB Ltd may only pay out a dividend if it has been proposed by a shareholder or the Board of Directors and approved at a general meeting of shareholders, and the auditors confirm that the dividend conforms to statutory law and ABB’s Articles of Incorporation. In practice, the shareholders’ meeting usually approves dividends as proposed by the Board of Directors.

Dividends are usually due and payable no earlier than 2 trading days after the shareholders’ resolution and the ex-date for dividends is normally 2 trading days after the shareholders’ resolution approving the dividend. Dividends are paid out to the holders that are registered on the record date. Euroclear administers the payment of those shares registered with it. Under Swiss law, dividends not collected within 5 years after the due date accrue to ABB Ltd and are allocated to its other reserves. As ABB Ltd pays cash dividends, if any, in Swiss francs (subject to the exception for certain shareholders in Sweden described below), exchange rate fluctuations will affect the U.S. dollar amounts received by holders of ADSs upon conversion of those cash dividends by Citibank, N.A., the depositary, in accordance with the Amended and Restated Deposit Agreement dated May 7, 2001.

For shareholders who are residents of Sweden, ABB has established a dividend access facility (for up to 600,004,716 shares). With respect to any annual dividend payment for which this facility is made available, shareholders who register with Euroclear may elect to receive the dividend from ABB Norden Holding AB in Swedish krona (in an amount equivalent to the dividend paid in Swiss francs) without deduction of Swiss withholding tax. For further information on the dividend access facility, see ABB’s Articles of Incorporation.

Limitations on transferability of shares and nominee registration

ABB may decline a registration with voting rights if a shareholder does not declare that it has acquired the shares in its own name and for its own account. If the shareholder refuses to make such declaration, it will be registered as a shareholder without voting rights. A person failing to expressly declare in its registration/application that it holds the shares for its own account (a nominee), will be entered in the share register with voting rights, provided that such nominee has entered into an agreement with ABB concerning its status, and further provided that the nominee is subject to recognized bank or financial market supervision. In special cases the Board may grant exemptions. There were no exemptions granted in 2020. The limitation on the transferability of shares may be removed by an amendment of ABB's Articles of Incorporation by a shareholders' resolution requiring two-thirds of the votes represented at the meeting.

No restriction on trading of shares

No restrictions are imposed on the transferability of ABB shares. The registration of shareholders in the ABB Share register, Euroclear and the ADS register kept by Citibank does not affect transferability of ABB shares or ADSs. Registered ABB shareholders or ADR holders may therefore purchase or sell their ABB shares or ADRs at any time, including before a General Meeting regardless of the record date. The record date serves only to determine the right to vote at a General Meeting.

Duty to make a public tender offer

ABB's Articles of Incorporation do not contain any provisions raising the threshold (opting up) or waiving the duty (opting out) to make a public tender offer pursuant to Article 135 of the Swiss Act on Financial Market Infrastructures and Market Conduct in Securities and Derivatives Trading.

OTHER GOVERNANCE INFORMATION

ABB Group organizational structure

ABB Ltd, Switzerland is the ultimate parent company of the ABB Group. It is the sole shareholder of ABB Asea Brown Boveri Ltd which directly or indirectly owns the other companies in the ABB Group. The table in the appendix to this Corporate governance report sets forth, as of December 31, 2020, the name, place of incorporation, ownership interest and share capital of the significant direct and indirect subsidiaries of ABB Ltd. In addition, ABB Ltd also owns 19.9 percent of Hitachi ABB Power Grids Ltd. ABB's operational group structure is described in the "Financial review of ABB Group" section of this Annual Report under "Operating and financial review and prospects – Organizational structure".

Management contracts

There are no management contracts between ABB and companies or natural persons not belonging to the ABB Group.

Change of control clauses

Board members, Executive Committee members, and other members of senior management do not receive any special benefits in the event of a change of control. However, the conditional grants under the Long Term Incentive Plan (LTIP) and the Management Incentive Plan (MIP) may be subject to accelerated vesting in the event of a change of control. From 2021, the rules for the LTIP will be amended to no longer provide for accelerated vesting upon a change in control. This amendment will apply to future grants made under the LTIP. No further grants are made under the MIP.

Employee participation programs

In order to align its employees' interests with the business goals and financial results of the Company, ABB operates a number of incentive plans, linked to ABB's shares, such as the Employee Share Acquisition Plan, the Management Incentive Plan and the Long Term Incentive Plan. For a more detailed description of these incentive plans, please refer to "Note 18 - Share-based payment arrangements" to ABB's Consolidated Financial Statements.

Governance differences from NYSE Standards

According to the New York Stock Exchange's corporate governance standards (the Standards), ABB is required to disclose significant ways in which its corporate governance practices differ from the Standards. ABB has reviewed the Standards and concluded that its corporate governance practices are generally consistent with the Standards, with the following significant exceptions:

- Swiss law requires that the external auditors be elected by the shareholders at the Annual General Meeting rather than by the audit committee or the board of directors.
- The Standards require that all equity compensation plans and material revisions thereto be approved by the shareholders. Consistent with Swiss law such matters are decided by our Board. However, the shareholders decide about the creation of new share capital that can be used in connection with equity compensation plans.
- Swiss law requires that the members of the compensation committee are elected by the shareholders rather than appointed by our Board.
- Swiss law requires shareholders to approve the maximum aggregate Board compensation and the maximum aggregate Executive Committee compensation.

COMPENSATION

Compensation governance

Shareholder engagement

ABB's Articles of Incorporation, approved by its shareholders, contain provisions on compensation which govern and outline the principles of compensation relating to our Board of Directors (Board) and Executive Committee (EC). They can be found on ABB's Corporate governance Web site new.abb.com/about/corporate-governance and are summarized below:

- **Compensation Committee** (Articles 28 to 31): The Compensation Committee (CC) is composed of a minimum of three members of the Board of Directors who are elected individually by the shareholders at the Annual General Meeting (AGM) for a period of one year. The CC supports the Board in establishing and reviewing the compensation strategy, principles and programs, in preparing the proposals to the AGM on compensation matters and in determining the compensation of the Board and of the EC. The responsibilities of the CC are defined in more detail in the Board Regulations and Corporate Governance guidelines, which are available on ABB's Corporate governance Web site.
- **Compensation principles** (Article 33): Compensation of the members of the Board consists of fixed compensation only, which is delivered in cash and shares (with an option to elect for shares only). Compensation of the members of the EC consists of fixed and variable compensation. Variable compensation may comprise short-term and long-term elements. Compensation may be paid in cash, shares or other benefits.
- **"Say-on-pay" vote** (Article 34): Shareholders approve the maximum aggregate amount of compensation of the Board for the following Board term and of the EC for the following financial year.
- **Supplementary amount for new EC members** (Article 35): If the maximum approved aggregate compensation amount is not sufficient to also cover the compensation of newly promoted/hired EC members, up to 30 percent of the last maximum approved aggregate amount shall be available as a supplementary amount to cover the compensation of such new EC members.
- **Loans** (Article 37): Loans may not be granted to members of the Board or of the EC.

Shareholders also have a consultative vote on the prior year's Compensation Report at the AGM. The Compensation Policy sections of this Report describe the compensation policies and programs as well as the governance framework related to the compensation of the Board and EC. The Compensation Implementation sections of this Report provide details of the compensation paid to the members of the Board and of the EC in the prior calendar year.

The Compensation Report is prepared in accordance with the Ordinance against Excessive Remuneration in Listed Stock Corporations (Ordinance), the Directive on Information relating to Corporate Governance of the SIX Exchange Regulation, the rules of the stock markets of Sweden and the United States where ABB's shares are also listed, and the principles of the Swiss Code of Best Practice for Corporate Governance of *economiesuisse*.

Authority levels in compensation matters

The CC acts in an advisory capacity while the Board retains the decision authority on compensation matters, except for the maximum aggregate compensation amounts of the Board and of the EC, which are subject to the approval of shareholders at the AGM. The authority levels of the different bodies on compensation matters are detailed in Compensation Exhibit 1.

Compensation Exhibit 1: Authority levels in compensation matters

| | CEO | CC | Board | AGM |
|--|-----|----|-------|-------------------|
| Compensation policy including incentive plans | ● | ● | ● | |
| Maximum aggregate compensation amount EC members | | ● | ● | ● |
| CEO compensation | | ● | ● | |
| Individual compensation EC members | ● | ● | ● | |
| Performance target setting and assessment CEO | | ● | ● | |
| Performance target setting and assessment EC members | ● | ● | ● | |
| Shareholding requirements CEO and EC members | | ● | ● | |
| Maximum aggregate compensation amount Board members | | ● | ● | ● |
| Individual compensation Board members | | ● | ● | |
| Compensation Report | | ● | ● | Consultative vote |
| ● Proposal ● Recommendation ● Approval | | | | |

Activities of the CC in 2020

The CC meets as often as business requires but at least four times a year. In 2020, the CC held seven meetings and performed the activities described in Compensation Exhibit 2. Details on meeting attendance of the individual CC members are provided in the section titled “Board of Directors – Meetings and attendance” of the Corporate Governance Report.

Compensation Exhibit 2: CC activities during 2020

| |
|---|
| Board Compensation |
| Review of approach to benchmarking |
| Review of benchmark data |
| EC Compensation |
| Review of approach to benchmarking |
| Review of benchmark data and recommendations on individual compensation for EC members |
| Review of the share ownership of EC members |
| Review and approval of compensation for new and departing EC members |
| Performance – relating to past performance cycle |
| Assessment of short-term incentive awards for 2019 |
| Assessment of achievement of performance targets for Long-Term Incentive Plan (LTIP) awards vesting in 2020 |
| Performance – relating to forthcoming performance cycle |
| Setting of preliminary Annual Incentive Plan (AIP) targets for 2021 |
| Setting of performance targets for LTIP awards granted in 2020 |
| Review impact of Power Grids (PG) joint venture on LTIP targets |
| Updates on achievement against performance targets for 2020 AIP and unvested LTIP awards |
| Compliance |
| Review of the Swiss gender pay regulatory and disclosure requirements |
| Review of the LTIP rules |
| Review of feedback from Investor Engagement meetings |
| Regulatory and market updates |
| Review of the Compensation Report for publication |
| Preparation of maximum aggregate compensation for Board to be submitted for AGM vote |
| Preparation of maximum aggregate compensation for EC to be submitted for AGM vote |

The Chairman of the CC reports to the full Board after each CC meeting. The minutes of the meetings are available to the members of the Board.

The CC retains independent, external advisors for compensation matters. PricewaterhouseCoopers (PwC) are currently mandated to provide services related to executive compensation matters. Apart from its CC advisory role, PwC also provides human resources, tax and advisory services to ABB.

The CEO, the Chief Human Resources Officer (CHRO) and the Head of Performance and Reward also attend all or part of the CC meetings in an advisory capacity. The Chairman of the CC may decide to invite other executives upon consultation with the CEO, as appropriate. Executives do not attend the meetings or the parts of the meetings in which their own compensation and/or performance are being discussed.

Board compensation policy

Overview

The compensation system for the members of the Board is designed to attract and retain experienced people on the Board. Compensation of Board members takes into account the responsibilities, time and effort required to fulfill their roles on the Board and its committees. A fixed fee is payable for the Chairman, Vice-Chairman and members of the Board, and additional fees are payable for chairing or membership of a Board Committee, except for the Chairman and Vice-Chairman.

Board members do not receive variable compensation or pension benefits, underscoring their focus on corporate strategy, supervision and governance. In accordance with Swiss law, Board members may not receive ‘golden parachutes’ or other special benefits in the event of a change of control. Board members are paid for their service over a 12-month period that starts with their election at the AGM. Payment of fees is made in semi-annual installments in arrears.

In order to further align the interests of the Board members with those of ABB’s shareholders, half of their fee must be paid in ABB shares, although Board members may choose to receive all of their fee in shares. The number of shares delivered is calculated prior to each semi-annual payment by dividing the monetary amount to which the Board members are entitled by the average closing price of the ABB share over a predefined 30-day period. The shares are subject to a three-year restriction period during which they cannot be sold, transferred or pledged. Any restricted shares are unblocked when the Board member leaves the Board.

Implementation of Board compensation policy

From time to time, the levels and mix of compensation of Board members are compared against the compensation of non-executive board members from a cross section of publicly traded companies in Switzerland that are part of the Swiss Market Index (i.e. Adecco, Alcon, Geberit, Givaudan, LafargeHolcim, Lonza, Richemont, SGS, Sika, Swisscom, Swiss Life, Zurich Insurance). Such a review was undertaken in 2020, and there was no adjustment made to Board fees for the term of office from the 2020 AGM to the 2021 AGM, as set out in Compensation Exhibit 3 below.

Compensation Exhibit 3: Current Board fees

| | Board term fee (CHF)⁽¹⁾ |
|---|---|
| Chairman of the Board ⁽²⁾ | 1,200,000 |
| Vice-Chairman of the Board ⁽²⁾ | 450,000 |
| Member of the Board | 290,000 |
| Additional committee fees: | |
| Chairman of FACC ⁽³⁾ | 110,000 |
| Chairman of CC or GNC ⁽³⁾ | 60,000 |
| Member of FACC ⁽³⁾ | 40,000 |
| Member of CC or GNC ⁽³⁾ | 30,000 |

(1) The Chairman and the Vice-Chairman do not receive any additional committee fees for their roles on the GNC.

(2) CC: Compensation Committee,
FACC: Finance, Audit and Compliance Committee,
GNC: Governance and Nomination Committee.

(3) These fees do not reflect the 10 percent COVID-19 related voluntary donation in fees for the first half of the 2020-2021 Board term.

The compensation paid to the Board members for the calendar year 2020 and for the term of office from the 2020 AGM to the 2021 AGM are disclosed in Compensation Exhibits 24 and 25, respectively, in the section “Compensation and share ownership tables”.

At the 2020 AGM, the shareholders approved a maximum aggregate compensation amount of CHF 4.70 million for the 2020-2021 Board term, the same as was approved for the previous Board term. The compensation actually paid was five percent lower than the prior term due to the voluntary donation of 10 percent of fees for a six-month period during 2020 to fight the impacts of the COVID-19 crisis. The Board compensation is therefore within the amount approved by the shareholders.

See Compensation Exhibit 4 below and Compensation Exhibit 25 in the section “Compensation and share ownership tables”.

Compensation Exhibit 4: Board compensation (in CHF)

| Board of Directors | Board term | |
|---|-------------------|------------------|
| | 2020–2021 | 2019–2020 |
| Number of members | 11 | 11 |
| Total compensation | 4,436,500 | 4,670,000 |
| Maximum aggregate compensation amount approved at AGM | 4,700,000 | 4,700,000 |

Shareholdings of Board members

The members of the Board collectively owned less than one percent of ABB’s total shares outstanding at December 31, 2020.

Compensation Exhibit 26 in the section “Compensation and share ownership tables” shows the number of ABB shares held by each Board member at December 31, 2020 and 2019. Except as described in this Compensation Exhibit, no member of the Board and no person closely linked to a member of the Board held any shares of ABB or options in ABB shares.

In 2020, ABB did not pay any fees or compensation to the members of the Board for services rendered to ABB other than those disclosed in this report.

Compensation of former Board members

In 2020, no payment was made to any former Board member.

Executive Committee compensation policy

Overview

ABB's compensation system reflects its commitment to attract, motivate and retain people with the talent necessary to strengthen ABB's position as a leading global technology company, connecting software to its electrification, robotics, automation and motion portfolio to drive performance to new levels.

The compensation system is designed to provide competitive compensation and to encourage executives to deliver outstanding results and create sustainable shareholder value without taking excessive risks. The compensation system balances:

- fixed and variable compensation;
- short-term and long-term incentives;
- the recognition of Group, business and individual performance.

Compensation structure – overview

The structure for EC members consists of an annual base salary, a short-term incentive plan (AIP) based on annual performance targets, a long-term incentive plan (LTIP) based on three-year performance targets, and benefits.

This structure is linked to our strategy and, as illustrated in Compensation Exhibits 5 and 6, a significant portion of total compensation depends on variable pay components which require the achievement of challenging performance targets.

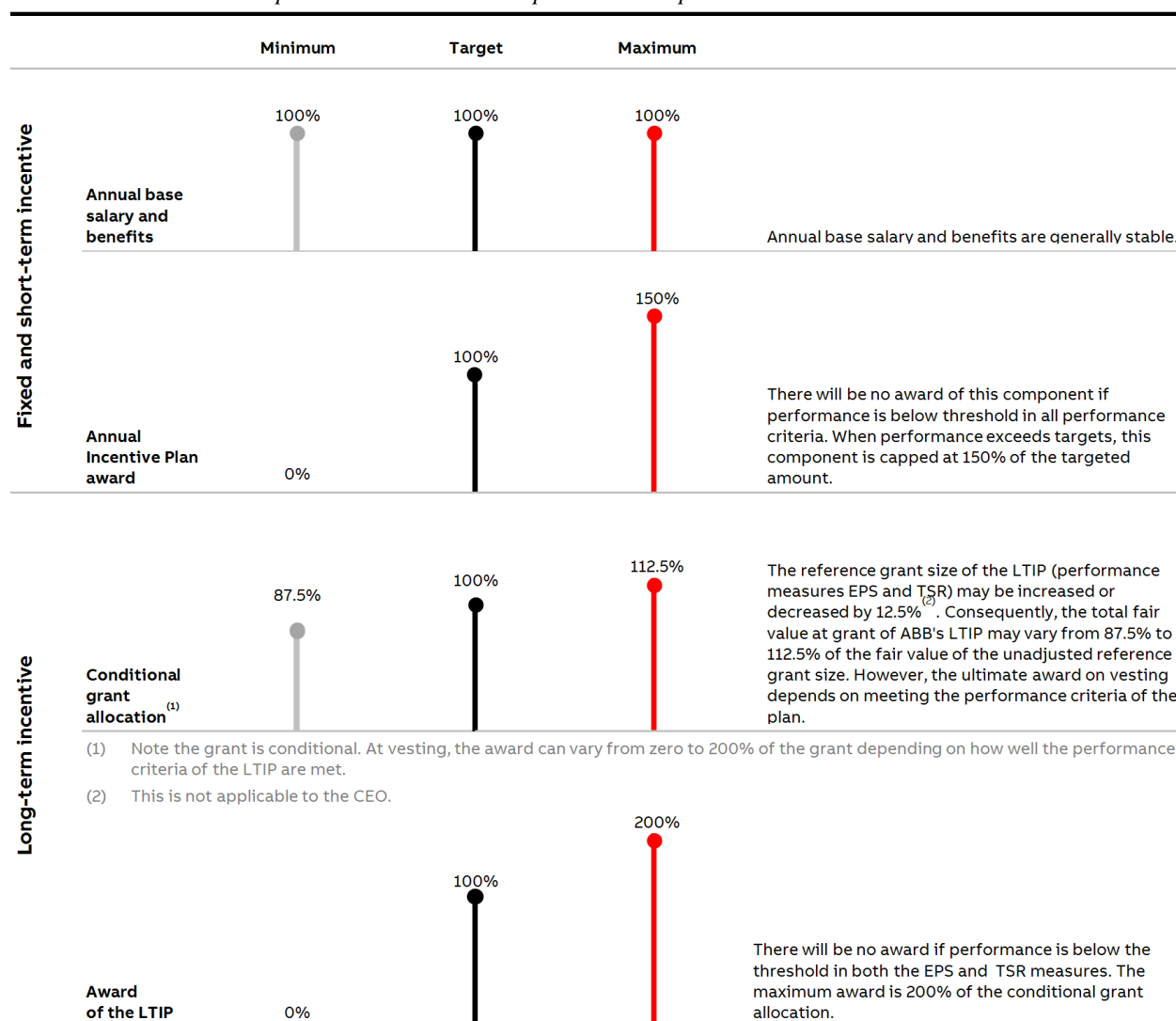
Compensation Exhibit 5: Structure of EC compensation for 2021

| Compensation structure | Fixed compensation - annual base salary and benefits | Short-term incentive (AIP) | Long-term incentive (LTIP) | Wealth at Risk/ Share Ownership |
|---|---|--|---|---|
| Purpose and link to strategy | Compensates EC members for the role | Rewards annual company and individual performance. Drives annual strategy implementation | Encourages creation of long-term, sustainable value for shareholders, and delivery of long-term strategic goals | Aligns individual's personal wealth at risk directly to the ABB share price |
| Operation | Cash salary, benefits in kind, and pension contribution | Annual awards, payable in cash after a 1-year performance period | Annual awards in shares which may vest after 3 years subject to performance conditions | Individuals required to hold ABB shares |
| Opportunity level (as % of annual base salary) | Based on scope of responsibilities, individual experience and skillset | Target: 100% Maximum: 150% | CEO Target at grant: 150% Vesting: 0-300% EC Target at grant: 100% Vesting: 0-200% | CEO wealth at risk: 500% (net) EC wealth at risk: 400% (net) |
| Time period | Delivered in year | 1 year | 3 years | Total EC tenure |
| Performance measures | Changes to annual base salary takes into account the Executive's performance in the preceding year and potential for the future | All: ABB Op EBITA margin (%) (20-25%); Business measures, which may include, for example: ROCE, Business Area Op EBITA margin (%), productivity, OFCF (55-60%); All: individual objectives (20%); All: ESG boundary condition for awards | Relative TSR ⁽¹⁾ (50%) Average EPS ⁽²⁾ (50%) | Direct link to ABB share price |

(1) Total Shareholder Return.

(2) Earnings Per Share.

Compensation Exhibit 6: Compensation components under various scenarios



Competitive positioning of compensation

The Board considers competitive market data when setting the compensation policy for the EC. It is also one of several factors in positioning the target compensation for individual EC members which include:

- market value of the role (external benchmarking);
- individual profile of the incumbent in terms of experience and skills;
- individual performance and potential;
- affordability for the Company.

The CC conducted a comprehensive review of its approach to competitive benchmarking, in the light of the new operating model, the 'ABB Way', the consequential change in responsibilities on the EC and the divestment of the Power Grids (PG) business.

As a result of this review, the number of competitive benchmarking peer groups has been reduced from four to three – a Global Industry peer group, a Pan-European Market peer group and a Swiss Market peer group. In all cases, these peer groups have been designed to match the size, scope and complexity of ABB. Companies from the financial services sector have been removed. The U.S. peer group was considered to be less relevant and was therefore removed.

The Global Industry peer group has been redesigned to a specifically tailored group of 16 peers/competitors matching the size, scope and complexity of ABB, selected from ABB's competitive landscape. It now includes companies in Asia, has a reduced number of companies in North America and excludes companies from the financial services sector.

The Pan-European Market peer group has been streamlined from its original 400 companies to a robust panel of 50 cross-industry organizations matching the size, scope and complexity of ABB, excluding companies from the financial services sector.

The Swiss Market peer group, included to reflect ABB's headquarters and listing location in Switzerland, consists of a panel of 16 cross-industry companies matching the size, scope and complexity of ABB, and excludes companies from the financial services sector.

The use of these peer groups will depend on the nature of the role and the source of relevance. For example, a stronger emphasis will be placed on the Global Industry peer group for operational roles and in compensation design, and on the Pan-European Market peer group for functional roles. In all cases, the other two peer groups will be used to stress test the findings of the primary peer group (see the summary in Compensation Exhibit 7 below).

It is the intention to position target compensation for individual EC members between median and upper quartile of the relevant peer group(s) considering the other factors referenced above (e.g. skills, experience, performance, potential).

Compensation Exhibit 7: Compensation benchmarking peer groups

| REFERENCE | COMPOSITION | RATIONALE |
|---------------------|---|---|
| Global Industry | A tailored group of 16 global industry peer companies ⁽¹⁾ , matching the scale and complexity of ABB | Focus for operational roles and benchmarking compensation design |
| Pan-European Market | A panel of 50 cross-industry European companies ⁽²⁾ , matching the scale and complexity of ABB | Focus for functional roles; continuity and stability of data points |
| Swiss Market | A panel of 16 SMI and SMIM companies ⁽³⁾ , matching the scale and complexity of ABB | Swiss listing and location of headquarters |

(1) AB SKF, Alstom, Airbus, Atlas Copco, Denso, Eaton, Emerson Electric, Honeywell, Mitsubishi Electric, Mitsubishi Heavy Industries, Schneider Electric, Schindler, Siemens, Thermo Fisher Scientific, Toshiba and Traton.

(2) AB InBev, Adidas, Air Liquide, Associated British Foods, AstraZeneca, BAE Systems, Bayer, Bouygues, British American Tobacco, Compass Group, Continental, CRH, Danone, Endesa, EssilorLuxottica, Fresenius, Fresenius Medical Care, GlaxoSmithKline, HeidelbergCement, Heineken, Henkel, Hennes & Mauritz, Iberdrola, Imperial Brands, Industria de Diseno Textil, Jeronimo Martins SGPS, Kuehne & Nagel, LafargeHolcim, Linde, L'Oreal, Michelin, National Grid, Naturgy Energy Group, Nokia, Novartis, Novo Nordisk, OMV, Philips, Rio Tinto, Safran, Saint Gobain, Sanofi, SAP, Schneider Electric, Telefonaktiebolaget LM Ericsson, Thales, Umicore, Veolia Environment, Vinci, Vodafone.

(3) SMI: Swiss Market Index; SMIM: Swiss Market Index MID; Companies include: Adecco, Geberit, Givaudan, Glencore, Kuehne & Nagel, Lafarge Holcim, Nestle, Novartis, Richemont, Roche, Schindler, SGS, Sika, STMicroelectronics, Swatch, and Swisscom.

ABB is typically at the median of key comparator indicators (market capitalization, revenues, number of employees) against the Global Industry and Pan-European Market peer groups, and at the upper quartile of the Swiss Market peer group. See Compensation Exhibit 8 below.

Compensation Exhibit 8: Comparison of ABB to compensation benchmarking peer groups⁽¹⁾

| | Market capitalization ⁽²⁾⁽³⁾⁽⁴⁾ | Revenues ⁽²⁾⁽⁴⁾⁽⁵⁾ | Number of employees ⁽⁵⁾⁽⁶⁾ |
|----------------------------|---|--------------------------------------|--|
| ABB | 45.6 | 27.0 | 110,000 |
| Global Industry | | | |
| Upper Quartile | 54.6 | 37.8 | 137,828 |
| Median | 31.1 | 29.2 | 94,500 |
| Lower Quartile | 12.4 | 16.5 | 72,827 |
| Pan-European Market | | | |
| Upper Quartile | 68.9 | 38.4 | 126,994 |
| Median | 37.4 | 26.9 | 95,331 |
| Lower Quartile | 18.2 | 22.2 | 61,450 |
| Swiss Market | | | |
| Upper Quartile | 31.6 | 31.7 | 93,930 |
| Median | 25.9 | 13.4 | 55,930 |
| Lower Quartile | 18.0 | 8.2 | 31,785 |

(1) Data sources for market capitalization, revenues and number of employees are Thomson Reuters or Annual Reports.

(2) Market capitalization and revenues are in CHF millions.

(3) Market capitalization is averaged over a period of three months (May 3, 2020 until August 3, 2020).

(4) Amounts have been translated to CHF using the one-year average rate from July 1, 2019 until June 30, 2020.

(5) Revenues and number of employees as per last financial year prior to October 2020.

(6) Number of employees in full-time equivalent (FTE) unless FTE information was not available, then in total number of employees.

Compensation elements

Fixed compensation – annual base salary and benefits

Purpose and link to strategy

- Compensates the EC members for the role.

Operation

- Fixed annual base salary and benefits.
- Benefits consist mainly of retirement, insurance and healthcare plans that are designed to provide a reasonable level of support for the employees and their dependents in case of retirement, disability or death. Benefit plans are in line with the local competitive and legal environment and are, at a minimum, in accordance with the legal requirements of the respective country.

Opportunity level

- Annual base salary based on the scope of responsibilities, individual experience and skill set.
- The monetary value of benefits is disclosed in Compensation Exhibit 27: EC compensation in 2020.

Performance measures

- When considering changes in annual base salary, the executive's performance during the preceding year against individual objectives as well as potential for the future are taken into account.

Annual Incentive Plan (AIP)

Purpose and link to strategy

- The AIP is designed to reward EC members for the Group's results, the results of their business or function and their individual performance over a time horizon of one year.

Operation

- Annual cash award based on performance assessment over the given year.

Opportunity levels

- 100 percent of annual base salary at target, with a maximum opportunity of 150 percent.

Performance measures

- The AIP structure was revised for 2020 in the light of feedback from shareholders and other stakeholders, the new ABB operating model, and to further increase the focus on operational delivery and underpin our performance culture.
- It is designed to create focus on key priorities, with a maximum of five measures.
- In 2021, all EC members will have a common measure with a minimum 20 percent weighting.
- Up to three measures will be linked to specific Business Area needs, which have a total 60 percent weighting.
- All EC members will also have personal measures for the remaining total 20 percent weighting. This individual component is informed by up to three objectives which may include a combination of quantitative and qualitative goals.
 - One of these objectives will include a common safety measure – the percentage improvement in the Lost Time Incident Frequency Rate (LTIFR), underpinned by at least two sustainability observation tours.
 - The CC has a discretionary authority to adjust the AIP results based on safety performance, including fatalities.
 - The final outcome against this measure will be a discretionary judgment based on the combined performance against all objectives.
- For each performance measure, a target will be set corresponding to the expected level of performance that will generate a target (100 percent) award. Further, a minimum level of performance, below which there is no award (threshold) and a maximum level of performance, above which the award is capped at 150 percent of the target (cap), will also be defined. For qualitative Group and business measures, the award percentage achievements between threshold, target and the cap will be determined by linear interpolations from target to threshold and target to cap.

- Outcomes may be subject to appropriate discretionary upward or downward adjustments for non-operational items and other adjustment principles agreed with the Board.
 - For example, in 2020, this included caps on outcomes for Corporate Officers to ensure there were not unintended windfalls due to the impact of the COVID-19 crisis on cost or other qualitative measures.
- From 2021, progress against defined ESG target(s) will be a ‘boundary condition’ for making AIP awards. Under this approach, the Board will, each year, agree specific ESG target(s) and review whether the Company had made sufficient progress at the end of the year to justify making the indicated AIP award. If, in the opinion of the Board, insufficient progress has been made, the AIP award may be reduced on a discretionary basis. For 2021, the ‘boundary condition’ will be the setting of plans in each ABB Division to mitigate for ABB scope 1 and 2 emissions.
- An illustration of the measures to be applied to the CEO for 2021 is set out in Compensation Exhibit 9.

Compensation Exhibit 9: 2021 Annual Incentive Plan for CEO – Measures and Weightings

| Measure | Weighting (total 100%) | Description | Link to Strategy |
|---|---------------------------|---|---|
| Group Operational EBITA % (Common measure) | 25.00% | Operational EBITA margin is Operational EBITA (as defined in “Note 23 – Operating segment and geographic data” to the Consolidated Financial Statements) as a percentage of Operational revenues, which is total revenues adjusted for foreign exchange/commodity timing differences in total revenues | Increased weighting on Group Operational EBITA to focus on strategic execution and improving margin, resulting in a strong bottom line |
| Group ROCE % | 25.00% | ROCE is calculated as Operational EBITA after tax divided by the average of the period’s opening and closing Capital employed, adjusted to reflect impacts from significant acquisitions/divestments occurring during the same period. Capital employed is calculated as the sum of Adjusted total fixed assets and Net working capital | ROCE reflects the strong focus on delivering high return on capital employed in both business operations and corporate portfolio management |
| Group Productivity | 10.00% | Calculation is based on the 12-month rolling revenues over the average number of total workforce in the last three months. Productivity growth is the change of productivity over the same period a year earlier, represented in percentage change | An increase in productivity will lead to an improvement in margin and drive overall performance |
| Group FCF (Free cash flow) | 20.00% | Free cash flow is calculated as net cash provided by operating activities adjusted for: (i) purchases of property, plant and equipment and intangible assets, and (ii) proceeds from sales of property, plant and equipment | Operating cash flow has been replaced by free cash flow to better focus on cash available to return to shareholders |
| Individual Measure | 20.00% | Linked to a maximum of three KPIs, which will include safety targets related to the Lost Time Incident Frequency Rate (LTIFR). LTIFR is seen as a clear indicator of the effectiveness of incident prevention programs in ABB | Reflecting importance of safety agenda in keeping it with the sustainability strategy and commitment to achieve excellence in health, safety and the environment at ABB |
| ESG Boundary Condition for awards | | Setting of plans in each ABB Division to mitigate for ABB scope 1 and 2 emissions | Aligned to ABBs sustainability strategy and associated targets |

Long-term incentive Plan (LTIP)

Purpose and link to strategy

- Aimed at driving long-term shareholder value creation in a sustainable manner. It rewards the achievement of predefined performance goals over a three-year period.

Operation

- Annual Conditional Grant.
- Target LTIP grant values are defined as a percentage of annual base salary (see Compensation Exhibit 10 below).

Compensation Exhibit 10: Target LTIP grant value (% of annual base salary)

| | EPS measure | TSR measure | Total |
|-------------------|--------------------|--------------------|--------------|
| CEO | 75% | 75% | 150% |
| EC ⁽¹⁾ | 40-50% | 40-50% | 80-100% |

(1) The target grant value for the Chief Communications Officer (CCO) is set at 80 percent of annual base salary.

- The total value of the grant size for EC members as a pool may be increased or decreased by the Board by up to 12.5 percent. This does not apply to the CEO.
- The number of shares to be granted is determined by dividing the grant value by the average share price over the period 20 trading days prior, and 20 trading days after, the date of publication of ABB's full year financial results. Settlement of the LTIP is three years after grant, subject to achievement of performance conditions, defined prior to grant.
- The actual settlement value of awards will vary between zero and 200 percent of the grant value according to achievement against two equally weighted performance measures, one tied to ABB's EPS and one to ABB's TSR (see performance measures section below).
- Default settlement of the final LTIP award is 100 percent in shares, with an automatic sell-to-cover in place for employees who are subject to withholding taxes.
- LTIP shares are subject to malus and clawback rules, which include illegal activities and any financial misstatement that has a material impact on any Group company. This means that the Board of Directors may decide not to pay any unpaid or unvested incentive compensation (malus), or may seek to recover incentive compensation that has been paid in the past (claw back).
- The CC also has the ability to suspend the payment of awards if it is likely that the Board determines that the malus or clawback provisions may potentially apply (e.g. if the employee is subject to an external investigation), in line with leading market practice.
- For awards from 2021, the LTIP rules will be amended to remove the automatic accelerated vesting of awards in the event of a change of control.

Performance measures

TSR

- Achievement against this measure is determined by ABB's relative TSR performance against a defined peer group.
- The constituents of the peer group and the appropriate threshold (zero), target (100 percent) and maximum (200 percent) award points are reviewed by the CC on an annual basis.
- The TSR calculations are made for the reference period beginning in the year of the conditional grant of the shares and ending three years later. The evaluation is performed by an independent third party.

EPS

- Achievement against this measure is determined by ABB's average EPS over a three-year period.
- The average EPS result is calculated from the sum of EPS for each of the three relevant years, divided by three.
- EPS is defined as 'Diluted earnings per share attributable to ABB shareholders, calculated using Income from continuing operations, net of tax, unless the Board elects to calculate using Net income for a particular year'.
- Appropriate threshold (zero), target (100 percent) and maximum (200 percent) award points are reviewed by the CC on an annual basis.
- Performance target points are set using an 'outside-in' view, taking into account the growth expectations, risk profile, investment levels and profitability levels that are typical for the industry.
- This 'outside-in' approach is provided by external advisors and assumes that investors expect a risk-adjusted return on their investment, which is based on market value (and not on book value) and translates such expected returns over a three-year period into EPS targets.
- Adjustments to the outcome of the EPS may be considered for items which are not part or the result of the normal course of business operation and/or which were not considered, either by way of inclusion or exclusion, for the target setting of a specific LTIP launch. Only the net impact of such adjustments over the vesting period of the respective LTIP grant will be considered.

Total wealth at risk

Purpose and link to strategy

- To align EC members' interests with those of shareholders in order to maintain focus on the long-term success of the Company.
- Wealth at risk is broadly defined as two components – namely personal share ownership and unvested shares arising from the Company's share grants (e.g. LTIP grants).

Share ownership program

- EC members are required to retain all shares vested from the Company's LTIP and any other share-based compensation until his or her share ownership requirement is met. In circumstances where there is a withholding tax obligation, the number of shares received will be considered to be the number of shares vested minus the shares sold under the default sell-to-cover facility.
- The share ownership requirement is equivalent to a multiple of the EC member's annual base salary, net of tax (see Compensation Exhibit 11).
- These shareholding requirements are significantly above market practice and result in a wealth at risk for each EC member which is aligned with shareholder interests.

Compensation Exhibit 11: Share ownership requirement

| | |
|------------------|------------------------------------|
| CEO | 5 × annual base salary, net of tax |
| Other EC members | 4 × annual base salary, net of tax |

- Only vested shares owned by an EC member and the member's spouse are included in the share ownership calculation. Vested but unexercised and unvested stock options under the MIP are not considered for this purpose.
- The CC reviews the status of EC share ownership on an annual basis. It also reviews the required shareholding amounts annually, based on salary and expected share price developments.

Notice period, severance provisions and non-competition clauses

Operation

- Employment contracts for EC members include a notice period of 12 months, during which they are entitled to their annual base salary, benefits and short-term incentive. In accordance with Swiss law and ABB's Articles of Incorporation, the contracts for the EC members do not allow for any severance payment.
- Non-compete agreements have been entered into with the CEO and all EC members for a period of 12 months after their employment. Compensation for such agreements, if any, may not exceed the EC member's last total annual compensation (annual base salary, short-term incentive and benefits).

Implementation of executive compensation policy

Overview

EC members received total compensation of CHF 35.4 million in 2020 compared with CHF 51.4 million in 2019, as summarized in Compensation Exhibit 12 below and presented in detail in Compensation Exhibits 27 and 28. This 31 percent decrease in total compensation was influenced by the reduction in the number of active EC members, lower payments to former EC members, EC members voluntarily donating 10 percent of their salary to fight the impacts of the COVID-19 pandemic for a six-month period during 2020, and much lower short-term incentive awards due to the impact of COVID-19.

Compensation Exhibit 12: Total compensation of EC members (in CHF millions)⁽¹⁾

| | 2020 | 2019 |
|--|-------------|-------------|
| Base salaries | 8.4 | 12.1 |
| Pension benefits | 4.5 | 5.5 |
| Other benefits | 5.9 | 6.9 |
| Total fixed compensation | 18.8 | 24.5 |
| Short-term incentives | 6.8 | 12.7 |
| Long-term incentives (fair value at grant) | 6.5 | 12.6 |
| Replacement share grants | 3.3 | 1.6 |
| Total variable compensation | 16.6 | 26.9 |
| Total compensation | 35.4 | 51.4 |

(1) Has been adjusted for rounding where appropriate.

For an overview of compensation by individual and component, please refer to Compensation Exhibit 27 and Compensation Exhibit 28 in "Compensation and share ownership tables" below. An overview of 2020 realized compensation by individual is in Compensation Exhibit 33.

At the 2019 AGM, the shareholders approved a maximum aggregate compensation amount of CHF 55.5 million for the EC for the year 2020. The EC compensation for 2020 amounted to CHF 35.4 million and is within the approved amount. See Compensation Exhibit 13 below.

Compensation Exhibit 13: EC compensation (in CHF)

| Executive Committee | Calendar year | |
|---|---------------------------|-------------|
| | 2020 | 2019 |
| Number of members | 9 | 11 |
| Total compensation | 35,448,118 ⁽¹⁾ | 51,355,121 |
| Maximum aggregate compensation amount approved at AGM | 55,500,000 | 52,000,000 |

(1) Total compensation for 2020 compared to 2019 was lower mainly due to the reduction in the number of active EC members, lower payments to former EC members, and lower short-term incentive awards due to the impact of COVID-19.

Overall ratio of compensation components

The ratio of fixed to variable components in any given year depends on the performance of the Company and individual EC members against predefined performance objectives.

In 2020, the variable compensation of the new CEO was 51 percent of his total annual compensation (previous year: 52 percent applicable to the previous interim CEO). The total annual compensation for the new CEO excludes the value of the one-time replacement share grant to compensate for foregone benefits with the previous employer. For the other EC members, the variable compensation represented an average of 41 percent (previous year: 45 percent).

Terms of appointment for new Executive Committee members

The new Chief Human Resources Officer (CHRO), Carolina Granat, was appointed to the EC effective from January 1, 2021 with an annual base salary of CHF 700,000, a target short-term and long-term incentive of 100 percent of annual base salary. This represents a reduction in total target direct compensation (TTDC) compared to the prior incumbent. She is eligible for standard EC benefits and, where appropriate legacy relocation benefits.

The Chief Communications Officer (CCO), Theodor Swedjemark, was appointed to a new EC position on August 1, 2020, with an annual base salary of CHF 500,000, a target short-term incentive of 100 percent of annual base salary and a target long-term incentive of 80 percent of annual base salary, leading to a TTDC of CHF 1,400,000. He is eligible for standard EC benefits.

Compensation elements – 2020 highlights

Annual base salary

Three of the nine EC members in place in March 2020 received a salary adjustment, which ranged from 4.3 to 7.1 percent, the latter being for an exceptional performance and market adjustment. This corresponded to a 1.6 percent increase on annual base salaries for the EC members in post in March, 2020.

Short-term incentive - design

As disclosed in the 2019 Compensation Report, ABB's short-term incentive, the Annual Incentive Plan (AIP), was redesigned in 2020 to create focus on key priorities, with a maximum of five performance measures.

Under the AIP, all members of the EC have a common measure, with a 20 to 25 percent weighting. In 2020, this was Group ROCE - designed to create a greater focus on profitability and the efficiency with which capital is used.

In line with the new ABB operating model, up to three measures were linked to specific Business Area or Function needs, rather than having largely common measures for all EC members. Together, these Business Area or Functional measures had a total of a 55 to 60 percent weighting.

- For the CEO and CCO, the measures were Group Operational EBITA margin (%), Group Revenue and Group Free Cash Flow.

- For Business Area Presidents, measures were tailored to business imperatives and included their respective Business Area Operational EBITA (absolute), Operational EBITA margin (%), Net Working Capital, Operational Free Cash Flow (OFCF), Orders received, and absolute Gross Profit on orders.
- For other Corporate Officers, measures included Group financial measures, corporate function cost and progress against functional imperatives such as functional effectiveness and the completion of the divestment of the PG business. As a reminder, in 2021 all Corporate Officers will move to the same Group quantitative measures as the CEO.

Definitions of the quantitative measures for EC members used above are set out in the Compensation Exhibit 14, below.

Compensation Exhibit 14: Business Area and Function specific quantitative objectives in 2020

| Objective | Description |
|--|---|
| ROCE % | ROCE is calculated as Operational EBITA after tax divided by the average of the period's opening and closing Capital employed, adjusted to reflect impacts from significant acquisitions/divestments occurring during the same period. Capital employed is calculated as the sum of Adjusted total fixed assets and Net Working Capital |
| Operational EBITA (absolute) ⁽¹⁾ | Operational EBITA (as defined in "Note 23 – Operating segment and geographic data" to the Consolidated Financial Statements) is a profit measure before interest, tax and amortization expenses. It excludes non-operational items such as restructuring, foreign exchange/commodity timing differences, M&A transaction and integration costs and certain other non-operational items |
| Operational EBITA margin (%) | Operational EBITA margin is Operational EBITA as a percentage of Operational revenues, which is total revenues adjusted for foreign exchange/commodity timing differences in total revenues |
| Free Cash Flow (FCF) | Free Cash Flow is calculated as net cash provided by operating activities adjusted for: (i) purchases of property, plant and equipment and intangible assets, and (ii) proceeds from sales of property, plant and equipment |
| Operational Free Cash Flow (OFCF) | Cash generated by business operations after paying expenditures but before paying interests and taxes (OCF ⁽²⁾ minus Capital expenditures) |
| Function Cost | Total operating costs of the function that include the personnel costs and other operating expenses such as rent, travel, consultancy, communication, office administration and other related expenses to run the function |
| Net Working Capital ⁽¹⁾ | Net Working Capital is the sum of (i) receivables, net, (ii) contract assets, (iii) inventories, net, and (iv) prepaid expenses; less (v) accounts payable, trade, (vi) contract liabilities, and (vii) other current liabilities (excluding primarily: (a) income taxes payable, (b) current derivative liabilities, (c) pension and other employee benefits, (d) payables under the share buyback program and (e) liabilities related to the divestment of the Power Grids business); and including the amounts related to these accounts which have been presented as either assets or liabilities held for sale but excluding any amounts included in discontinued operations |
| Orders received | Represents the values of goods and services contracted and ordered by customers within a given accounting period net of cancellations |
| Gross Profit on orders (absolute) ⁽¹⁾ | Gross profit on orders is calculated by deducting the total costs to complete the order from the total revenue value of the order |
| Revenues | Revenues realized from executing and fulfilling customer orders, before any costs or expenses are deducted |

(1) Applied to Industrial Automation Business Area only.

(2) Cash flow from operating activities excluding payments for interest and income taxes.

All EC members also had an individual measure with a 20 percent weighting. This individual component was informed by up to three objectives, which included a combination of quantitative and qualitative objectives. The final outcome against this measure was based on a discretionary judgment of the combined performance against all objectives.

- In 2020, all the EC had a common safety objective – namely relevant improvement targets for the Total Recordable Incident Frequency Rate (TRIFR) – for the CEO and Corporate Officers, these related to Group targets, and for Business Area Presidents their respective Business Areas targets.
- For the CEO, the other two objectives were linked to the delivery of the long-term Group strategy and of the Group sustainability strategy and targets.
- For other EC members, objectives included qualitative and/or quantitative objectives such as establishing robust internal controls, delivery of digital goals and business transformation.

The relative weighting and composition of Group, Business Area, Functional and Individual measures for EC members for 2020 are summarized in Compensation Exhibit 15 below.

Compensation Exhibit 15: Weighting and composition of objectives for EC members for 2020

| | CEO ⁽¹⁾ | Business Area Presidents | Corporate Officers ⁽²⁾ |
|---|---------------------------|---------------------------------|--|
| Group measures | 80% | 20% | 20% |
| Business Area / Functional measures | n.a. | 60% | 60% |
| Individual measures | 20% | 20% | 20% |
| <i>Overall composition of AIP measures:</i> | | | |
| - Quantitative | 80% | 80%+ | 40-80% |
| - Qualitative | 20% | Up to 20% | 20-60% |

(1) Chief Communications Officer (CCO) replicated CEO measures in 2020 (targets in individual measure varied).

(2) Chief Financial Officer (CFO), Chief Human Resources Officer (CHRO) and General Counsel (GC).

For each measure, a target was set corresponding to the expected level of performance that would generate a target (100 percent) award. Further, a minimum level of performance, below which there is no award (threshold) and a maximum level of performance, above which the award is capped at 150 percent of the target (cap), were also defined. For qualitative Group, Business Area and Functional measures, the award percentage-achievements between threshold and target, as well as between target and cap were determined by linear interpolations between these points.

Outcomes were subject to appropriate discretionary upward or downward adjustments for some non-operational items and other adjustment principles agreed with the Board.

2020 Annual Incentive Plan (AIP) – outcomes

In summary, the average award for the EC under the AIP for 2020 was 72.4 percent (out of a maximum 150 percent), compared to 94.7 percent in 2019. This significant drop in outcomes from the prior year was heavily influenced by the impact on the business from COVID-19.

The 2020 AIP outcomes were net of the application of adjustments for some non-operational items and other adjustment principles agreed with the Board, specifically including balance sheet risk mitigation actions, where the benefits will be factored into the settling of future AIP targets. It also included caps on outcomes for Corporate Officers to ensure there were not unintended windfalls due to the impact of the COVID-19 crisis on cost or other qualitative measures. The average outcome for the EC without the application of these adjustments would have been nine percent lower.

Common measure

Achievement against the 2020 Group ROCE measure, which applied to all EC members, with a weighting of 20-25%, was zero percent (2019: n.a.). The Group's ROCE was 10.3 percent compared to 11.1 percent in 2019, reflecting the recognition of the investment in the Power Grids business joint venture as well as lower business activity.

Group measures

The outcome related to the other Group measures, which were applied to the CEO and CCO, with weightings of 10 to 25 percent, ranged from zero to for 109 percent and the weighted achievement related to all Group measures, including the common measure is 35 percent.

Business Area and Functional measures

Up to three quantitative business measures were applied to Business Area Presidents, with weightings from 15 to 40 percent, and the outcomes ranged from zero to 150 percent of target.

Up to three qualitative or quantitative business measures were applied to the CFO, CHRO and GC ('Corporate Officers'), with weightings from 15 to 25 percent, and the outcomes ranged from 53 to 125 percent of target.

Individual Measures

Thanks to the Company's strong focus on safety, in 2020 the target set for the Total Recordable Incident Frequency Rate (TRIFR) – has been overachieved at the Group level, resulting from the majority of Business Areas and Functions having overachieved their targets.

In summary, for EC members the assessed achievement of objectives representing the personal component, inclusive of the safety outcomes described, which has a weighting of 20 percent, ranged from 100 to 150 percent of target for 2020. This compared to a range of 59 to 111 percent in 2019.

Overall outcomes

The overall average award under the AIP for the entire EC was 72.4 percent of target (2019: 94.7 percent) with a range from 51.0 percent (lowest achievement) to 95.6 percent of target (highest achievement). This compared to a range of 72.0 to 106.2 percent in 2019.

These outcomes are summarized in Compensation Exhibit 16 below.

Compensation Exhibit 16: 'At a Glance' STI 2020 outcomes (rounded, with 2019 comparisons)

| | 2020 (% of target) Group ⁽¹⁾ | 2020 (% of target) Business Area Presidents | 2020 (% of target) Corporate Officers | 2019 (% of target) |
|--|---|--|--|-----------------------|
| Common Measure | | | | |
| <i>Group ROCE</i> | 0% | 0% | 0% | n.a. |
| Group Measures | | | | |
| <i>Cost Savings</i> | n.a. | | | 149% |
| <i>Free Cash Flow</i> | 109% | | | n.a. |
| <i>Operational Net Income</i> | n.a. | | | 79% |
| <i>Operational EBITA margin (%)</i> | 53% | | | 83% |
| <i>Operational Cash Flow</i> | n.a. | | | 93% |
| <i>Revenues</i> | 0% | | | 89% |
| Weighted Group results (Common + Group measures) | 35% | | | 97% |
| Business Area Measures ⁽²⁾ | | | | |
| <i>Gross Profit on orders (absolute)</i> | | 0% | | |
| <i>Operational EBITA margin (%)</i> | | 0 - 95% | | |
| <i>Orders received</i> | | 0 - 83% | | |
| <i>Operational Free Cash Flow</i> | | 106 - 150% | | |
| <i>Operational EBITA (absolute)</i> | | 0% | | |
| <i>Net Working Capital</i> | | 105% | | |
| Range of results | | 0 - 150% | | |
| Weighted Business Area results (Common + Business Area measures) | | 21 - 66% | | n.a. |
| Functional Measures | | | | |
| <i>Range of results ⁽²⁾⁽³⁾</i> | | | 53 - 125% | n.a. |
| Weighted Functional results (Common + Functional measures) | | | 47 - 61% | n.a. |
| Individual Measures | | | | |
| <i>Range of results ⁽⁴⁾</i> | | 100 - 150% | | 59 - 111% |
| Combined AIP results from Common, Group, Business Area/Functional and Individual Measures | | | | |
| <i>Range of outcomes ⁽⁴⁾</i> | | 51 - 96% | | 72 - 106% |
| Overall Average ⁽⁴⁾ | | 72% | | 95% |

(1) Applied to CEO and CCO in 2020. Therefore CCO is excluded from Corporate Officers data.

(2) Up to three business measures were applied to each Business Area President and Corporate Officer.

(3) May include Group measures and after the application of relevant caps.

(4) Applies to all Executive Committee members.

The table below provides information related to the actual 2020 AIP achievement, in comparison to the target for all active EC members.

Compensation Exhibit 17: Overview of targeted and realized AIP 2020 values

| | Target AIP award (in % of base salary) | Target AIP award (in CHF)⁽¹⁾ | Actual AIP award (in % of target) | Actual AIP award (in CHF)⁽²⁾ |
|-----------------------------------|---|--|--|--|
| Björn Rosengren ⁽³⁾ | 100% | 1,504,131 | 65.0% | 977,685 |
| Timo Ihamuotila | 100% | 902,500 | 77.4% | 698,535 |
| Sylvia Hill | 100% | 730,000 | 75.0% | 547,500 |
| Maria Varsellona | 100% | 760,000 | 86.3% | 655,880 |
| Theodor Swedjemark ⁽⁴⁾ | 100% | 200,000 | 65.0% | 130,000 |
| Sami Atiya | 100% | 760,000 | 55.0% | 418,000 |
| Tarak Mehta | 100% | 855,000 | 81.3% | 695,115 |
| Peter Terwiesch | 100% | 760,000 | 51.0% | 387,600 |
| Morten Wierod | 100% | 712,500 | 95.6% | 681,150 |
| Total | | 7,184,131 | | 5,191,465 |

(1) Inclusive of adjustments for the COVID-19 salary donation program and pro-rating for time served on the EC.

(2) Represents accrued AIP award for the year 2020, which will be paid in 2021, after the publication of ABB's financial results.

(3) Björn Rosengren joined the EC on January 27, 2020.

(4) Theodor Swedjemark joined the EC on August 1, 2020.

2020 Long-term incentive plan outcomes

The estimated value at grant of the share-based grants to EC members under the 2020 LTIP award was CHF 6.5 million, compared with CHF 12.6 million in 2019. This deviation is primarily driven from the reduction in the numbers of EC members between 2019 (11 EC members) and 2020 (9 EC members).

The companies approved by the Board to determine ABB's relative TSR performance for the 2020 LTIP were: 3M, Danaher, Eaton, Emerson Electric, General Electric, Honeywell Intl., LafargeHolcim, Legrand, Mitsubishi Electric, Raytheon Technologies, Rockwell, Rolls Royce, Schneider Electric, Siemens and Yokogawa. Note that LafargeHolcim replaced ThyssenKrupp, which had been previously included in the peer group. These were selected to provide an appropriate and very challenging set of peers, and influenced the payment point setting accordingly (see Compensation Exhibit 18 below).

The EPS targets for the 2020 LTIP, which were set before the COVID-19 crisis occurred, were not changed for the impact of COVID-19. This may have a materially negative impact on the final amount which may be delivered under the award.

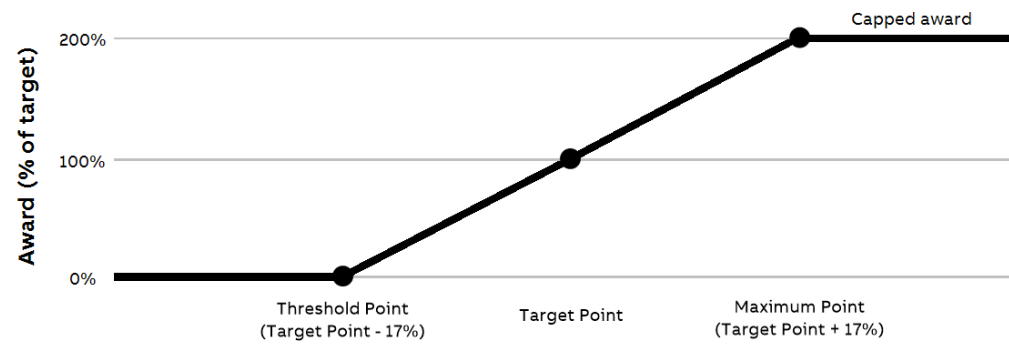
The reference price for the 2020 LTIP grant which is used to determine the number of shares granted to participants was set in March, during a time of high market volatility due to the COVID-19 crisis. Given the high variability between the formulaic outcome of the reference price under the LTIP rules, of CHF 23.00, and the share price near the date of grant, in the region of CHF 16.00, it was decided to use the prior year's reference price of CHF 19.36.

Also note that, from 2020, for the top 100 senior leaders outside the EC, future grants under the Management Incentive Plan (MIP) – a stock option plan, without performance conditions – were discontinued and replaced by the LTIP. Other employees previously eligible to receive grants under the MIP received grants under a restricted share plan.

The 2020 LTIP award curves are also illustrated in Compensation Exhibit 18 below.

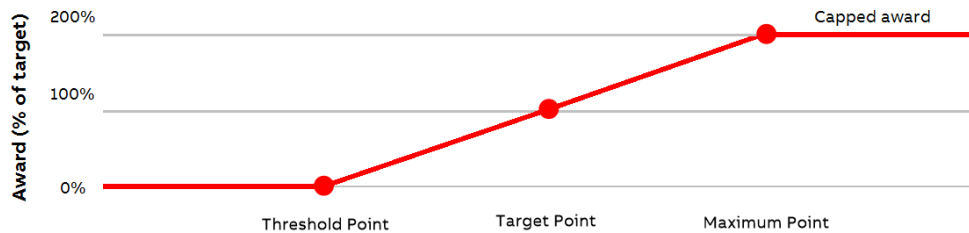
Compensation Exhibit 18: 2020 LTIP Targets

EPS award curve for the 2020 LTIP



Threshold point: no award; Target point: 100% award; Maximum Point: capped at 200% award; linear award between point. The actual EPS target is not prospectively disclosed for reasons of commercial sensitivity.

TSR award curve for the 2020 LTIP



Threshold point: TSR performance within the lower (0-25%) quartile: no award.
 Target point: TSR performance at the median performing company: 100% award.
 Maximum point: TSR performance in the upper (75-100%) quartile: 200% award.
 Linear award between points.

The change in the EPS award curve for the 2020 LTIP (range cut from plus/minus 25 percent of target to plus/minus 17 percent of target) is a reflection of the perceived EPS volatility during the performance period, and also serves to make the achievement of a threshold award under the plan more demanding.

2017 LTIP outcome

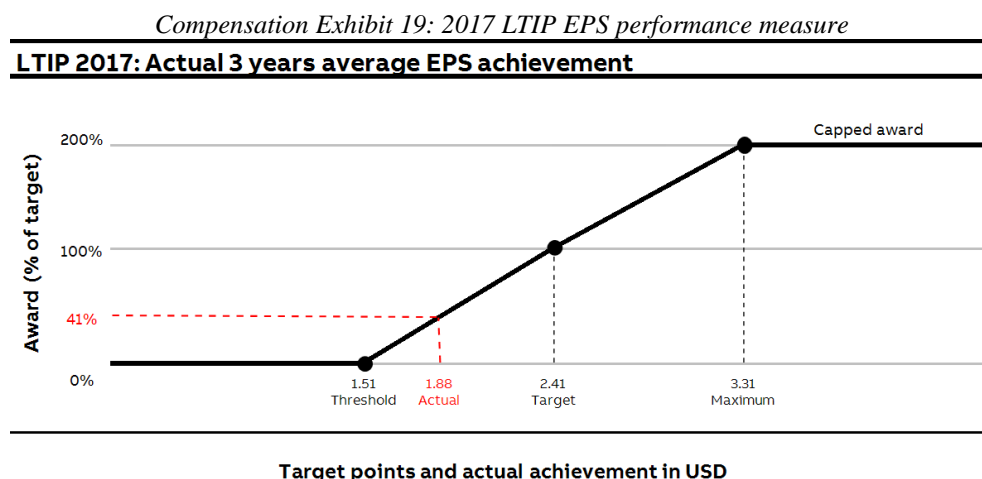
The final number of shares vesting under the 2017 LTIP grant in 2020 was determined based on the achievement level against the defined Net income and EPS targets. The Net income measure was achieved at 105 percent (2016 grant 100 percent) out of a potential of 150 percent.

The CC exercised its discretion to apply Net income to determine EPS rather than income from continuing operations, net of tax, given the move of the Power Grids business into discontinued operations. The average EPS measure vested at 41 percent (previous year: 85 percent) out of a potential 200 percent, net of adjustments for items considered outside the normal course of business operation and/or which were not considered in the target setting of the 2017 LTIP. On this occasion, adjustments were made for the impact of divestments, integration and restructuring costs. Without the impact of the approved adjustments the vesting level would have been 21 percent.

The average achievement level of the two performance measures under the 2017 LTIP was 73.0 percent (out of a maximum 175 percent), with the actual level varying by individual EC member, from 69.4 to 75.4 percent, as specified in Compensation Exhibit 20.

Since the performance period for determining the value of the award was from 2017 to 2019, the outcome was not affected by the impact of COVID-19.

As announced in our 2019 Compensation Report, the EPS performance targets for vested LTIP awards will be retrospectively disclosed in our Compensation Reports. The three target points (threshold, target and maximum) and the actual achievement for the 2017 EPS performance measure are shown in Compensation Exhibit 19 below.



Notes

1. Net income used to determine EPS rather than income from continuing operations, net of tax, given the move of the Power Grids business into discontinued operations.
2. Actual value shown net of adjustments for items considered outside the normal course of business operation and/or which were not considered in the target setting of the LTIP. Please note that as a result of the adjustments applied, the EPS number shown above will not reconcile with EPS calculated based on Net income only.

Overview of disclosed and realized LTIP 2017 value

A new table below, requested by stakeholders, provides information related to the LTIP 2017 grant, showing the previously disclosed ‘fair value’ of the grant to each EC member and the actual value of the grant at the time of delivery in 2020. Values are gross, e.g. before payment of any applicable taxes. This indicates the gross realized value was 65.4 percent of the disclosed grant fair value.

Compensation Exhibit 20: Realized value of 2017 LTIP grant

| | 2017 LTIP grant date | Shares granted related to the Net income measure ⁽¹⁾ | Shares granted related to the EPS measure ⁽²⁾ | Total number of shares granted | Disclosed grant fair value ⁽³⁾ | 2017 LTIP vesting date | Vesting percentage | Number of vested shares | Realized value ⁽⁴⁾ |
|--------------------|-------------------------|--|--|---|---|---------------------------|-----------------------|-------------------------------|----------------------------------|
| Björn Rosengren | n.a. | | | | | | | | |
| Timo Ihamuotila | June 13, 2017 | 20,500 | 20,500 | 41,000 | 998,965 | June 13, 2020 | 73.0% | 29,930 | 593,811 |
| Sylvia Hill | n.a. | | | | | | | | |
| Maria Varsellona | n.a. | | | | | | | | |
| Theodor Swedjemark | n.a. | | | | | | | | |
| Sami Atiya | June 13, 2017 | 18,691 | 16,044 | 34,735 | 845,147 | June 13, 2020 | 75.4% | 26,205 | 519,907 |
| Tarak Mehta | June 13, 2017 | 15,331 | 19,163 | 34,494 | 842,145 | June 13, 2020 | 69.4% | 23,955 | 475,267 |
| Peter Terwiesch | June 13, 2017 | 19,989 | 17,158 | 37,147 | 903,833 | June 13, 2020 | 75.4% | 28,024 | 555,996 |
| Morten Wierod | June 13, 2017 | 7,029 | 7,029 | 14,058 | n.a. | June 13, 2020 | 73.0% | 10,263 | 203,618 |
| Total | | | | | 3,590,090 | | | | 2,348,599 |

(1) Actual achievement level of the Net income measure was 105 percent.

(2) Actual achievement level of the EPS measure was 41 percent.

(3) At the time of disclosure Morten Wierod was not member of the EC.

(4) Valued at CHF 19.84, the closing price of the ABB share on the day of vesting.

Historical vesting outcomes

The historical vesting percentages for the prior five years are shown in Compensation Exhibit 21 below. Over the last five years vesting has averaged at 79.6 percent of target and 53.1 percent of the maximum award.

Compensation Exhibit 21: LTIP historical actual vesting percentages⁽¹⁾

| | Plan Year of Award | | | | |
|---|---------------------------|-------------|-------------|-------------|-------------|
| | 2013 | 2014 | 2015 | 2016 | 2017 |
| Vesting in % of target award | 77.2% | 74.8% | 80.5% | 92.5% | 73.0% |
| Vesting in % of maximum potential award | 55.1% | 53.4% | 53.7% | 61.7% | 41.7% |

(1) Average of relevant performance measures.

Shareholdings of EC members

Three out of nine EC members have achieved or exceeded their share ownership requirement. A further five members have been newly appointed to the EC in the last two years. The EC members collectively owned less than 1 percent of ABB's total shares outstanding at December 31, 2020.

At December 31, 2020, members of the EC held ABB shares and conditional rights to receive shares, as shown in Compensation Exhibit 31 in the section "Compensation and share ownership tables" below. Their holdings at December 31, 2019, are shown in Compensation Exhibit 32 in the section "Compensation and share ownership tables" below.

As previously stated, no further grants will be made under the Management Incentive Plan (MIP), a stock option plan without performance conditions. Any MIP instruments held by EC members were awarded prior to their appointment as EC members. For a more detailed description of MIP, please refer to "Note 18 – Share-based payment arrangements" in our Consolidated Financial Statements.

Except as described in Compensation Exhibits 29 and 30, no member of the EC and no person closely linked to a member of the EC held any shares of ABB or options on ABB shares at December 31, 2020 and 2019.

Other compensation

Members of the EC are eligible to participate in the Employee Share Acquisition Plan (ESAP), a savings plan based on stock options, which is open to employees around the world. Five members of the EC participated in the 17th annual launch of the plan in 2020. EC members who participated will, upon vesting, each be entitled to acquire up to 440 ABB shares at CHF 22.87 per share, the market share price at the start of the 2020 launch.

For a more detailed description of the ESAP, please refer to “Note 18 – Share-based payment arrangements” in our Consolidated Financial Statements.

In 2020, ABB did not pay any fees or compensation to the members of the EC for services rendered to ABB other than those disclosed in this Compensation Report. Except as disclosed in the section titled “Executive Committee – Business relationships between ABB and its EC members” in the Corporate Governance Report, ABB did not pay any additional fees or compensation in 2020 to persons closely linked to a member of the EC for services rendered to ABB.

Terms of departure for former EC members

The former CHRO, Sylvia Hill, will continue to receive her annual base salary and benefits during her notice period, until her termination date, on December 31, 2021. She will receive a short-term incentive payment for 2021, based on the average short-term incentive award percentages achieved in 2019 and 2020, at the termination date. Outstanding LTIP grants made for the years 2019 and 2020 will be settled according to the plan-related vesting schedule, subject to achievement against the relevant performance conditions. Legacy MIP awards may be exercised up to one year following the termination date. She withdrew from the voluntary 10 percent salary donation program.

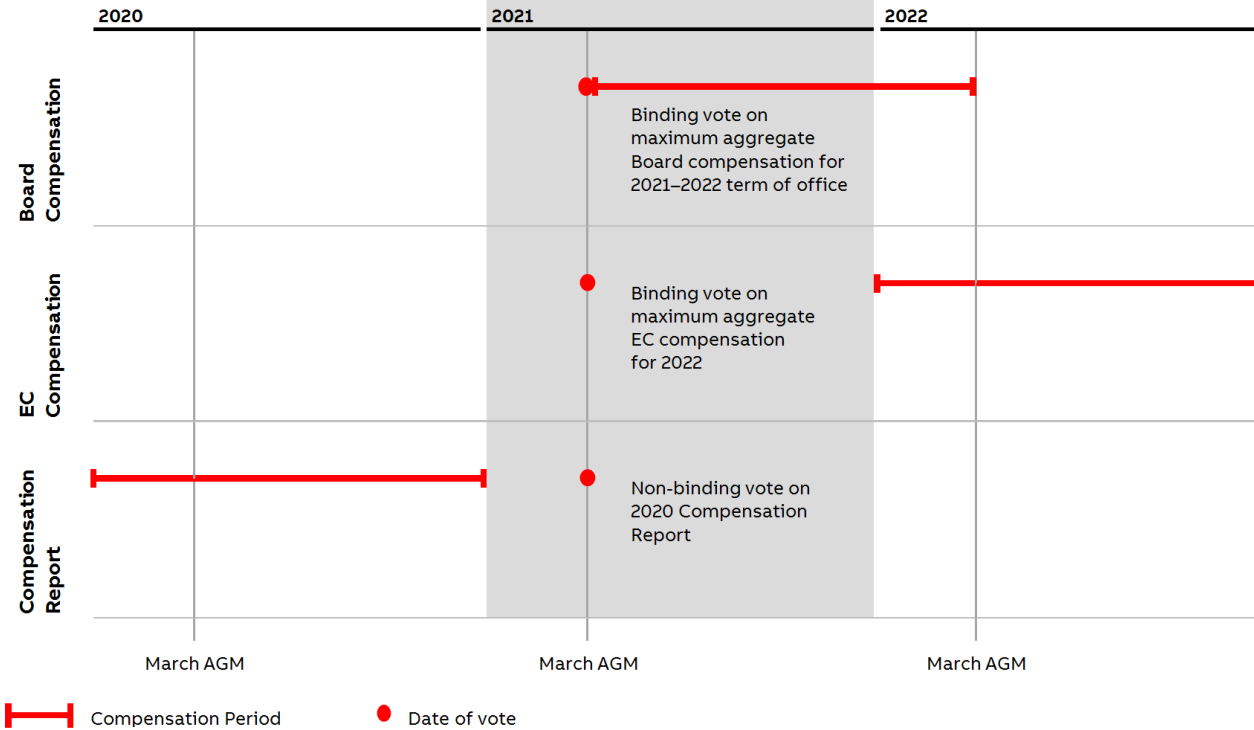
Compensation of former EC members

In 2020, certain former EC members received contractual compensation for the period after leaving the EC, as shown in Compensation Exhibit 27, footnotes (6) and (7).

Votes on compensation at the 2021 AGM

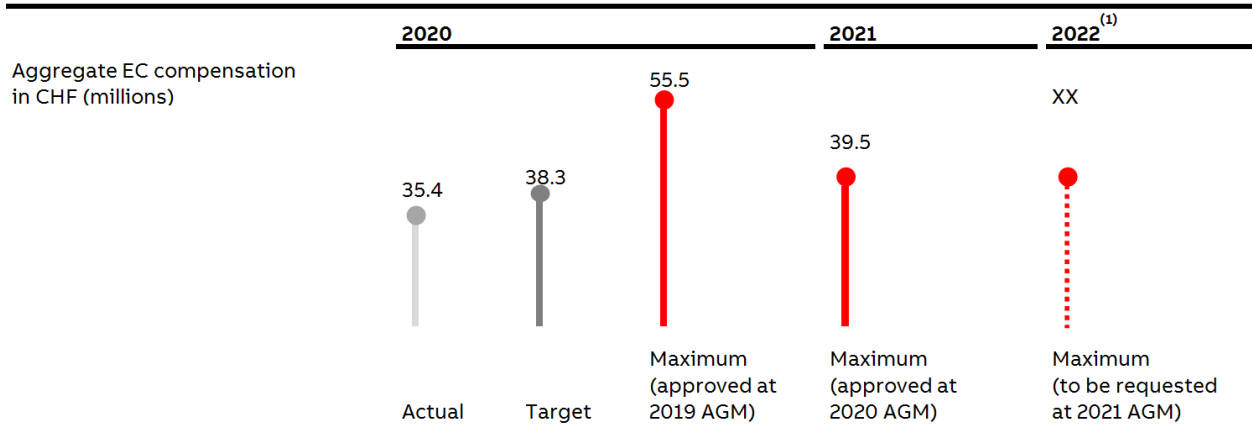
As illustrated in Compensation Exhibit 22, the Board’s proposals to shareholders at the 2021 AGM will relate to Board compensation for the 2021–2022 term of office and EC compensation for the calendar year 2022. There will also be a non-binding vote on the 2020 Compensation Report.

Compensation Exhibit 22: Shareholders will have three separate votes on compensation at the 2021 AGM



In determining the proposed maximum aggregate EC compensation, the Board takes into consideration the criteria illustrated in Compensation Exhibit 23. Given the variable nature of a major portion of the compensation components, the proposed maximum aggregate EC compensation will almost always be higher than the actual compensation paid or awarded, as it must cover the potential maximum value of each component of compensation.

Compensation Exhibit 23: Overview of key factors affecting the determination of maximum aggregate EC compensation



Assumptions

| | | | | | |
|--|--------------------|------|--------|--------|--------|
| AIP award percentage | 72% ⁽²⁾ | 100% | 150% | 150% | 150% |
| Adjustment of LTIP grant size ⁽³⁾ | 0% | 0% | +12.5% | +12.5% | +12.5% |
| Number of EC members | 13 | 13 | 12 | 9 | 9 |

(1) Number will be provided in the AGM invitation.

(2) Outcome without the allocation of former EC members. For full description, see section “Compensation elements – 2020 highlights”.

(3) This 12.5 percent applied on the entire LTIP for EC members only and is not applicable to the CEO.

Compensation and share ownership tables

Compensation Exhibit 24: Board compensation in 2020 and 2019

| Name | Paid in 2020 | | | | | Paid in 2019 | | | | |
|--------------------------------------|-----------------------------------|--|-----------------------------------|--|--|-----------------------------------|--|-----------------------------------|--|--|
| | November Board term 2020-2021 | | May Board term 2019-2020 | | Total compensation paid in 2020 ⁽³⁾ | November Board term 2019-2020 | | May Board term 2018-2019 | | Total compensation paid in 2019 ⁽³⁾ |
| | Settled in cash ⁽¹⁾ | Settled in shares - number of shares received ⁽²⁾ | Settled in cash ⁽¹⁾ | Settled in shares - number of shares received ⁽²⁾ | | Settled in cash ⁽¹⁾ | Settled in shares - number of shares received ⁽²⁾ | Settled in cash ⁽¹⁾ | Settled in shares - number of shares received ⁽²⁾ | |
| | CHF | | CHF | | CHF | CHF | | CHF | | CHF |
| Peter Voser, Chairman ⁽⁴⁾ | — | 21,831 | — | 32,642 | 1,140,000 | — | 29,156 | — | 29,943 | 1,200,000 |
| Jacob Wallenberg ⁽⁵⁾ | 101,250 | 3,297 | 112,500 | 4,928 | 427,500 | 112,500 | 4,397 | 112,500 | 4,515 | 450,000 |
| Matti Alahuhta ⁽⁶⁾ | — | 4,787 | — | 7,155 | 304,000 | — | 6,384 | 80,000 | 3,210 | 320,000 |
| Gunnar Brock ⁽⁷⁾ | — | 4,937 | — | 7,379 | 313,500 | — | 6,584 | 82,500 | 3,311 | 330,000 |
| David Constable ⁽⁸⁾ | 78,750 | 2,564 | 87,500 | 3,833 | 332,500 | 87,500 | 3,420 | 87,500 | 3,511 | 350,000 |
| Frederico Curado ⁽⁹⁾ | — | 4,438 | — | 6,646 | 304,000 | — | 5,934 | 80,000 | 2,973 | 320,000 |
| Lars Förberg ⁽¹⁰⁾ | — | 5,805 | — | 8,688 | 304,000 | — | 7,755 | — | 7,970 | 320,000 |
| Jennifer Xin-Zhe Li ⁽¹¹⁾ | 72,000 | 2,163 | 80,000 | 3,239 | 304,000 | 80,000 | 2,892 | 80,000 | 2,973 | 320,000 |
| Geraldine Matchett ⁽¹²⁾ | 74,250 | 3,159 | 82,500 | 4,722 | 313,500 | 82,500 | 4,213 | 82,500 | 4,326 | 330,000 |
| David Meline ⁽¹³⁾ | 90,000 | 2,931 | 100,000 | 4,380 | 380,000 | 100,000 | 3,908 | 100,000 | 4,013 | 400,000 |
| Satish Pai ⁽¹⁴⁾ | 74,520 | 2,231 | 82,500 | 3,340 | 313,500 | 82,500 | 2,983 | 82,500 | 3,066 | 330,000 |
| Total | 490,770 | 58,143 | 545,000 | 86,952 | 4,436,500 | 545,000 | 77,626 | 787,500 | 69,811 | 4,670,000 |

(1) Represents gross amounts paid, prior to deductions for social security, withholding tax etc.

(2) Number of shares per Board member is calculated based on net amount due after deductions for social security, withholding tax etc.

(3) In addition to the Board remuneration stated in the above table, in 2020 and 2019 the Company paid CHF 272,312 and CHF 270,933, respectively, in related mandatory social security payments.

(4) Chairman of the ABB Ltd Board for the 2018-2019, 2019-2020 and 2020-2021 board terms and Chairman of the Governance and Nomination Committee for the 2018-2019 board term; is receiving 100 percent of his compensation in the form of ABB shares.

(5) Vice-Chairman of the ABB Ltd Board for the 2018-2019, 2019-2020 and 2020-2021 board terms; Chairman of the Governance and Nomination Committee for the 2019-2020 and 2020-2021 board terms and member of that committee for the 2018-2019 board term; is receiving 50 percent of his compensation in the form of ABB shares.

(6) Member of the Governance and Nomination Committee for the 2018-2019, 2019-2020 and 2020-2021 board terms; received 50 percent of his compensation in the form of ABB shares for the 2018-2019 board term and is receiving 100 percent of his compensation in shares for the 2019-2020 and 2020-2021 board terms.

(7) Member of the Finance, Audit and Compliance Committee for the 2018-2019, 2019-2020 and 2020-2021 board terms; received 50 percent of his compensation in shares for the 2018-2019 board term and is receiving 100 percent of his compensation in the form of ABB shares for the 2019-2020 and 2020-2021 board terms.

(8) Chairman of the Compensation Committee for the 2018-2019, 2019-2020 and 2020-2021 board terms; is receiving 50 percent of his compensation in the form of ABB shares.

(9) Member of the Compensation Committee for the 2018-2019, 2019-2020 and 2020-2021 board terms; received 50 percent of his compensation in the form of ABB shares for the 2018-2019 board term and is receiving 100 percent of his compensation in shares for the 2019-2020 and 2020-2021 board terms.

(10) Member of the Governance and Nomination Committee for the 2018-2019, 2019-2020 and 2020-2021 board terms; is receiving 100 percent of his compensation in the form of ABB shares.

(11) Member of the Compensation Committee for the 2018-2019, 2019-2020 and 2020-2021 board terms; is receiving 50 percent of her compensation in the form of ABB shares.

(12) Member of the Finance, Audit and Compliance Committee for the 2018-2019, 2019-2020 and 2020-2021 board terms; is receiving 50 percent of her compensation in the form of ABB shares.

(13) Chairman of the Finance, Audit and Compliance Committee for 2018-2019, 2019-2020 and 2020-2021 board terms; is receiving 50 percent of his compensation in the form of ABB shares.

(14) Member of the Finance, Audit and Compliance Committee for the 2018-2019, 2019-2020 and 2020-2021 board terms; is receiving 50 percent of his compensation in the form of ABB shares.

Compensation Exhibit 25: Board compensation for the Board terms 2020-2021 and 2019-2020

| Name | Specific Board Roles | Board term 2020-2021 ⁽¹⁾ | Board term 2019-2020 |
|---------------------|---|--|-------------------------|
| | | CHF | CHF |
| Peter Voser | Chairman of the Board | 1,140,000 | 1,200,000 |
| Jacob Wallenberg | Vice-Chairman of the Board and Chairman GNC | 427,500 | 450,000 |
| Matti Alahuhta | Member GNC | 304,000 | 320,000 |
| Gunnar Brock | Member FACC | 313,500 | 330,000 |
| David Constable | Chairman CC | 332,500 | 350,000 |
| Frederico Curado | Member CC | 304,000 | 320,000 |
| Lars Förberg | Member GNC | 304,000 | 320,000 |
| Jennifer Xin-Zhe Li | Member CC | 304,000 | 320,000 |
| Geraldine Matchett | Member FACC | 313,500 | 330,000 |
| David Meline | Chairman of FACC | 380,000 | 400,000 |
| Satish Pai | Member FACC | 313,500 | 330,000 |
| Total | | 4,436,500 | 4,670,000 |

(1) This reflects a 10 percent COVID-19 related voluntary donation in Board fees for the first half of the 2020-2021 Board term.

Key:

CC: Compensation Committee

FACC: Finance, Audit and Compliance Committee

GNC: Governance and Nomination Committee

Compensation Exhibit 26: Board ownership of ABB shares

| Name | Total number of shares held | |
|-----------------------------|-----------------------------|-------------------|
| | December 31, 2020 | December 31, 2019 |
| Peter Voser ⁽¹⁾ | 314,648 | 260,175 |
| Jacob Wallenberg | 234,246 | 226,021 |
| Matti Alahuhta | 93,408 | 51,466 |
| Gunnar Brock | 26,951 | 14,635 |
| David Constable | 33,978 | 27,581 |
| Frederico Curado | 32,382 | 21,298 |
| Lars Förberg | 49,992 | 35,499 |
| Jennifer Xin-Zhe Li | 33,721 | 8,319 |
| Geraldine Matchett | 19,800 | 11,919 |
| David Meline ⁽²⁾ | 33,774 | 25,463 |
| Satish Pai | 24,618 | 19,047 |
| Total | 897,518 | 701,423 |

(1) Includes 2,000 shares held by spouse.

(2) Includes 3,150 shares held by spouse.

Compensation Exhibit 27: EC compensation in 2020

| Name | Cash Compensation | | | | | Estimated value of share-based grants under the LTIP in 2020 ⁽⁵⁾ | Estimated value of replacement share-based grant in 2020 | 2020 Total (incl. conditional share-based grants) ⁽⁶⁾ |
|---|----------------------------|--|------------------|-------------------------------|---|---|--|--|
| | Base salary ⁽¹⁾ | Short-term incentive ⁽¹⁾⁽²⁾ | Pension benefits | Other benefits ⁽³⁾ | 2019 Total cash-based compensation ⁽⁴⁾ | | | |
| | CHF | CHF | CHF | CHF | CHF | CHF | CHF | CHF |
| Björn Rosengren (EC member as of January 27, 2020, CEO as of March 1, 2020) | 1,504,141 | 977,685 | 666,175 | 688,685 | 3,836,686 | 1,970,457 | 3,308,781 | 9,115,924 |
| Timo Ihamuotila | 902,508 | 698,535 | 494,360 | 646,278 | 2,741,681 | 734,103 | — | 3,475,784 |
| Sylvia Hill | 725,004 | 547,500 | 471,925 | 290,108 | 2,034,537 | 564,097 | — | 2,598,634 |
| Maria Varsellona | 760,008 | 655,880 | 471,538 | 818,288 | 2,705,714 | 618,193 | — | 3,323,907 |
| Theodor Swedjemark (EC member as of August 1, 2020) | 200,002 | 130,000 | 118,951 | 75,259 | 524,212 | 92,887 | — | 617,099 |
| Sami Atiya | 760,008 | 418,000 | 465,509 | 423,787 | 2,067,304 | 618,193 | — | 2,685,497 |
| Tarak Mehta | 848,339 | 695,115 | 479,932 | 390,681 | 2,414,067 | 695,462 | — | 3,109,529 |
| Peter Terwiesch | 760,008 | 387,600 | 456,374 | 334,575 | 1,938,557 | 618,193 | — | 2,556,750 |
| Morten Wierod | 704,171 | 681,150 | 413,120 | 346,080 | 2,144,521 | 579,552 | — | 2,724,073 |
| Total current Executive Committee members at December 31, 2020 | 7,164,189 | 5,191,465 | 4,037,884 | 4,013,741 | 20,407,279 | 6,491,137 | 3,308,781 | 30,207,197 |
| Peter Voser (EC member until February 29, 2020) | 280,835 | 421,250 | 37,443 | 48,160 | 787,688 | — | — | 787,688 |
| Ulrich Spiesshofer (EC member until April 16, 2019) ⁽⁷⁾ | 561,670 | 749,825 | 214,588 | 820,421 | 2,346,504 | — | — | 2,346,504 |
| Jean-Christophe Deslarzes (EC member until May 31, 2019) | 156,668 | 158,939 | 86,309 | 169,099 | 571,015 | — | — | 571,015 |
| Diane de Saint Victor (EC member until October 31, 2019) | 250,001 | 260,750 | 74,561 | 950,402 | 1,535,714 | — | — | 1,535,714 |
| Total departing Executive Committee members | 1,249,174 | 1,590,764 | 412,901 | 1,988,082 | 5,240,921 | — | — | 5,240,921 |
| Total | 8,413,363 | 6,782,229 | 4,450,785 | 6,001,823 | 25,648,200 | 6,491,137 | 3,308,781 | 35,448,118 |

- (1) Base salary as well as the target short-term incentive were adjusted where appropriate for EC members who voluntarily donated 10 percent of their salary to fight the impacts of the COVID-19 crisis for a six-month period during 2020.
- (2) Represents accrued short-term variable compensation for the year 2020, which will be paid in 2021, after the publication of ABB's financial results. Short-term variable compensation is linked to the objectives defined in each EC member's annual incentive plan. Upon full achievement of these objectives, the short-term variable compensation of the EC members represents 100 percent of their respective base salary. The short-term variable compensation of the former CEO, Ulrich Spiesshofer, corresponds to the contractually agreed average of the year 2017 and 2018 short-term variable compensation award. Peter Voser received his short-term variable compensation payment monthly at target achievement level. Diane de Saint Victor and Jean-Christophe Deslarzes received a pro-rata short-term variable compensation payment for their period of service as an EC member, in accordance with the contractual obligations of ABB.
- (3) Other benefits comprise payments related to social security, health insurance, children's education, transportation, tax advice and certain other items like compensation for unused vacation balances at the time of departure from ABB.
- (4) Prepared on an accrual basis.
- (5) The estimated value of the share-based LTIP grants are based on the price of ABB shares on the grant date, adjusted for expected foregone dividends during the vesting period. On the day of vesting (April 27, 2023), the value of the share-based awards granted under the LTIP may vary from the above amounts due to changes in ABB's share price and the outcome of the performance factors.
- (6) Payments totaling CHF 161,274 were made in 2020 on behalf of certain other former EC members, representing social security premium payments.
- (7) ABB paid Ulrich Spiesshofer in addition to the compensation related to the termination period, non-compete payments for the period May 1, 2020, to December 31, 2020, and related social security payments totaling CHF 2,806,111.

Compensation Exhibit 28: EC compensation in 2019

| Name | Cash Compensation | | | | | Estimated value of share-based grants under the LTIP in 2019 ⁽⁴⁾ | Estimated value of replacement share-based grant in 2019 | 2019 Total (incl. conditional share-based grants) ⁽⁵⁾ |
|--|-------------------|-------------------------------------|------------------|-------------------------------|---|---|--|--|
| | Base salary | Short-term incentive ⁽¹⁾ | Pension benefits | Other benefits ⁽²⁾ | 2019 Total cash-based compensation ⁽³⁾ | | | |
| | CHF | CHF | CHF | CHF | CHF | CHF | CHF | CHF |
| Peter Voser (CEO as of April 17, 2019) | 1,187,167 | 1,780,739 | 149,772 | 320,688 | 3,438,366 | — | — | 3,438,366 |
| Timo Ihamuotila | 945,005 | 960,450 | 500,830 | 581,983 | 2,988,268 | 836,661 | — | 3,824,929 |
| Sylvia Hill (EC member as of June 1, 2019) | 408,334 | 433,650 | 268,643 | 198,236 | 1,308,863 | 616,494 | — | 1,925,357 |
| Maria Varsellona (EC member as of November 1, 2019) ⁽⁶⁾ | 133,335 | 133,333 | 40,619 | 472,088 | 779,375 | 822,328 | 1,624,386 | 3,226,089 |
| Frank Duggan ⁽⁷⁾ | 667,708 | 707,103 | 363,173 | 552,220 | 2,290,204 | 704,559 | — | 2,994,763 |
| Chunyuan Gu ⁽⁸⁾ | 685,847 | 685,963 | 263,125 | 708,252 | 2,343,187 | 616,494 | — | 2,959,681 |
| Sami Atiya | 786,676 | 602,400 | 467,214 | 528,033 | 2,384,323 | 845,459 | — | 3,229,782 |
| Tarak Mehta | 860,004 | 747,340 | 478,990 | 570,644 | 2,656,978 | 757,396 | — | 3,414,374 |
| Claudio Facchin | 810,006 | 583,200 | 469,271 | 404,865 | 2,267,342 | 713,355 | — | 2,980,697 |
| Peter Terwiesch | 795,009 | 668,800 | 460,453 | 389,694 | 2,313,956 | 704,559 | — | 3,018,515 |
| Morten Wierod (EC member as of April 1, 2019) | 525,000 | 516,600 | 304,632 | 200,336 | 1,546,568 | 616,494 | — | 2,163,062 |
| Total Executive Committee members at December 31, 2019 | 7,804,091 | 7,819,578 | 3,766,722 | 4,927,039 | 24,317,430 | 7,233,799 | 1,624,386 | 33,175,615 |
| Ulrich Spiesshofer (EC member until April 16, 2019) | 1,685,010 | 2,249,475 | 639,222 | 979,554 | 5,553,261 | 2,967,911 | — | 8,521,172 |
| Jean-Christophe Deslarzes (EC member until May 31, 2019) | 940,007 | 998,280 | 513,258 | 522,119 | 2,973,664 | 827,846 | — | 3,801,510 |
| Diane de Saint Victor (EC member until October 31, 2019) | 1,000,001 | 1,062,000 | 298,242 | 246,441 | 2,606,684 | 880,685 | — | 3,487,369 |
| Greg Scheu (EC member until October 31, 2019) ⁽⁹⁾ | 661,604 | 557,123 | 228,298 | 199,474 | 1,646,499 | 722,956 | — | 2,369,455 |
| Total departing Executive Committee members | 4,286,622 | 4,866,878 | 1,679,020 | 1,947,588 | 12,780,108 | 5,399,398 | — | 18,179,506 |
| Total | 12,090,713 | 12,686,456 | 5,445,742 | 6,874,627 | 37,097,538 | 12,633,197 | 1,624,386 | 51,355,121 |

- Represents accrued STI for the year 2019, which was paid in 2020, after the publication of ABB's financial results. STI is linked to the objectives defined in each EC member's scorecard. Upon full achievement of these objectives, the STI of the EC members represents 100 percent of their respective annual base salary. The STI of the former CEO, Ulrich Spiesshofer, corresponds to the contractually agreed average of the year 2017 and 2018 STI award. Peter Voser received his STI payment monthly at target achievement level. Greg Scheu received a pro-rata STI payment for his period of service as an EC member, in accordance with the contractual obligations of ABB.
- Other benefits comprise payments related to social security, health insurance, children's education, transportation, tax advice and certain other items. Other benefits for Peter Voser include mandatory social security payments only.
- Prepared on an accrual basis.
- On the day of vesting (May 16, 2022), the value of the share-based awards granted under the LTIP may vary from the above amounts due to changes in ABB's share price and the outcome of the performance factors. The estimated value of the share-based grants is based on the price of ABB shares on the grant date, adjusted for expected foregone dividends during the vesting period.
- Payments totaling CHF 216,069 were made in 2019 on behalf of certain other former EC members, mainly representing mandatory social security payments.
- In addition to the replacement share grant, Maria Varsellona received compensation in the amount of CHF 445,939 for 10 months of foregone STI payments from her previous employer, which is shown under other benefits.
- Frank Duggan received 20 percent of his base salary in AED and 80 percent in EUR. The Company purchased EUR with AED to meet this obligation. All AED amounts were converted into Swiss francs using a rate of CHF 0.2635992 per AED.
- Chunyuan Gu received for the period January to February 2019, 100 percent of his compensation in CNY and for the period March to December 2019, 100 percent of his base salary in HKD. All CNY amounts were converted into Swiss francs using a rate of CHF 0.1391052 per CNY and all HKD amounts were converted into Swiss francs using a rate of CHF 0.12434741 per HKD.
- Greg Scheu received 100 percent of his base salary in USD. All USD amounts were converted into Swiss francs using a rate of CHF 0.9682 per USD.

Compensation Exhibit 29: LTIP grants in 2020

| Name | Reference number of shares under the EPS performance factor of the 2020 launch of the LTIP ⁽¹⁾ | Total estimated value of share-based grants under the EPS performance factor of the 2020 launch of the LTIP ^{(2),(3)} | Reference number of shares under the TSR performance factor of the 2020 launch of the LTIP ⁽¹⁾ | Total estimated value of share-based grants under the TSR performance factor of the 2020 launch of the LTIP ^{(2),(3)} | Total number of shares granted under the 2020 launch of the LTIP ^{(1),(2)} | Total estimated value of share-based grants under the LTIP in 2020 ^{(2),(3)} |
|---|---|--|---|--|---|---|
| | | CHF | | CHF | | CHF |
| Björn Rosengren (EC member as of January 27, 2020, CEO as of March 1, 2020) | 65,857 | 985,221 | 65,858 | 985,236 | 131,715 | 1,970,457 |
| Timo Ihamuotila ⁽⁴⁾ | 24,535 | 367,044 | 24,536 | 367,059 | 49,071 | 734,103 |
| Sylvia Hill | 18,853 | 282,041 | 18,854 | 282,056 | 37,707 | 564,097 |
| Maria Varsellona | 20,661 | 309,089 | 20,662 | 309,104 | 41,323 | 618,193 |
| Theodor Swedjemark (EC member as of August 1, 2020) ⁽⁴⁾ | 3,104 | 46,436 | 3,105 | 46,451 | 6,209 | 92,887 |
| Sami Atiya | 20,661 | 309,089 | 20,662 | 309,104 | 41,323 | 618,193 |
| Tarak Mehta ⁽⁴⁾ | 23,244 | 347,731 | 23,244 | 347,731 | 46,488 | 695,462 |
| Peter Terwiesch ⁽⁴⁾ | 20,661 | 309,089 | 20,662 | 309,104 | 41,323 | 618,193 |
| Morten Wierod ⁽⁴⁾ | 19,370 | 289,776 | 19,370 | 289,776 | 38,740 | 579,552 |
| Total current Executive Committee members at December 31, 2020 | 216,946 | 3,245,516 | 216,953 | 3,245,621 | 433,899 | 6,491,137 |

(1) Vesting date April 27, 2023.

(2) The reference number of shares of the EPS and TSR performance factors are valued using the fair value of the ABB shares on the grant date adjusted for expected foregone dividends during the vesting period.

(3) Default settlement of the final LTIP award is 100 percent in shares, with an automatic sell-to-cover in place for employees who are subject to withholding taxes. The plan foresees a maximum payout of 200 percent of the number of reference shares granted based on the achievement against the pre-defined average EPS and relative TSR targets.

(4) In addition to the above awards, five members of the EC participated in the 17th launch of the ESAP in 2020, which will allow them to save over a 12-month period and, in November 2021, use their savings to acquire ABB shares under the ESAP. Each EC member who participated in ESAP will be entitled to acquire up to 440 ABB shares at an exercise price of CHF 22.87 per share.

Compensation Exhibit 30: LTIP grants in 2019

| Name | Reference number of shares under the EPS performance factor of the 2019 launch of the LTIP ⁽¹⁾ | Total estimated value of share-based grants under the EPS performance factor of the 2019 launch of the LTIP ^{(2),(3)} | Reference number of shares under the TSR performance factor of the 2019 launch of the LTIP ⁽¹⁾ | Total estimated value of share-based grants under the TSR performance factor of the 2019 launch of the LTIP ^{(2),(3)} | Total number of shares granted under the 2019 launch of the LTIP ^{(1),(2)} | Total estimated value of share-based grants under the LTIP in 2019 ^{(2),(3)} |
|---|---|--|---|--|---|---|
| | | CHF | | CHF | | CHF |
| Timo Ihmuotila ⁽⁴⁾ | 24,535 | 418,322 | 24,536 | 418,339 | 49,071 | 836,661 |
| Sylvia Hill (EC member as of June 1, 2019) | 18,079 | 308,247 | 18,079 | 308,247 | 36,158 | 616,494 |
| Maria Varsellona (EC member as of November 1, 2019) | 20,661 | 411,154 | 20,662 | 411,174 | 41,323 | 822,328 |
| Frank Duggan ⁽⁴⁾ | 20,661 | 352,271 | 20,662 | 352,288 | 41,323 | 704,559 |
| Chunyuan Gu | 18,079 | 308,247 | 18,079 | 308,247 | 36,158 | 616,494 |
| Sami Atiya | 24,793 | 422,721 | 24,794 | 422,738 | 49,587 | 845,459 |
| Tarak Mehta | 22,211 | 378,698 | 22,211 | 378,698 | 44,422 | 757,396 |
| Claudio Facchin | 20,919 | 356,669 | 20,920 | 356,686 | 41,839 | 713,355 |
| Peter Terwiesch ⁽⁴⁾ | 20,661 | 352,271 | 20,662 | 352,288 | 41,323 | 704,559 |
| Morten Wierod (EC member as of April 1, 2019) ⁽⁴⁾ | 18,079 | 308,247 | 18,079 | 308,247 | 36,158 | 616,494 |
| Total Executive Committee members at December 31, 2019 | 208,678 | 3,616,847 | 208,684 | 3,616,952 | 417,362 | 7,233,799 |
| Ulrich Spiesshofer (EC member until April 16, 2019) | 87,035 | 1,483,947 | 87,036 | 1,483,964 | 174,071 | 2,967,911 |
| Jean-Christophe Deslarzes (EC member until May 31, 2019) | 24,277 | 413,923 | 24,277 | 413,923 | 48,554 | 827,846 |
| Diane de Saint Victor (EC member until October 31, 2019) | 25,826 | 440,334 | 25,827 | 440,351 | 51,653 | 880,685 |
| Greg Scheu (EC member until October 31, 2019) | 21,201 | 361,478 | 21,201 | 361,478 | 42,402 | 722,956 |
| Total departing Executive Committee members | 158,339 | 2,699,682 | 158,341 | 2,699,716 | 316,680 | 5,399,398 |
| Total | 367,017 | 6,316,529 | 367,025 | 6,316,668 | 734,042 | 12,633,197 |

(1) Vesting date May 16, 2022.

(2) The valuation method of the share grant has been adjusted to reflect best practice, according to which, it is not recommended to use a Monte Carlo simulation at the time of grant to determine the fair value of a share grant. In response to that, the reference number of shares of the EPS and TSR performance factors are valued using the fair value of the ABB shares on the grant date adjusted for expected foregone dividends during the vesting period.

(3) The LTIP foresees delivering 65 percent of the value of vested performance shares (both performance factors EPS and TSR), if any, in shares and the remainder in cash. However, upon vesting participants have the possibility to elect to receive 100 percent of the vested award in shares. The plan foresees a maximum payout of 200 percent of the number of reference shares granted based on the achievement against the pre-defined average EPS and relative TSR targets.

(4) In addition to the above awards, four members of the EC participated in the 16th launch of the ESAP in 2019, which allowed them to save over a 12-month period and, in November 2020, use their savings to acquire ABB shares under the ESAP. Each EC member who participated in ESAP was entitled to acquire up to 480 ABB shares at an exercise price of CHF 20.78 per share.

Compensation Exhibit 31: EC shareholding overview at December 31, 2020

| | Total number of shares held at December 31, 2020 | Vested at December 31, 2020 | Unvested at December 31, 2020 | | | | | | |
|---|--|---|---|---|--|--|---|---|---|
| | | | | Reference number of shares deliverable under the 2018 performance components (EPS and TSR) of the LTIP ⁽¹⁾ | Reference number of shares deliverable under the 2019 performance factors (EPS and TSR) of the LTIP ⁽¹⁾ | Reference number of shares deliverable under the 2020 performance factors (EPS and TSR) of the LTIP ⁽¹⁾ | Replacement share grant for foregone benefits from former employer ⁽²⁾ | Replacement share grant for foregone benefits from former employer ⁽²⁾ | Replacement share grant for foregone benefits from former employer ⁽²⁾ |
| Name | | Number of vested options held under the MIP | Number of unvested options held under the MIP (vesting 2021/2022) | (vesting 2021) | (vesting 2022) | (vesting 2023) | (vesting 2021) | (vesting 2022) | (vesting 2023) |
| Björn Rosengren (EC member as of January 27, 2020, CEO as of March 1, 2020) | 5,000 | — | — | — | — | 131,715 | — | 130,150 | 18,904 |
| Timo Ihamuotila | 171,610 | — | — | 37,217 | 49,071 | 49,071 | — | — | — |
| Sylvia Hill | 2,265 | 796,875 | 318,750 | — | 36,158 | 37,707 | — | — | — |
| Maria Varsellona | — | — | — | — | 41,323 | 41,323 | 40,010 | 40,009 | — |
| Theodor Swedjemark (EC member as of August 1, 2020) ⁽³⁾ | 480 | 102,000 | 250,750 | — | — | 6,209 | — | — | — |
| Sami Atiya | 42,778 | — | — | 23,301 | 49,587 | 41,323 | — | — | — |
| Tarak Mehta | 179,636 | — | — | 34,790 | 44,422 | 46,488 | — | — | — |
| Peter Terwiesch | 142,338 | — | — | 37,379 | 41,323 | 41,323 | — | — | — |
| Morten Wierod | 1,544 | — | — | 15,292 | 36,158 | 38,740 | — | — | — |
| Total Executive Committee members at December 31, 2020 | 545,651 | 898,875 | 569,500 | 147,979 | 298,042 | 433,899 | 40,010 | 170,159 | 18,904 |

- (1) The final LTIP 2018 award and LTIP 2019 award will be settled 65 percent in shares and 35 percent in cash. This applies to both performance factors (EPS and TSR). However, the participants have the possibility to elect to receive 100 percent of the vested award in shares. The final LTIP 2020 award will be settled 100 percent in shares, with an automatic sell-to-cover in place for employees who are subject to withholding taxes.
- (2) It is expected that the replacement share grants will be settled 65 percent in shares and 35 percent in cash. However, the participants have the possibility to elect to receive 100 percent of the vested award in shares.
- (3) In addition, his spouse holds unvested shares and options granted in connection with her role in the company.

Compensation Exhibit 32: EC shareholding overview at December 31, 2019

| Name | Total number of shares held at December 31, 2019 | Vested at December 31, 2019 | Unvested at December 31, 2019 | | | | | |
|---|--|---|---|---|--|--|---|---|
| | | Number of vested options held under the MIP | Number of unvested options held under the MIP | Reference number of shares deliverable under the 2017 performance components (P1 and P2) of the LTIP ⁽¹⁾ | Reference number of shares deliverable under the 2018 performance factors (EPS and TSR) of the LTIP ⁽²⁾ | Reference number of shares deliverable under the 2019 performance factors (EPS and TSR) of the LTIP ⁽²⁾ | Replacement share grant for foregone benefits from former employer ⁽³⁾ | Replacement share grant for foregone benefits from former employer ⁽⁴⁾ |
| | | | (vesting 2020/2021) | (vesting 2020) | (vesting 2021) | (vesting 2022) | (vesting 2020) | (vesting 2021/2022) |
| Timo Ihamuotila | 64,572 | — | — | 41,000 | 37,217 | 49,071 | 76,628 | — |
| Sylvia Hill (EC member as of June 1, 2019) | 2,265 | 743,750 | 584,375 | — | — | 36,158 | — | — |
| Maria Varsellona (EC member as of November 1, 2019) | — | — | — | — | — | 41,323 | — | 80,019 |
| Frank Duggan | 269,846 | — | — | 34,984 | 31,756 | 41,323 | — | — |
| Chunyuan Gu | 45,577 | — | — | 31,196 | 33,981 | 36,158 | — | — |
| Sami Atiya | 24,435 | — | — | 34,735 | 23,301 | 49,587 | — | — |
| Tarak Mehta | 212,869 | — | — | 34,494 | 34,790 | 44,422 | — | — |
| Claudio Facchin | 163,219 | — | — | 39,076 | 26,214 | 41,839 | — | — |
| Peter Terwiesch | 122,242 | — | — | 37,147 | 37,379 | 41,323 | — | — |
| Morten Wierod (EC member as of April 1, 2019) | 1,064 | 398,440 | — | — | 15,292 | 36,158 | — | — |
| Total Executive Committee members at December 31, 2019 ⁽⁵⁾ | 906,089 | 1,142,190 | 584,375 | 252,632 | 239,930 | 417,362 | 76,628 | 80,019 |

- (1) The LTIP 2017 foresees that 70 percent are settled in shares and 30 percent in cash for the performance components (P1 and P2). However, participants have the possibility to elect to receive 100 percent of the vested award in shares.
- (2) It is expected that the LTIP 2018 and 2019 will be settled 65 percent in shares and 35 percent in cash for the performance factors (EPS and TSR). However, the participants have the possibility to elect to receive 100 percent of the vested award in shares.
- (3) The replacement share grant was settled 100 percent in shares.
- (4) It is expected that the replacement share grants will be settled 65 percent in shares and 35 percent in cash. However, the participant has the possibility to elect to receive 100 percent of the vested award in shares.
- (5) Departing Executive Committee members are not included in this table.

Compensation Exhibit 33: Targeted and realized EC Total Compensation in 2020

| Target Compensation (in CHF) | Base salary | Pension benefits | Other benefits ⁽¹⁾ | Target short-term incentive ⁽²⁾ | LTIP Grant Fair Value 2017 ⁽³⁾ | Target total variable compensation | Target Total Compensation |
|---|------------------|------------------|-------------------------------|--|---|------------------------------------|---------------------------|
| Björn Rosengren (EC member as of January 27, 2020, CEO as of March 1, 2020) | 1,504,141 | 666,175 | 688,685 | 1,504,131 | n.a. | 1,504,131 | 4,363,132 |
| Timo Ihamuotila | 902,508 | 494,360 | 646,278 | 902,500 | 998,965 | 1,901,465 | 3,944,611 |
| Sylvia Hill | 725,004 | 471,925 | 290,108 | 730,000 | n.a. | 730,000 | 2,217,037 |
| Maria Varsellona | 760,008 | 471,538 | 818,288 | 760,000 | n.a. | 760,000 | 2,809,834 |
| Theodor Swedjemark (EC member as of August 1, 2020) | 200,002 | 118,951 | 75,259 | 200,000 | n.a. | 200,000 | 594,212 |
| Sami Atiya | 760,008 | 465,509 | 423,787 | 760,000 | 845,147 | 1,605,147 | 3,254,451 |
| Tarak Mehta | 848,339 | 479,932 | 390,681 | 855,000 | 842,145 | 1,697,145 | 3,416,097 |
| Peter Terwiesch | 760,008 | 456,374 | 334,575 | 760,000 | 903,833 | 1,663,833 | 3,214,790 |
| Morten Wierod | 704,171 | 413,120 | 346,080 | 712,500 | 377,781 | 1,090,281 | 2,553,652 |
| Total | 7,164,189 | 4,037,884 | 4,013,741 | 7,184,131 | 3,967,871 | 11,152,002 | 26,367,816 |

| Realized Compensation (in CHF) | Base salary | Pension benefits | Other benefits ⁽¹⁾ | Short-term incentive ⁽⁴⁾ | Realized Value LTIP 2017 ⁽⁵⁾ | Total variable compensation | Total Compensation |
|---|------------------|------------------|-------------------------------|-------------------------------------|---|-----------------------------|--------------------|
| Björn Rosengren (EC member as of January 27, 2020, CEO as of March 1, 2020) | 1,504,141 | 666,175 | 688,685 | 977,685 | n.a. | 977,685 | 3,836,686 |
| Timo Ihamuotila | 902,508 | 494,360 | 646,278 | 698,535 | 593,811 | 1,292,346 | 3,335,492 |
| Sylvia Hill | 725,004 | 471,925 | 290,108 | 547,500 | n.a. | 547,500 | 2,034,537 |
| Maria Varsellona | 760,008 | 471,538 | 818,288 | 655,880 | n.a. | 655,880 | 2,705,714 |
| Theodor Swedjemark (EC member as of August 1, 2020) | 200,002 | 118,951 | 75,259 | 130,000 | n.a. | 130,000 | 524,212 |
| Sami Atiya | 760,008 | 465,509 | 423,787 | 418,000 | 519,907 | 937,907 | 2,587,211 |
| Tarak Mehta | 848,339 | 479,932 | 390,681 | 695,115 | 475,267 | 1,170,382 | 2,889,334 |
| Peter Terwiesch | 760,008 | 456,374 | 334,575 | 387,600 | 555,996 | 943,596 | 2,494,553 |
| Morten Wierod | 704,171 | 413,120 | 346,080 | 681,150 | 203,618 | 884,768 | 2,348,139 |
| Total | 7,164,189 | 4,037,884 | 4,013,741 | 5,191,465 | 2,348,599 | 7,540,064 | 22,755,878 |

| Realized achievement level | Base salary | Pension benefits | Other benefits ⁽¹⁾ | Short-term incentive ⁽⁴⁾ | Realized Value LTIP 2017 in % ⁽⁵⁾ | Total variable compensation | Total Compensation |
|---|-------------|------------------|-------------------------------|-------------------------------------|--|-----------------------------|--------------------|
| Björn Rosengren (EC member as of January 27, 2020, CEO as of March 1, 2020) | 100% | 100% | 100% | 65% | n.a. | 65% | 88% |
| Timo Ihamuotila | 100% | 100% | 100% | 77% | 59% | 68% | 85% |
| Sylvia Hill | 100% | 100% | 100% | 75% | n.a. | 75% | 92% |
| Maria Varsellona | 100% | 100% | 100% | 86% | n.a. | 86% | 96% |
| Theodor Swedjemark (EC member as of August 1, 2020) | 100% | 100% | 100% | 65% | n.a. | 65% | 88% |
| Sami Atiya | 100% | 100% | 100% | 55% | 62% | 58% | 79% |
| Tarak Mehta | 100% | 100% | 100% | 81% | 56% | 69% | 85% |
| Peter Terwiesch | 100% | 100% | 100% | 51% | 62% | 57% | 78% |
| Morten Wierod | 100% | 100% | 100% | 96% | 54% | 81% | 92% |
| Total | 100% | 100% | 100% | 72% | 59% | 68% | 86% |

- (1) Other benefits comprise payments related to social security, health insurance, children's education, transportation, tax advice and certain other items.
- (2) Target short-term incentive corresponds to 100 percent of the latest applicable annual base salary adjusted for the voluntary COVID-19 donation and pro-rated for the EC members who joined the EC during the year 2020.
- (3) Represents the LTIP 2017 grant date fair value as per June 13, 2017, as disclosed in our annual report 2017.
- (4) Represents accrued STI for the year 2020, which will be paid in 2021, after the publication of ABB's financial results. STI is linked to the objectives defined in each EC member's annual incentive plan.
- (5) Valued at CHF 19.84, the closing price of the ABB share on the day of vesting.

EMPLOYEES

A breakdown of our employees by geographic region is as follows:

| | December 31, | | |
|------------------------------|----------------|----------------|----------------|
| | 2020 | 2019 | 2018 |
| Europe | 49,200 | 68,400 | 68,300 |
| The Americas | 27,600 | 35,200 | 35,600 |
| Asia, Middle East and Africa | 28,800 | 40,800 | 42,700 |
| Total | 105,600 | 144,400 | 146,600 |

The proportion of our employees that are represented by labor unions or are subject to collective bargaining agreements varies based on the labor practices of each country in which we operate.

Item 7. Major Shareholders and Related Party Transactions

MAJOR SHAREHOLDERS

At December 31, 2020, we had approximately 499,000 shareholders. Approximately 282,000 were U.S. holders, of which approximately 430 were record holders. Based on the share register, U.S. holders (including holders of ADSs) held approximately 12 percent of the total share capital and voting rights as registered in the Commercial Register on that date.

For information on major shareholders see “Item 6. Directors, Senior Management and Employees—Shareholders—Significant shareholders”.

RELATED PARTY TRANSACTIONS

Affiliates and associates

In the normal course of our business, we purchase products from, sell products to and engage in other transactions with entities in which we hold an equity interest. The amounts involved in these transactions are not material to ABB Ltd. Also, in the normal course of our business, we engage in transactions with businesses that we have divested. We believe that the terms of the transactions we conduct with these companies are negotiated on an arm’s length basis.

Key management personnel

For information on important business relationships between ABB and its Board and EC members, or companies and organizations represented by them, see “Item 6. Directors, Senior Management and Employees” sections entitled “Board of Directors—Business Relationships between ABB and its Board members” and “Executive Committee—Business Relationships between ABB and its EC members”.

Item 8. Financial Information

CONSOLIDATED STATEMENTS AND OTHER FINANCIAL INFORMATION

See “Item 18. Financial Statements”.

LEGAL PROCEEDINGS

Regulatory

As a result of an internal investigation, ABB self-reported to the Securities and Exchange Commission (SEC) and the Department of Justice (DoJ) in the United States as well as to the Serious Fraud Office (SFO) in the United Kingdom concerning certain of our past dealings with Unaoil and its subsidiaries, including alleged improper payments made by these entities to third parties. In May 2020, the SFO closed its investigation, which it originally announced in February 2017, as the case did not meet the relevant test for prosecution. We continue to cooperate with the U.S. authorities as requested. At this time, it is not possible for us to make an informed judgment about the outcome of this matter.

Based on findings during an internal investigation, ABB self-reported to the SEC and the DoJ, in the United States, to the Special Investigating Unit (SIU) and the National Prosecuting Authority (NPA) in South Africa as well as to various authorities in other countries potential suspect payments and other compliance concerns in connection with some of our dealings with Eskom and related persons. Many of those parties have expressed an interest in, or commenced an investigation into, these matters and we are cooperating fully with them. ABB paid \$104 million to Eskom in December 2020 as part of a full and final settlement with Eskom and the Special Investigating Unit relating to improper payments and other compliance issues associated with the Controls and Instrumentation Contract, and its Variation Orders for Units 1 and 2 at Kusile. ABB continues to cooperate fully with the National Prosecuting Authority in South Africa as well as other authorities in their review of the Kusile project. Although we believe that there could be an unfavorable outcome in one or more of these ongoing reviews, at this time it is not possible for us to make an informed judgment about the possible financial impact.

General

In addition, we are aware of proceedings, or the threat of proceedings, against us and others in respect of private claims by customers and other third parties with regard to certain actual or alleged anticompetitive practices. Also, we are subject to other claims and legal proceedings, as well as investigations carried out by various law enforcement authorities. With respect to the above-mentioned claims, regulatory matters, and any related proceedings, we will bear the related costs including costs necessary to resolve them.

Liabilities recognized

At December 31, 2020 and 2019, we had aggregate liabilities of \$100 million and \$157 million, respectively, included in “Other provisions” and “Other non-current liabilities”, for the above regulatory, compliance and legal contingencies, and none of the individual liabilities recognized was significant. As it is not possible to make an informed judgment on, or reasonably predict, the outcome of certain matters and as it is not possible, based on information currently available to management, to estimate the maximum potential liability on other matters, there could be adverse outcomes beyond the amounts accrued.

DIVIDENDS AND DIVIDEND POLICY

See “Item 3. Key Information—Dividends and Dividend Policy” and “Item 6. Directors, Senior Management and Employees—Shareholders—Shareholders’ rights—Shareholders’ dividend rights”.

SIGNIFICANT CHANGES

Except as otherwise described in this Annual Report, there has been no significant change in our financial position since December 31, 2020.

Item 9. The Offer and Listing

MARKETS

The shares of ABB Ltd. are principally traded on the SIX Swiss Exchange (under the symbol “ABBN”) and on the NASDAQ OMX Stockholm Exchange (under the symbol “ABB”). ADSs of ABB Ltd. have been traded on the New York Stock Exchange under the symbol “ABB” since April 6, 2001. ABB Ltd.’s ADSs are issued under the Amended and Restated Deposit Agreement, dated May 7, 2001, with Citibank, N.A. as depositary. Each ADS represents one share.

There were no suspensions in the trading of our shares in 2020, 2019 and 2018.

Item 10. Additional Information

DESCRIPTION OF SHARE CAPITAL AND ARTICLES OF INCORPORATION

This section summarizes the material provisions of ABB Ltd.’s Articles of Incorporation and the Swiss Code of Obligations relating to the shares of ABB Ltd. The description is only a summary and is qualified in its entirety by ABB Ltd.’s Articles of Incorporation, a copy of which has been filed as Exhibit 1.1 to this Annual Report, ABB Ltd.’s filings with the commercial register of the Canton of Zurich (Switzerland) and Swiss statutory law. Other than as disclosed below, the information called for by this Item is set forth in Exhibit 2.3 to this Annual Report and is incorporated by reference into this Annual Report.

Registration and Business Purpose

ABB Ltd was registered as a corporation (*Aktiengesellschaft*) in the commercial register of the Canton of Zurich (Switzerland) on March 5, 1999, under the name of “New ABB Ltd” and its name was subsequently changed to “ABB Ltd”. Its commercial register number is CHE-101.049.653.

ABB Ltd’s purpose, as set forth in Article 2 of its Articles of Incorporation, is to hold interests in business enterprises, particularly in enterprises active in the areas of industry, trade and services. It may acquire, encumber, exploit or sell real estate and intellectual property rights in Switzerland and abroad and may also finance other companies. It may engage in all types of transactions and may take all measures that appear appropriate to promote, or that are related to, its purpose. Finally, in pursuing its purpose, ABB Ltd shall strive for long-term sustainable value creation.

Capital Structure

For a description of ABB Ltd’s capital structure (including issued shares, contingent share capital and authorized share capital) and its dividend policy, see “Item 6. Directors, Senior Management and Employees—Shares” and “Item 3. Key Information—Dividends and Dividend Policy”.

Shareholders’ Meetings

Under Swiss law, the annual general meeting of shareholders must be held within 6 months after the end of ABB Ltd’s fiscal year. Annual general meetings of shareholders are convened by the board of directors, liquidators or representatives of bondholders or, if necessary, by the statutory auditors. The board of directors is further required to convene an extraordinary general meeting of shareholders if so resolved by the shareholders in a general meeting of shareholders or if so requested by one or more shareholders holding in aggregate at least 10 percent of ABB Ltd’s share capital. A general meeting of shareholders is convened by publishing a notice in the Swiss Official Gazette of Commerce (*Schweizerisches Handelsamtsblatt*) at least 20 days prior to the meeting date. In addition, ABB publishes notices for its general meetings in certain newspapers as well as on its website. Such notices contain information as to procedures to be followed by shareholders in order to participate and exercise voting rights at the shareholders’ meetings.

One or more shareholders whose combined holdings represent an aggregate par value of at least CHF 48,000 may require, in the form of a written request, 40 calendar days prior to a general meeting of shareholders that specific items and proposals be included on the agenda and voted on at the next general meeting of shareholders.

The following powers are vested exclusively in the general meeting of the shareholders:

- adoption and amendment of the Articles of Incorporation,
- election of members of the Board of Directors, the Chairman of the Board, the members of the Compensation Committee, the auditors and the independent proxy,
- approval of the annual management report and the consolidated financial statements,
- approval of the annual financial statements and decision on the allocation of profits shown on the balance sheet, in particular with regard to dividends,
- approval of the compensation of the Board of Directors and of the Executive Committee pursuant to ABB Ltd's Articles of Incorporation,
- granting discharge to the members of the Board of Directors and the persons entrusted with management, and
- passing resolutions as to all matters reserved to the authority of the shareholders' meeting by law or under ABB Ltd's Articles of Incorporation or that are submitted to the shareholders' meeting by the Board of Directors to the extent permitted by law.

There is no provision in ABB Ltd's Articles of Incorporation requiring a quorum for the holding of shareholders' meetings.

Resolutions and elections usually require the approval of an "absolute majority" of the shares represented at a shareholders' meeting (i.e. a majority of the shares represented at the shareholders' meeting with abstentions having the effect of votes against the resolution). If the first ballot fails to result in an election and more than one candidate is standing for election, the presiding officer will order a second ballot in which a relative majority (i.e. a majority of the votes) shall be decisive.

A resolution passed with a qualified majority (at least two-thirds) of the shares represented at a shareholders' meeting is required for:

- a modification of the purpose of ABB Ltd,
- the creation of shares with increased voting powers,
- restrictions on the transfer of registered shares and the removal of those restrictions,
- restrictions on the exercise of the right to vote and the removal of those restrictions,
- an authorized or conditional increase in share capital,
- an increase in share capital through the conversion of capital surplus, through an in-kind contribution or in exchange for an acquisition of property, and the grant of special benefits,
- the restriction or denial of pre-emptive rights,
- a transfer of ABB Ltd's place of incorporation, and

- ABB Ltd's dissolution.

In addition, the introduction of any provision in ABB Ltd's Articles of Incorporation providing for a qualified majority must be resolved in accordance with such qualified majority voting requirements.

Pursuant to the Swiss Federal Merger Act, special quorum rules apply by law to a merger (*Fusion*) (including a possible squeeze-out merger), de-merger (*Spaltung*), or conversion (*Umwandlung*) of ABB Ltd.

At shareholders' meetings, shareholders can be represented by proxy, but only by their legal representative, another shareholder with the right to vote, or the independent proxy elected by the shareholders (*unabhängiger Stimmrechtsvertreter*). All shares held by one shareholder may be represented by only one representative. Votes are taken on a show of hands unless a secret ballot is required by the general meeting of shareholders or the presiding officer. The presiding officer may arrange for resolutions and elections to be carried out by electronic means. As a result, resolutions and elections carried out by electronic means will be deemed to have the same effect as secret ballots. The presiding officer may at any time order that a resolution or election decided by a show of hands be repeated through a secret ballot if, in his view, the results of the vote are in doubt. In this case, the preceding decision by a show of hands shall be deemed to have not occurred.

Only shareholders registered in ABB Ltd's share register with the right to vote are entitled to participate at shareholders' meetings. For practical reasons, shareholders must be registered in the share register with the right to vote no later than 6 business days prior to a shareholders' meeting in order to be entitled to participate and vote at such shareholders' meeting.

Holders of Euroclear Sweden AB-registered shares are provided with financial and other information on ABB Ltd in the Swedish language in accordance with regulatory requirements and market practice. For shares that are registered in the system of Euroclear Sweden AB in the name of a nominee, such information is to be provided by the nominee.

Borrowing Power

Neither Swiss law nor ABB Ltd's Articles of Incorporation restrict in any way ABB Ltd's power to borrow and raise funds. The decision to borrow funds is taken by or under the direction of the Board of Directors or the Executive Committee, and no shareholders' resolution is required.

Directors and Officers

For further information regarding the material provisions of ABB Ltd's Articles of Incorporation and the Swiss Code of Obligations regarding directors and officers, see "Item 6. Directors, Senior Management and Employees—Board Of Directors—Board governance".

Auditors

The auditors are elected by the shareholders at the Annual General Meeting. Pursuant to ABB Ltd's Articles of Incorporation, their term of office is one year.

KPMG AG, Zürich, Switzerland, assumed the sole auditing mandate of the consolidated financial statements of the ABB Group beginning in the year ended December 31, 2018. The auditor in charge and responsible for the mandate, Hans-Dieter Krauss, began serving in this capacity in respect of the financial year ended December 31, 2018.

See "Item 16C. Principal Accountant Fees and Services" for information regarding the fees paid to KPMG AG.

MATERIAL CONTRACTS

The following descriptions of the material provisions of the referenced agreements do not purport to be complete and are subject to, and qualified in their entirety by reference to, the agreements which have been filed as exhibits to this Annual Report.

Sale and Purchase agreement relating to the divestment of the Power Grids business

On December 17, 2018, ABB Ltd (the Seller) entered into a Sale and Purchase Agreement with Hitachi Ltd (the Purchaser) for the sale and purchase of 80.1% of the shares of ABB Management Holding AG (or such other entity as agreed between the Seller and the Purchaser). See Exhibit 4.6 to this Annual Report.

Revolving Credit Facilities

On December 16, 2019, ABB entered into a syndicated \$2 billion five-year revolving credit facility with the right to extend for up to two additional years in accordance with its terms. For a description of the facility, see “Item 5. Operating and Financial Review and Prospects—Liquidity and Capital Resources—Credit Facility” and “Note 12 - Debt” to our Consolidated Financial Statements. See Exhibit 4.1 to this Annual Report.

In March 2020, ABB entered into a bank-funded short-term EUR 2 billion Revolving Credit Agreement (the Agreement). This Agreement was in addition to our existing \$2 billion multicurrency revolving credit facility (see below). Under this Agreement, outstanding amounts were subject to interest at the rate of EURIBOR plus a margin of 0.25 percent. We requested the full amount to be borrowed and the proceeds were received on March 31, 2020, amounting to \$2,183 million, net of issuance costs. The Agreement required that all outstanding amounts be repaid within 15 days after the completion of the sale of the Power Grids business. The Agreement was terminated after the final repayment on July 8, 2020.

2012 Notes Indenture

On May 8, 2012, ABB’s subsidiary, ABB Finance (USA) Inc., issued \$500,000,000 aggregate principal amount of 1.625% notes due 2017, \$1,250,000,000 aggregate principal amount of 2.875% notes due 2022 and \$750,000,000 aggregate principal amount of 4.375% notes due 2042 under an Indenture and a First Supplemental Indenture, dated as of May 8, 2012, among ABB Finance (USA) Inc., ABB and Deutsche Bank Trust Company Americas (the “2012 Indenture”). The notes due in 2017 were repaid at maturity. In 2020, the notes due 2042 were subject to a cash tender offer by the issuer and redeemed in part. Pursuant to the terms of the 2012 Indenture, ABB has fully and unconditionally guaranteed payment of principal, premium, if any, and interest in respect of the outstanding notes. See Exhibits 4.2 and 4.3 to this Annual Report.

2018 Notes Indenture

On April 3, 2018, ABB’s subsidiary, ABB Finance (USA) Inc., issued (i) \$300,000,000 aggregate principal amount of 2.8% notes due 2020 (ii) \$450,000,000 aggregate principal amount of 3.375% notes, due 2023, and (iii) \$750,000,000 aggregate principal amount of 3.8% notes due 2028 under an Indenture and a First Supplemental Indenture dated, dated as of April 3, 2018, among ABB Finance (USA) Inc., ABB and Deutsche Bank Trust Company Americas (the “2018 Indenture”). The notes due in 2020 were repaid at maturity. The notes due 2023 were redeemed in full in 2020 following the exercise of ABB’s early redemption option. The notes due 2028 were subject to a cash tender offer in 2020 by the issuer and redeemed in part. Pursuant to the terms of the 2018 Indenture, ABB has fully and unconditionally guaranteed payment of principal, premium, if any, and interest in respect of the outstanding notes. See Exhibits 4.4 and 4.5 to this Annual Report.

EXCHANGE CONTROLS

Other than in connection with Swiss government sanctions imposed on Belarus, the Republic of Burundi, the Central African Republic, the Democratic Republic of the Congo, Guinea, the Islamic Republic of Iran, the Republic of Iraq, Lebanon, Libya, the Republic of Mali, Myanmar (Burma), Nicaragua, the Democratic People's Republic of Korea (North Korea), the Republic of Guinea-Bissau, Somalia, the Republic of South Sudan, Sudan, Syria, Venezuela, Yemen, Zimbabwe, persons and organizations with connection to the late Osama bin Laden, the “al Qaeda” group or the Taliban, certain persons connected with the assassination of Rafik Hariri and certain measures in connection with the prevention of circumvention of international sanctions in connection with the situation in the Ukraine, there are currently no laws, decrees or regulations in Switzerland that restrict the export or import of capital, including, but not limited to, Swiss foreign exchange controls on payment of dividends, interest or liquidation proceeds, if any, to non-Swiss resident holders of shares. In addition, there are no limitations imposed by Swiss law or ABB Ltd's Articles of Incorporation on the rights of non-Swiss residents or non-Swiss citizens as shareholders to hold shares or to vote.

TAXATION

Swiss Taxation

Withholding Tax on Dividends and Other Distributions

Dividends paid and similar cash or in-kind distributions that we make to a holder of shares or ADSs (including dividends on liquidation proceeds and stock dividends and taxable income resulting from partial liquidation) are subject to a Swiss federal withholding tax at a rate of 35 percent. A repurchase of shares by us for the purpose of a capital reduction is defined as a partial liquidation of the Company. In this case, the difference between the nominal value of the shares and their repurchase price is qualified as taxable income. The same would be true upon a repurchase of shares if we were not to dispose of the repurchased shares within six years after the repurchase, or if 10 percent of outstanding shares were exceeded. We must withhold the tax from the gross distribution and pay it to the Swiss Federal Tax Administration.

Obtaining a Refund of Swiss Withholding Tax for U.S. Residents

The Convention between the Swiss Confederation and the United States of America for the Avoidance of Double Taxation with Respect to Taxes on Income, which was signed on October 2, 1996 (including any amendments thereto) and which we will refer to in the following discussion as the Treaty, allows U.S. resident individuals or U.S. corporations to seek a refund of the Swiss withholding tax paid in respect of our shares or ADSs if they qualify for benefits under the Treaty. U.S. resident individuals and U.S. corporations holding less than 10 percent of the voting rights in respect of our shares or ADSs are entitled to seek a refund of withholding tax to the extent the tax withheld exceeds 15 percent of the gross dividend or other distribution. U.S. corporations holding 10 percent or more of the voting rights of our shares or ADSs are entitled to seek a refund of withholding tax to the extent the tax withheld exceeds 5 percent of the gross dividend or other distribution. Qualifying U.S. pension or other retirement arrangements and – as from January 1, 2020 – also individual retirement saving plans that do not control the Company are entitled to seek a full refund of withholding tax.

Claims for refunds must be filed with the Swiss Federal Tax Administration, Eigerstrasse 65, 3003 Bern, Switzerland, no later than December 31 of the third year following the calendar year in which the dividend or similar distribution became payable. The form used for obtaining a refund is Swiss Tax Form 82 (82C for companies; 82E for other entities; 82I for individuals; 82R for regulated investment companies (RICs)). This form may be obtained from any Swiss Consulate General in the United States, from the Swiss Federal Tax Administration at the address above or under www.estv.admin.ch. The form must be filled out in triplicate with each copy duly completed and signed before a notary public in the United States. The form must be accompanied by evidence of the deduction of withholding tax withheld at the source (including tax voucher issued by the custodian bank).

Stamp Duties upon Transfer of Securities

The sale of shares or ADSs, whether by Swiss resident or non-resident holders, may be subject to a Swiss securities transfer stamp duty of up to 0.15 percent calculated on the sale proceeds if it occurs through or with a Swiss bank or other Swiss securities dealer as defined in the Swiss Federal Stamp Tax Act. In addition to the stamp duty, the sale of shares or ADSs by or through a member of the SIX Swiss Exchange may be subject to a stock exchange levy.

United States Taxes

The following is a summary of the material U.S. federal income tax consequences of the ownership by U.S. holders (defined below) of shares or ADSs. This summary does not purport to address all of the tax considerations that may be relevant to a decision to purchase, own or dispose of shares or ADSs. This summary assumes that U.S. holders hold shares or ADSs as capital assets for U.S. federal income tax purposes. This summary does not address tax considerations applicable to holders that may be subject to special tax rules, such as U.S. expatriates, dealers or traders in securities or currencies, partnerships owning shares or ADSs, tax-exempt entities, banks and other financial institutions, regulated investment companies, traders in securities that elect to apply a mark-to-market method of accounting, insurance companies, holders that own (or are deemed to own) at least 10 percent or more (by voting power or value) of the stock of ABB, investors whose functional currency is not the U.S. dollar, persons subject to the alternative minimum tax, persons subject to special tax accounting rules as a result of any item of gross income with respect to the shares or ADSs being taken into account in an applicable financial statement, persons that will hold shares or ADSs as part of a position in a straddle or as part of a hedging or conversion transaction for U.S. tax purposes and persons who are not U.S. holders. This discussion does not address aspects of U.S. taxation other than U.S. federal income taxation, nor does it address state, local or foreign tax consequences of an investment in shares or ADSs.

This summary is based (i) on the Internal Revenue Code of 1986, as amended, U.S. Treasury Regulations and judicial and administrative interpretations thereof, in each case as in effect and available on the date of this registration statement and (ii) in part, on representations of the depositary and the assumption that each obligation in the deposit agreement and any related agreement will be performed in accordance with its terms. The U.S. tax laws and regulations and the interpretation thereof are subject to change, which change could apply retroactively and could affect the tax consequences described below.

For purposes of this summary, a U.S. holder is a beneficial owner of shares or ADSs that, for U.S. federal income tax purposes, is:

- a citizen or individual resident of the United States,
- a corporation (or other entity treated as a corporation for U.S. federal income tax purposes) created or organized in or under the laws of the United States or any state, including the District of Columbia,
- an estate if its income is subject to U.S. federal income taxation regardless of its source, or
- a trust if such trust validly has elected to be treated as a U.S. person for U.S. federal income tax purposes or if (i) a U.S. court can exercise primary supervision over its administration and (ii) one or more U.S. persons have the authority to control all of its substantial decisions.

If a partnership (including any entity or arrangement treated as a partnership for U.S. federal income tax purposes) is a beneficial owner of shares or ADSs, the treatment of a partner in the partnership will generally depend on the status of the partner and the activities of the partnership. If you are a partner in a partnership that holds shares or ADSs you should consult your tax advisor.

Each prospective purchaser should consult the purchaser's tax advisor with respect to the U.S. federal, state, local and foreign tax consequences of acquiring, owning or disposing of shares or ADSs.

Ownership of ADSs in General, and Exchange of ADSs for Shares

For U.S. federal income tax purposes, a holder of ADSs generally will be treated as the owner of the shares represented by the ADSs, and the following discussion assumes that such treatment will be respected. If so, no gain or loss will be recognized upon an exchange of shares for ADSs or an exchange of ADSs for shares. The U.S. Treasury has expressed concerns that intermediaries in the chain of ownership between the holder of an ADS and the issuer of the security underlying the ADS may be taking actions that are inconsistent with the beneficial ownership of the underlying shares. Accordingly, the creditability of foreign taxes and the availability of the reduced tax rate for dividends received by certain non-corporate U.S. holders, if any, as described below, could be affected by actions taken by intermediaries in the chain of ownership between the holder of an ADS and ABB.

Distributions

In general, for U.S. federal income tax purposes, the gross amount of any distribution (other than certain distributions, if any, of shares distributed to all shareholders of ABB, including holders of ADSs) made to you with respect to shares or ADSs, including the amount of any Swiss taxes withheld from the distribution, will constitute dividends and be includible in gross income in the year received to the extent of ABB's current and accumulated earnings and profits (as determined under U.S. federal income tax principles).

Non-corporate U.S. holders generally will be taxed on such distributions at the lower rates applicable to long-term capital gains (i.e., gains from the sale of capital assets held for more than one year) with respect to distributions during 2020, provided that the U.S. holder meets certain holding period and other requirements and provided that such distributions constitute "qualified dividends" for U.S. federal income tax purposes. Distributions treated as dividends will not be treated as "qualified dividends" if we were to be treated as a "passive foreign investment company" (PFIC) for U.S. federal income tax purposes in the year that the dividend is paid or in the year prior to the year that the dividend is paid. Based on certain estimates of its gross income and gross assets and the nature of its business, ABB believes that it will not be classified as a PFIC for the taxable year ended December 31, 2020 and does not expect to be classified as a PFIC for the taxable year ending December 31, 2021. ABB's status in the current year and in future years will depend on its assets and activities in those years. ABB has no reason to believe that its assets or activities will change in a manner that would cause it to be classified as a PFIC. However, as PFIC status is a factual matter that depends on, among other things, the composition of the income and assets, and the market value of the assets as reflected in market capitalization, of ABB and its subsidiaries that must be determined annually at the close of each taxable year, there can be no certainty regarding ABB's PFIC status in any particular year until the end of that year. U.S. holders are urged to consult their own tax advisors regarding the availability to them of the reduced dividend rate in light of their own particular circumstances and the consequences to them if ABB were to be treated as a PFIC with respect to any taxable year.

Dividends paid to U.S. corporate holders will not be eligible for the dividends received deduction generally allowed to corporate U.S. holders.

If you are a U.S. holder and distributions with respect to shares or ADSs exceed ABB's current and accumulated earnings and profits as determined under U.S. federal income tax principles, then the excess generally would be treated first as a tax-free return of capital to the extent of your adjusted tax basis in the shares or ADSs. Any amount in excess of the amount of the dividend and the return of capital generally would be treated as capital gain. ABB does not maintain calculations of its earnings and profits under U.S. federal income tax principles, so a U.S. holder should expect all cash distributions to be reported as dividends for U.S. federal income tax purposes.

If you are a U.S. holder, then dividends paid in Swiss francs, including the amount of any Swiss taxes withheld from the dividends, will be included in your gross income in an amount equal to the U.S. dollar value of the Swiss francs calculated by reference to the spot exchange rate in effect on the day the dividends are includible in income. In the case of ADSs, dividends generally are includible in income on the date they are received by the depositary, regardless of whether the payment is in fact converted into U.S. dollars at that time. If dividends paid in Swiss francs are converted into U.S. dollars on the day they are includible in income, then you generally should not be required to recognize foreign currency gain or loss with respect to the conversion. However, any gains or losses resulting from the conversion of Swiss francs between the time of the receipt of dividends paid in Swiss francs and the time the Swiss francs are converted into U.S. dollars will be treated as ordinary income or loss to you, as the case may be. The amount of any distribution of property other than cash will be the fair market value of the property on the date of distribution.

If you are a U.S. holder, then dividends received by you with respect to shares or ADSs will be treated as foreign source income, which may be relevant in calculating your foreign tax credit limitation. Subject to certain conditions and limitations, Swiss tax withheld on dividends may be deducted from your taxable income or credited against your U.S. federal income tax liability. However, to the extent that you would be entitled to a refund of Swiss withholding taxes pursuant to the U.S.-Switzerland tax treaty, you may not be eligible for a U.S. foreign tax credit with respect to the amount of such withholding taxes which may be refunded, even if you fail to claim the refund. See “—Swiss Taxation—Obtaining a Refund of Swiss Withholding Tax for U.S. Residents”. The limitation on foreign taxes eligible for credit is calculated separately with respect to specific classes of income. For this purpose, dividends distributed by ABB generally will constitute passive income. The rules relating to the determination of the U.S. foreign tax credit are complex, and you should consult your tax advisor to determine whether and to what extent you would be entitled to this credit.

Sale, Exchange or other Taxable Disposition of Shares or ADSs

If you are a U.S. holder that holds shares or ADSs as capital assets, then you generally will recognize capital gain or loss for U.S. federal income tax purposes upon a sale, exchange or other taxable disposition of your shares or ADSs in an amount equal to the difference between your adjusted tax basis in the shares or ADSs and the amount realized on their disposition. If you are a non-corporate U.S. holder, the maximum marginal U.S. federal income tax rate applicable to the gain is generally lower than the maximum marginal U.S. federal income tax rate applicable to ordinary income (other than certain dividends) if your holding period for the shares or ADSs exceeds one year (i.e., long term capital gains). If you are a U.S. holder, then the gain or loss, if any, recognized by you generally will be treated as U.S. source income or loss, as the case may be, for U.S. foreign tax credit purposes.

If you are a U.S. holder and you receive any foreign currency on the disposition of shares or ADSs, the amount realized will be the U.S. dollar value of the payment received, translated at the spot rate of exchange on the date of taxable disposition. If the shares are treated as traded on an established securities market, a cash basis U.S. holder and an accrual basis U.S. holder who has made a special election (which must be applied consistently from year to year and cannot be changed without the consent of the U.S. Internal Revenue Service) will determine the U.S. dollar value of the amount realized in foreign currency by translating the amount received at the spot rate of exchange on the settlement date of the disposition. An accrual basis U.S. holder that does not make the special election will recognize U.S. source ordinary income or loss as a result of currency fluctuations between the trade date and the settlement date of the disposition of the shares or ADSs, as the case may be.

Medicare Tax

For taxable years beginning after December 31, 2012, certain U.S. holders who are individuals, estates or trusts must pay a 3.8 percent tax on the lesser of (i) the U.S. holder’s “net investment income” for the relevant taxable year and (ii) the excess of the U.S. holder’s modified adjusted gross income for the taxable year over a certain threshold (which in the case of individuals will be between \$125,000 and \$250,000, depending on the individual’s circumstances). A U.S. holder’s net investment income will generally include its dividend income and its net gains from the disposition of shares or ADSs, unless such income or net gains are derived in the ordinary course of the conduct of a trade or business (other than a trade or business that consists of certain passive or trading activities). If you are a U.S. holder that is an individual, estate or trust, you are urged to consult your tax advisor regarding the applicability of the Medicare tax to your income and gains in respect of your investment in shares or ADSs.

Information with Respect to Foreign Financial Assets

Certain U.S. holders who are individuals (and certain entities) that hold an interest in “specified foreign financial assets” (which may include the shares) are required to report information relating to such assets, subject to certain exceptions (including an exception for shares held in accounts maintained by certain financial institutions). Penalties can apply if U.S. holders fail to satisfy such reporting requirements. U.S. holders should consult their tax advisors regarding the effect, if any, of this requirement on their ownership and disposition of the shares.

Backup Withholding and Information Reporting

U.S. backup withholding tax and information reporting requirements generally apply to certain payments to certain non-corporate holders of stock. Information reporting generally will apply to payments of dividends on, and to proceeds from the sale or redemption of, shares or ADSs made within the United States to a holder of shares or ADSs (other than an exempt recipient, including a corporation, a payee that is not a U.S. holder that provides an appropriate certification, and certain other persons).

A payor will be required to withhold backup withholding tax from any payments of dividends on, or the proceeds from the sale or redemption of, shares or ADSs within the United States to you, unless you are an exempt recipient, if you fail to furnish your correct taxpayer identification number or otherwise fail to establish an exception from backup withholding tax requirements. U.S. holders who are required to establish their exempt status may be required to provide such certification on U.S. Internal Revenue Service Form W-9. Backup withholding is not an additional tax. The amount of any backup withholding from a payment to you may be allowed as a credit against your U.S. federal income tax liability and may entitle you to a refund, provided that the required information is furnished timely to the U.S. Internal Revenue Service.

THE ABOVE SUMMARIES ARE NOT INTENDED TO CONSTITUTE A COMPLETE ANALYSIS OF ALL TAX CONSEQUENCES RELATING TO THE OWNERSHIP OF SHARES OR ADSS. PROSPECTIVE PURCHASERS OF SHARES OR ADSS SHOULD CONSULT THEIR TAX ADVISORS CONCERNING THE TAX CONSEQUENCES OF THEIR PARTICULAR SITUATIONS.

DOCUMENTS ON DISPLAY

We are subject to the informational requirements of the Exchange Act. In accordance with these requirements, we file reports and other information with the SEC. The SEC maintains a Web site at www.sec.gov that contains reports, including this Annual Report and the exhibits thereto, and other information regarding registrants that file electronically with the SEC. Our Annual Reports on Form 20-F, reports on Form 6-K and some of the other information we submit to the SEC may be accessed through this Web site. In addition, material that we file can be inspected at the offices of the New York Stock Exchange at 11 Wall Street, New York, New York 10005.

Item 11. Quantitative and Qualitative Disclosures about Market Risk

Market Risk Disclosure

The continuously evolving financial markets and the dynamic business environment expose us to changes in foreign exchange, interest rate and other market price risks. We have developed and implemented comprehensive policies, procedures, and controls to identify, mitigate, and monitor financial risk on a company-wide basis. To efficiently aggregate and manage financial risks that could impact our financial performance, we operate a Corporate Treasury Operations function. Our Corporate Treasury Operations provides an efficient source of liquidity, financing, risk management and other global financial services to the ABB Group companies. Our policies do not allow our Corporate Treasury Operations or ABB Group companies to perform speculative trading. Market risk management activities are focused on mitigating material financial risks resulting from our global operating and financing activities.

Corporate Treasury Operations maintains risk management control systems to monitor foreign exchange and interest rate risks and exposures arising from our underlying business, as well as the associated hedge positions. Our written policies govern how such exposures are managed. Financial risks are monitored using a number of analytical techniques including market value and sensitivity analysis. The following quantitative analyses are based on sensitivity analysis tests, which assume parallel shifts of interest rate yield curves, and foreign exchange rates and equity prices.

Currency Fluctuations and Foreign Exchange Risk

It is our policy to identify and manage all transactional foreign exchange exposures to minimize risk. With the exception of certain financing subsidiaries and to the extent certain operating subsidiaries are domiciled in high inflation environments, the functional currency of each of our companies is considered to be its local currency. Our policies require our subsidiaries to hedge all contracted foreign exchange exposures, as well as a portion of their forecast exposures, against their local currency. These transactions are undertaken mainly with our Corporate Treasury Operations.

We have foreign exchange transaction exposures related to our global operating and financing activities in currencies other than the functional currency in which our entities operate. Specifically, we are exposed to foreign exchange risk related to future earnings, assets or liabilities denominated in foreign currencies. The most significant currency exposures relate to operations in the Eurozone area, Sweden and Switzerland. In addition, we are exposed to currency risk associated with translating our functional currency financial statements into our reporting currency, which is the U.S. dollar.

Our operating companies are responsible for identifying their foreign currency exposures and entering into intercompany derivative contracts with Corporate Treasury Operations, where legally possible, to hedge their exposures. Where local laws restrict our operating companies from entering into intercompany derivatives with Corporate Treasury Operations, derivative contracts are entered into locally with third-party financial institutions. The intercompany transactions have the effect of transferring the operating companies' currency risk to Corporate Treasury Operations, but create no additional market risks on a consolidated basis. Corporate Treasury Operations then manages this risk by entering into offsetting transactions with third-party financial institutions. According to our policy, material net currency exposures are required to be hedged and are primarily hedged with forward foreign exchange contracts. The majority of the foreign exchange hedge instruments have, on average, a maturity of less than twelve months. Corporate Treasury Operations also hedges currency risks arising from monetary intercompany balances, primarily loans receivable from other ABB companies.

At December 31, 2020 and 2019, the net fair value of financial instruments with exposure to foreign currency rate movements was an asset of \$1,973 million and \$2,382 million, respectively. The potential loss in fair value of such financial instruments from a hypothetical 10 percent move in foreign exchange rates against our position would be approximately \$647 million and \$428 million for December 31 2020 and 2019, respectively. The analysis reflects the aggregate adverse foreign exchange impact associated with transaction exposures, as well as translation exposures where appropriate. Our sensitivity analysis assumes a simultaneous shift in exchange rates against our positions exposed to foreign exchange risk and as such assumes an unlikely adverse case scenario. Exchange rates rarely move in the same direction. Therefore, the assumption of a simultaneous shift may overstate the impact of changing rates on assets and liabilities denominated in foreign currencies. The underlying trade-related transaction exposures of the industrial companies are not included in the quantitative analysis. If these underlying transaction exposures were included, they would tend to have an offsetting effect on the potential loss in fair value detailed above.

Interest Rate Risk

We are exposed to interest rate risk due to our financing, investing, and liquidity management activities. Our operating companies primarily invest excess cash with, and receive funding from, our Corporate Treasury Operations on an arm's length basis. It is our policy that the primary third-party funding and investing activities, as well as the monitoring and management of the resulting interest rate risk, are the responsibility of Corporate Treasury Operations. Corporate Treasury Operations adjusts the duration of the overall funding portfolio through derivative instruments in order to better match underlying assets and liabilities, as well as minimize the cost of capital.

At December 31, 2020 and 2019, the net fair value of instruments subject to Interest Rate Risk was an Asset of \$2,095 million and \$5,765 million liability, respectively. The potential loss in fair value for such instruments from a hypothetical 100 basis points parallel shift in interest rates against our position (or a multiple of 100 basis points where 100 basis points is less than 10 percent of the interest rate) would be approximately \$395 million and \$286 million, for December 31, 2020 and 2019, respectively.

Equity Risk

Certain of our entities have equity investments that expose us to equity price risk. At December 31, 2020 and 2019, the net fair value of equity risk sensitive instruments was an asset of \$21 million and \$26 million, respectively. The potential loss in fair value of such financial instruments from a hypothetical 10 percent move in the underlying equity prices against our position would be approximately \$8 million and \$10 million, for December 31, 2020 and 2019, respectively.

Commodity Risk

We enter into commodity derivatives to hedge certain of our raw material exposures. At both December 31, 2020 and 2019, the net fair value of commodity derivatives was an asset of \$15 million. The potential loss in fair value for such commodity hedging derivatives from a hypothetical adverse 10 percent move against our position in the underlying commodity prices would be approximately \$11 million and \$39 million for December 31, 2020 and 2019, respectively. A portion of our commodity derivatives are denominated in euro. The foreign exchange risk arising on such contracts has been excluded from the calculation of the potential loss in fair value from a hypothetical 10 percent move in the underlying commodity prices as discussed above.

Item 12. Description of Securities Other Than Equity Securities

American Depositary Shares

Depository fees payable upon the issuance and cancellation of ADSs are typically paid to the depository bank by the brokers (on behalf of their clients) receiving the newly-issued ADSs from the depository bank and by the brokers (on behalf of their clients) delivering the ADSs to the depository bank for cancellation. The brokers in turn may charge these transaction fees to their clients.

Depository fees payable in connection with distributions of cash or securities to ADS holders and the depository services fee are charged by the depository bank to the holders of record of ADSs as of the applicable ADS record date. The depository fees payable for cash distributions are generally deducted from the cash being distributed. In the case of distributions other than cash (i.e., stock dividends, rights offerings), the depository bank charges the applicable fee to the ADS record date holders concurrent with the distribution. In the case of ADSs registered in the name of the investor (whether certificated or un-certificated in direct registration), the depository bank sends invoices to the applicable record date ADS holders. In the case of ADSs held in brokerage and custodian accounts via the central clearing and settlement system, The Depository Trust Company (DTC), the depository bank, generally collects its fees through the systems provided by DTC (whose nominee is the registered holder of the ADSs held in DTC) from the brokers and custodians holding ADSs in their DTC accounts. The brokers and custodians who hold their clients' ADSs in DTC accounts in turn charge their clients' accounts the amount of the fees paid to the depository banks.

In the event of refusal to pay the depository fees, the depository bank may, under the terms of the deposit agreement, refuse the requested service until payment is received or may set-off the amount of the depository fees from any distribution to be made to the ADS holder.

Depository fees are as follows:

| Depository Service | Fee |
|--|--|
| Issuance of ADSs upon deposit of shares | Up to \$5.00 per 100 ADSs (or fraction thereof) issued. |
| Delivery of deposited security against surrender of ADSs | Up to \$5.00 per 100 ADSs (or fraction thereof) surrendered. |
| Distribution of dividend | Up to \$2.00 per 100 ADSs (or fraction thereof) held. |
| Distribution of cash proceeds | Up to \$2.00 per 100 ADSs (or fraction thereof) held. |
| Distribution of ADSs pursuant to exercise of rights | Up to \$5.00 per 100 ADSs (or fraction thereof) issued. |

Depository Payments

In 2020, we received reimbursements from Citibank N.A., the Depository Bank of our ADS program, of approximately \$4 million to help cover costs related to our ADS program. Those costs, in addition to costs associated with compliance with U.S. securities laws, include expenses such as listing fees, proxy expenses, printing and distribution of reports, and other investor relations-related activities.

PART II

Item 13. Defaults, Dividend Arrearages and Delinquencies

None

Item 14. Material Modifications to the Rights of Security Holders and Use of Proceeds

None

Item 15. Controls and Procedures

Disclosure controls and procedures

In designing and evaluating our disclosure controls and procedures, management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable, not absolute, assurance of achieving the desired control objectives. In addition, the design of disclosure controls and procedures must reflect the fact that there are resource constraints and that management is required to apply judgment in evaluating the benefits of possible controls and procedures relative to their costs.

Our Chief Executive Officer, Björn Rosengren, and Chief Financial Officer, Timo Ihamuotila, with the participation of key corporate senior management and management of key corporate functions, performed an evaluation of our disclosure controls and procedures (as defined in Rule 13a-15(e) of the Exchange Act) as of December 31, 2020, including the effects of the COVID-19 pandemic. Based on that evaluation, management, including the Chief Executive Officer and Chief Financial Officer, has concluded that, as of December 31, 2020, our disclosure controls and procedures were effective.

Management's annual report on internal control over financial reporting

The Board of Directors and management of the ABB Group are responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rule 13a-15(f) of the Exchange Act.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies and procedures may deteriorate.

Management conducted an assessment of the effectiveness of internal control over financial reporting as of December 31, 2020. In making this assessment, management used the criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework). Based on this assessment, management has concluded that internal control over financial reporting was effective as of December 31, 2020.

Report of the independent registered public accounting firm

KPMG’s opinion on the effectiveness of the ABB Group’s internal control over financial reporting as of December 31, 2020, is included in “Item 18. Financial Statements”.

Changes in internal control over financial reporting

During the year ended December 31, 2020, changes were made to the ABB Group’s organizational structure under the launch of the ABB Way decentralized operating model. Aligning our internal control framework with these changes, the ownership and accountability for certain entity-level controls have been reallocated between the Business Areas, GBS and certain corporate functions relating to the provision of assurance over key activities. Management believes that these changes materially affected the Company’s internal control over financial reporting. These entity-level controls, and the changes thereto, were included within management’s assessment of the effectiveness of internal control over financial reporting as of December 31, 2020 described above.

There have been no other changes in our internal control over financial reporting that occurred during the period covered by this annual report that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting. Since the first quarter of 2020, in response to the COVID-19 pandemic, the majority of our accounting, finance and legal employees have been working remotely. The COVID-19 pandemic has not had a material effect on, and is not reasonably likely to materially affect, the ABB Group’s internal control over financial reporting.

Item 16A. Audit Committee Financial Expert

Our Board of Directors has determined that David Meline, Gunnar Brock, Geraldine Matchett and Satish Pai, who serve on our Finance, Audit and Compliance Committee (FACC), are independent for purposes of serving on the audit committee under Rule 10A-3 of the Exchange Act and the listing standards promulgated by the New York Stock Exchange, and are audit committee financial experts.

Item 16B. Code of Ethics

Our Board of Directors as well as our Chief Executive Officer, Chief Financial Officer, principal accounting officer and persons performing similar functions are bound to adhere to our Code of Conduct, which applies to all employees of all companies in the ABB Group. Our Code of Conduct is available on our Web site in the section “Corporate governance” at www.abb.com/investorrelations. ABB intends to satisfy any applicable disclosure requirement regarding amendment to, or waiver from, a provision of our Code of Conduct by posting such information on our Web site at the address and location specified above.

Item 16C. Principal Accountant Fees and Services

The aggregate fees for services rendered by KPMG along with their respective affiliates for professional services were as follows:

| (\$ in millions) | KPMG | |
|--------------------|-------------|-------------|
| | 2020 | 2019 |
| Audit Fees | 40.6 | 37.5 |
| Audit-Related Fees | 2.7 | 0.7 |
| Tax Fees | 0.8 | 0.5 |
| Other Fees | 0.0 | 0.0 |
| Total | 44.1 | 38.7 |

Audit Fees

Audit fees include the standard audit work performed each fiscal year necessary to allow the auditor to issue an opinion on our Consolidated Financial Statements (including the integrated audit of internal controls over financial reporting) and to issue an opinion on the local statutory financial statements of ABB Ltd and its subsidiaries. Audit fees also include services that can be provided only by the ABB Group auditor such as pre-issuance reviews of quarterly financial results (no such reviews have been performed) and comfort letters delivered to underwriters in connection with debt and equity offerings. Included in the 2020 audit fees were approximately \$4.5 million related to audits from 2019 and earlier, which were not agreed until after the Company had filed its annual report on Form 20-F with the SEC on February 26, 2020.

Audit-Related Fees

These services consisting primarily of agreed-upon procedure reports, accounting consultations, audits of pension and benefit plans, accounting advisory services and other attest services related to financial reporting that are not required by statute or regulation.

Tax Fees

Fees for tax services represent primarily income tax and indirect tax compliance services as well as tax advisory services.

All Other Fees

Fees for other services not included in the above three categories.

Pre-Approval Procedures and Policies

In accordance with the requirements of the U.S. Sarbanes-Oxley Act of 2002 and rules issued by the SEC, we utilize a procedure for the review and pre-approval of any services performed by KPMG. The procedure requires that all proposed engagements of KPMG for audit and permitted non-audit services are submitted to the FACC for approval prior to the beginning of any such services. In accordance with this policy, all services performed by and fees paid to KPMG in 2020 and 2019 were approved by the FACC.

Item 16D. Exemptions from the Listing Standards for Audit Committees

None

Item 16E. Purchase of Equity Securities by Issuer and Affiliated Purchasers

The following table sets out certain information about purchases of our own shares made by us or on our behalf or by affiliated purchasers:

| Period | Total number of shares purchased ⁽¹⁾ | Average price paid per share (in CHF) | Total number of shares purchased as part of publicly announced program ⁽²⁾ | Maximum number of shares that may yet be purchased under the program |
|----------------|---|--|---|--|
| January 2020 | — | — | — | — |
| February 2020 | — | — | — | — |
| March 2020 | — | — | — | — |
| April 2020 | — | — | — | — |
| May 2020 | — | — | — | — |
| June 2020 | — | — | — | — |
| July 2020 | 8,569,859 | 23.71 | 8,569,859 | 171,430,141 |
| August 2020 | 24,665,000 | 23.70 | 24,665,000 | 146,765,141 |
| September 2020 | 26,074,500 | 23.46 | 26,074,500 | 120,690,641 |
| October 2020 | 26,197,500 | 23.50 | 24,047,500 | 96,643,141 |
| November 2020 | 17,699,000 | 23.85 | 11,494,000 | 85,149,141 |
| December 2020 | 18,669,513 | 24.02 | 13,978,500 | 71,170,641 |
| Total | 121,875,372 | | 108,829,359 | |

(1) In 2020, 13,046,013 shares were bought outside of the publicly announced program. These share purchases were made through open-market transactions.

(2) In July 2020, ABB announced it initially intends to buy 10 percent of its issued share capital (which at the time represented a maximum of 180 million shares, in addition to those already held in treasury) through the share buyback program that started in July 2020. The share buyback program is executed on a second trading line on the SIX Swiss Exchange and is planned to run until ABB's Annual General Meeting (AGM) in March 2021. At the AGM, ABB intends to request shareholder approval to cancel the shares purchased through this program.

Item 16F. Change in Registrant's Certifying Accountant

Not applicable.

Item 16G. Corporate Governance

See "Item 6. Directors, Senior Management and Employees—Other governance information—Governance differences from NYSE Standards" for significant ways in which ABB's corporate governance practices differ from the New York Stock Exchange's standards.

Item 16H. Mine Safety Disclosure

Not applicable.

PART III

Item 17. Financial Statements

We have elected to provide financial statements and the related information pursuant to Item 18.

Item 18. Financial Statements

See pages F-1 to F-86, which are incorporated herein by reference. All schedules are omitted as the required information is inapplicable or the information is presented in the Consolidated Financial Statements or notes thereto.

Item 19. Exhibits

- 1.1 Articles of Incorporation of ABB Ltd as amended to date.
- 2.1 Form of Amended and Restated Deposit Agreement, by and among ABB Ltd, Citibank, N.A., as Depositary, and the holders and beneficial owners from time to time of the American Depositary Shares issued thereunder (including as an exhibit the form of American Depositary Receipt). Incorporated by reference to Exhibit (a) to Form F-6EF (File No. 333-147488) filed by ABB Ltd on November 19, 2007.
- 2.2 Form of American Depositary Receipt (included in Exhibit 2.1).
- 2.3 Description of Securities⁽¹⁾
- 4.1 \$2,000,000,000 Multicurrency Revolving Credit Agreement, dated December 16, 2019, entered into between ABB Ltd, certain subsidiaries of ABB Ltd as borrowers, 19 banks as mandated lead arrangers, Citibank Europe PLC, UK Branch, as facility agent and euro swingline agent and Citibank N.A. as dollar swingline agent. Incorporated by reference to Exhibit 4.1 to the Annual Report on Form 20-F filed by ABB Ltd on February 26, 2020.
- 4.2 Indenture dated as of May 8, 2012, among ABB Finance (USA) Inc., ABB and Deutsche Bank Trust Company Americas, pursuant to which ABB has fully and unconditionally guaranteed payment of principal, premium, if any, and interest in respect of any notes issued thereunder. On May 8, 2012, ABB's subsidiary, ABB Finance (USA) Inc., issued \$500,000,000 aggregate principal amount of 1.625% notes due 2017, \$1,250,000,000 aggregate principal amount of 2.875% notes due 2022 and \$750,000,000 aggregate principal amount of 4.375% notes due 2042 under the Indenture. Incorporated by reference to Exhibit 1 to the Form 6-K filed by ABB Ltd on March 9, 2018.
- 4.3 First Supplemental Indenture, dated as of May 8, 2012, among ABB Finance (USA) Inc., as Issuer, ABB Ltd, as Guarantor, and Deutsche Bank Trust Company Americas, as Trustee. Incorporated by reference to Exhibit 2 to the Form 6-K filed by ABB Ltd on March 9, 2018.
- 4.4 Indenture dated as of April 3, 2018, among ABB Finance (USA) Inc., ABB Ltd. and Deutsche Bank Trust Company Americas, pursuant to which ABB has fully and unconditionally guaranteed payment of principal, premium, if any, and interest in respect of any notes issued thereunder. On March 26, 2018, ABB's subsidiary, ABB Finance (USA) Inc., issued \$300,000,000 aggregate principal amount of 2.8% notes due 2020, \$450,000,000 aggregate principal amount of 3.375% notes due 2023 and \$750,000,000 aggregate principal amount of 3.8% notes due 2028 under the Indenture. Incorporated by reference to Exhibit 4.1 to the Form 6-K filed by ABB Ltd on April 3, 2018.
- 4.5 First Supplemental Indenture dated April 3, 2018, among ABB Finance (USA) Inc., ABB Ltd and Deutsche Bank Trust Company Americas, as Trustee (including the form of the 2.800% Notes due 2020, the form of the 3.375% Notes due 2023 and the form of the 3.800% Notes due 2028). Incorporated by reference to Exhibit 4.2 to the Form 6-K filed by ABB Ltd on April 3, 2018.
- 4.6 Sale and Purchase Agreement dated December 17, 2018, between ABB Ltd (the Seller) and Hitachi Ltd (the Purchaser) for the sale and purchase of 80.1% of the shares in ABB Management Holding AG (or such other entity as agreed between the Seller and the Purchaser). Incorporated by reference to Exhibit 4.6 to the Form 20-F filed by ABB Ltd on March 28, 2019.
- 8.1 Subsidiaries of ABB Ltd as of December 31, 2020.⁽¹⁾
- 12.1 Certification of the chief executive officer pursuant to Section 302 of the Sarbanes Oxley Act of 2002.⁽¹⁾
- 12.2 Certification of the chief financial officer pursuant to Section 302 of the Sarbanes Oxley Act of 2002.⁽¹⁾
- 13.1 Certification by the chief executive officer of ABB Ltd pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes Oxley Act of 2002.*
- 13.2 Certification by the chief financial officer of ABB Ltd pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes Oxley Act of 2002.*
- 15.1 Consent of KPMG AG.⁽¹⁾
- 17.1 List of Subsidiary Issuers and Guarantors of Registered Securities.⁽¹⁾
- 101.INS XBRL Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.

101.SCH Inline XBRL Taxonomy Extension Schema Document
101.CAL Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF Inline XBRL Taxonomy Extension Definition Linkbase Document
101.LAB Inline XBRL Taxonomy Extension Label Linkbase Document
101.PRE Inline XBRL Taxonomy Extension Presentation Linkbase Document
104 Cover Page Interactive Data File (formatted as inline XBRL and contained in Exhibit 101)⁽¹⁾

* This document is being furnished in accordance with SEC Release Nos. 33-8212 and 34-74551.

(1) Filed at the SEC Herewith

SIGNATURES

The registrant hereby certifies that it meets all of the requirements for filing on Form 20-F and that it has duly caused and authorized the undersigned to sign this Annual Report on its behalf.

ABB LTD

Date: February 25, 2021

By: /s/ TIMO IHAMUOTILA

Name: Timo Ihamuotila

Title: *Executive Vice President and
Chief Financial Officer*

Date: February 25, 2021

By: /s/ RICHARD A. BROWN

Name: Richard A. Brown

Title: *Group Senior Vice President and
Chief Counsel Corporate & Finance*

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS AND SCHEDULES

Consolidated Financial Statements:

| | |
|---|------|
| Report of management on internal control over financial reporting | F-2 |
| Reports of Independent Registered Public Accounting Firm | F-3 |
| Consolidated Income Statements for the years ended December 31, 2020, 2019 and 2018 | F-8 |
| Consolidated Statements of Comprehensive Income for the years ended December 31, 2020, 2019 and 2018 | F-9 |
| Consolidated Balance Sheets as of December 31, 2020 and 2019 | F-10 |
| Consolidated Statements of Cash Flows for the years ended December 31, 2020, 2019 and 2018 | F-11 |
| Consolidated Statements of Changes in Stockholders' Equity for the years ended December 31, 2020, 2019 and 2018 | F-12 |
| Notes to the Consolidated Financial Statements | F-13 |

Report of management on internal control over financial reporting

The Board of Directors and Management of ABB Ltd and its consolidated subsidiaries (“ABB”) are responsible for establishing and maintaining adequate internal control over financial reporting. ABB’s internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation and fair presentation of the published Consolidated Financial Statements in accordance with U.S. generally accepted accounting principles.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with ABB’s policies and procedures may deteriorate.

Management conducted an assessment of the effectiveness of internal control over financial reporting based on the criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework). Based on this assessment, management has concluded that ABB’s internal control over financial reporting was effective as of December 31, 2020.

KPMG AG, the independent registered public accounting firm who audited the Company’s consolidated financial statements included in this Form 20-F, has issued an opinion on the effectiveness of ABB’s internal control over financial reporting as of December 31, 2020, which is included on page F-7 of this Annual Report.

/s/ BJÖRN ROSENGREN

Chief Executive Officer

/s/ TIMO IHAMUOTILA

Chief Financial Officer

Zurich, February 25, 2021

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of ABB Ltd

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of ABB Ltd and its subsidiaries (the Company) as of December 31, 2020 and 2019, the related consolidated income statements, statements of comprehensive income, cash flows and changes in stockholders' equity for each of the years in the three-year period ended December 31, 2020, and the related notes (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2020 and 2019, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2020, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2020, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO), and our report dated February 25, 2021, expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

Change in Accounting Principle

As discussed in Note 2 to the consolidated financial statements, the Company has changed its method of accounting for leases as of January 1, 2019, due to the adoption of Accounting Standard Codification (ASC), 842 *Leases*.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's Board of Directors and management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Revenue recognition for long-term fixed price contracts using the percentage-of-completion method

As discussed in Note 2 to the consolidated financial statements, revenues from the sale of customized products, including long-term fixed price contracts for integrated automation and electrification systems and solutions are generally recognized on an over time basis using the percentage of completion method of accounting. For the year ended December 31, 2020, the Company reported \$21,214 million of revenue from sales of products, a portion of which related to long-term fixed price contracts.

We identified the evaluation of estimated costs to complete related to revenue recognition of long-term fixed price contracts using the percentage of-completion method of accounting as a critical audit matter. In particular, a high degree of subjective auditor judgment was required to evaluate the Company's estimates regarding the amount of future direct materials, labor and subcontract costs, and indirect costs to complete the contracts.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls related to the Company's revenue process including controls over the development of estimates regarding the amount of future direct materials, labor and subcontract costs, and indirect costs. We assessed the Company's historical ability to accurately estimate costs to complete by comparing historical estimates to actual results for a selection of contracts. We evaluated the estimate of remaining costs to be incurred for a selection of contracts by assessing progress to date and the nature and complexity of work to be performed through interviewing project managers and inspecting correspondence, if any, between the Company and the customer and/or subcontractors.

Valuation of unrecognized tax benefits related to transfer pricing

As discussed in Note 2 to the consolidated financial statements, the Company operates across multiple tax jurisdictions, is exposed to numerous tax laws and is regularly subject to tax audits by local tax authorities. As discussed in Note 16, the Company reported total unrecognized tax benefits of \$1,298 million, a portion of which related to unrecognized tax benefits related to transfer pricing.

We identified the valuation of unrecognized tax benefits related to transfer pricing as a critical audit matter. A high degree of subjective auditor judgment and specialized skills and knowledge was required in assessing the Company's interpretation of international tax practice and developments in relation to intragroup charges and intragroup sales of goods and services and the Company's ability to estimate the ultimate resolution of the tax positions.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls related to the Company's tax process including controls related to the Company's interpretation of international tax practice and developments in relation to intragroup charges and intragroup sale of goods and services and the estimate of the related unrecognized tax benefits. We tested the identified costs that have a higher likelihood of being challenged by tax authorities associated with intragroup arrangements and potential price adjustments for intragroup sales of goods and services. We involved tax professionals with specialized skills and knowledge, who assisted in evaluating (1) the Company's historical ability to accurately estimate the unrecognized tax benefits related to transfer pricing by comparing historical tax positions to subsequent settlements (2) the Company's transfer pricing documentation and methodology for compliance with applicable laws and regulations by assessing the documentation and relevant agreements, (3) the impact of new information or changes in international tax practice and developments on historical tax positions, and (4) developing an independent expectation of the unrecognized tax benefits estimate relating to the Company's intragroup sales of goods and services and comparing the results to the Company's assessment.

Valuation of goodwill for the Machine Automation reporting unit

As discussed in Note 2 to the consolidated financial statements, goodwill is evaluated for impairment annually as of October 1, or more frequently if events or circumstances indicate that the carrying value may not be recoverable. As discussed in Note 11, effective July 1, 2020, the Company implemented a new operating model resulting in the identification of new goodwill reporting units and a revised allocation of goodwill within operating segments. As a result, interim quantitative impairment tests were performed over the newly established goodwill reporting units, with the fair value of each reporting unit estimated using a discounted cash flow model. The Company's quantitative impairment test indicated that the Machine Automation reporting unit within the Robotics & Discrete Automation operating segment had a carrying value that was not recoverable, resulting in an impairment charge of \$290 million, which was recorded to reduce the carrying value of this reporting unit to its implied fair value. The goodwill balance was \$2,228 million for the Robotics & Discrete Automation operating segment as of December 31, 2020.

We identified the valuation of goodwill for the Machine Automation reporting unit as a critical audit matter. A high degree of subjective auditor judgment and specialized skills and knowledge was required to evaluate the projected revenue growth rates, projected earnings before interest, taxes, depreciation, and amortization ("EBITDA") margins, and the discount rate used in the Company's impairment test.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls related to the Company's goodwill process. This included controls related to management's determination of the projected revenue growth rates, projected EBITDA margins, and the discount rate. We assessed the Company's ability to accurately prepare projections for the Machine Automation reporting unit by comparing the projected revenues from past periods to actual results for the same period. Additionally, we evaluated the reasonableness of the reporting unit projected revenue growth rates and projected EBITDA margins used in management's discounted cash flow analysis by comparing projected amounts to past performance of the reporting unit. We involved valuation professionals with specialized skills and knowledge who assisted in assessing: (1) the reasonableness of the projected revenue growth rates and projected EBITDA margins by comparing the assumptions to relevant industry trends and current market indices of comparable entities (2) the reasonableness of the discount rate through testing the source information underlying the determination of the discount rate, and developing a range of independent estimates and comparing those to the discount rate applied by management.

Valuation of the retained noncontrolling interest in the Power Grids business

As discussed in Notes 3 and 4 to the consolidated financial statements, the Company completed the sale of 80.1 percent of its Power Grids ("PG") business and retained a 19.9 percent ownership interest in the PG business with a fair value estimated at \$1,661 million as of July 1, 2020, which was valued using a discounted cash flow model, and recognized within Investments in equity-accounted companies. The valuation of the retained noncontrolling interest had a direct impact on the gain on sale of the PG business, for which the Company recognized a gain of \$5,141 million in Income from discontinued operations, net of tax.

We identified the valuation of the retained noncontrolling interest in the PG business as a critical audit matter. A high degree of subjective auditor judgment and specialized skills and knowledge was required to evaluate the projected revenue growth rates, projected earnings before interest, taxes, depreciation, and amortization ("EBITDA") margins, and the risk-adjusted weighted-average cost of capital ("discount rate") assumptions applied by management in the discounted cash flow model used to estimate the fair value of the retained noncontrolling interest.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls related to the Company's valuation of noncontrolling interest process including internal controls related to management's determination of the projected revenue growth rates, projected EBITDA margins, and the discount rate assumptions used in the discounted cash flow model. We evaluated the projected revenue growth rates and projected EBITDA margins by comparing projected amounts to historical performance of the PG business. We involved valuation professionals with specialized skills and knowledge who assisted in assessing: (1) the reasonableness of the projected revenue growth rates and projected EBITDA margins by comparing the assumptions to relevant industry trends and current market indices of comparable entities (2) the reasonableness of the discount rate through testing the source information underlying the determination of the discount rate, and developing a range of independent estimates and comparing those to the discount rate applied by management.

/s/ KPMG AG

We have served as the Company's auditor since 2018.

Zurich, Switzerland
February 25, 2021

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of ABB Ltd

Opinion on Internal Control Over Financial Reporting

We have audited ABB Ltd and its subsidiaries' (the Company) internal control over financial reporting as of December 31, 2020, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). In our opinion the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2020, based on criteria established in Internal Control – Integrated Framework (2013) issued by COSO.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2020 and 2019, the related consolidated income statements, statements of comprehensive income, cash flows and changes in stockholders' equity for each of the years in the three-year period ended December 31, 2020, and the related notes (collectively, the consolidated financial statements), and our report dated February 25, 2021, expressed an unqualified opinion on those consolidated financial statements.

Basis for Opinion

The Company's Board of Directors and management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Report of management on internal control over financial reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ KPMG AG
Zurich, Switzerland
February 25, 2021

ABB Ltd
Consolidated Income Statements

Year ended December 31 (\$ in millions, except per share data in \$)

| | 2020 | 2019 | 2018 |
|---|-----------------|-----------------|-----------------|
| Sales of products | 21,214 | 22,554 | 22,366 |
| Sales of services and other | 4,920 | 5,424 | 5,296 |
| Total revenues | 26,134 | 27,978 | 27,662 |
| Cost of sales of products | (15,229) | (15,811) | (15,961) |
| Cost of services and other | (3,027) | (3,261) | (3,157) |
| Total cost of sales | (18,256) | (19,072) | (19,118) |
| Gross profit | 7,878 | 8,906 | 8,544 |
| Selling, general and administrative expenses | (4,895) | (5,447) | (5,295) |
| Non-order related research and development expenses | (1,127) | (1,198) | (1,147) |
| Impairment of goodwill | (311) | — | — |
| Other income (expense), net | 48 | (323) | 124 |
| Income from operations | 1,593 | 1,938 | 2,226 |
| Interest and dividend income | 51 | 67 | 72 |
| Interest and other finance expense | (240) | (215) | (262) |
| Losses from extinguishment of debt | (162) | — | — |
| Non-operational pension (cost) credit | (401) | 72 | 83 |
| Income from continuing operations before taxes | 841 | 1,862 | 2,119 |
| Income tax expense | (496) | (772) | (544) |
| Income from continuing operations, net of tax | 345 | 1,090 | 1,575 |
| Income from discontinued operations, net of tax | 4,860 | 438 | 723 |
| Net income | 5,205 | 1,528 | 2,298 |
| Net income attributable to noncontrolling interests | (59) | (89) | (125) |
| Net income attributable to ABB | 5,146 | 1,439 | 2,173 |

Amounts attributable to ABB shareholders:

| | | | |
|---|-------|-------|-------|
| Income from continuing operations, net of tax | 294 | 1,043 | 1,514 |
| Income from discontinued operations, net of tax | 4,852 | 396 | 659 |
| Net income | 5,146 | 1,439 | 2,173 |

Basic earnings per share attributable to ABB shareholders:

| | | | |
|---|------|------|------|
| Income from continuing operations, net of tax | 0.14 | 0.49 | 0.71 |
| Income from discontinued operations, net of tax | 2.30 | 0.19 | 0.31 |
| Net income | 2.44 | 0.67 | 1.02 |

Diluted earnings per share attributable to ABB shareholders:

| | | | |
|---|------|------|------|
| Income from continuing operations, net of tax | 0.14 | 0.49 | 0.71 |
| Income from discontinued operations, net of tax | 2.29 | 0.19 | 0.31 |
| Net income | 2.43 | 0.67 | 1.02 |

Weighted-average number of shares outstanding (in millions) used to compute:

| | | | |
|---|-------|-------|-------|
| Basic earnings per share attributable to ABB shareholders | 2,111 | 2,133 | 2,132 |
| Diluted earnings per share attributable to ABB shareholders | 2,119 | 2,135 | 2,139 |

Due to rounding, numbers presented may not add to the totals provided.

See accompanying Notes to the Consolidated Financial Statements

ABB Ltd
Consolidated Statements of Comprehensive Income
Year ended December 31 (\$ in millions)

| | <u>2020</u> | <u>2019</u> | <u>2018</u> |
|---|--------------|--------------|--------------|
| Net income | 5,205 | 1,528 | 2,298 |
| <i>Other comprehensive income (loss), net of tax:</i> | | | |
| <i>Foreign currency translation adjustments:</i> | | | |
| Foreign currency translation adjustments | 498 | (130) | (627) |
| Gain on liquidation of foreign subsidiary | — | — | (31) |
| Changes attributable to divestments | 519 | (2) | 12 |
| Foreign currency translation adjustments | 1,017 | (132) | (646) |
| <i>Available-for-sale securities:</i> | | | |
| Net unrealized gains (losses) arising during the year | 24 | 14 | (4) |
| Reclassification adjustments for net (gains) losses included in net income | (14) | — | 1 |
| Changes attributable to divestments | (3) | — | — |
| Unrealized gains (losses) on available-for-sale securities | 7 | 14 | (3) |
| <i>Pension and other postretirement plans:</i> | | | |
| Prior service (costs) credits arising during the year | 43 | 6 | (7) |
| Net actuarial losses arising during the year | (200) | (220) | (352) |
| Amortization of prior service credit included in net income | (11) | (28) | (24) |
| Amortization of net actuarial loss included in net income | 88 | 68 | 69 |
| Net (gains) losses from pension settlements included in net income | 518 | 32 | 19 |
| Changes attributable to divestments | 151 | — | — |
| Pension and other postretirement plan adjustments | 589 | (142) | (295) |
| <i>Cash flow hedge derivatives:</i> | | | |
| Net unrealized gains (losses) arising during the year | 2 | 20 | (49) |
| Reclassification adjustments for net (gains) losses included in net income | — | (9) | 21 |
| Unrealized gains (losses) of cash flow hedge derivatives | 2 | 11 | (28) |
| Total other comprehensive income (loss), net of tax | 1,615 | (249) | (972) |
| Total comprehensive income, net of tax | 6,820 | 1,279 | 1,326 |
| Total comprehensive income attributable to noncontrolling interests, net of tax | (86) | (83) | (110) |
| Total comprehensive income attributable to ABB, net of tax | 6,734 | 1,196 | 1,216 |

Due to rounding, numbers presented may not add to the totals provided.

See accompanying Notes to the Consolidated Financial Statements

ABB Ltd
Consolidated Balance Sheets
December 31 (\$ in millions, except share data)

| | 2020 | 2019 |
|---|---------------|---------------|
| Cash and equivalents | 3,278 | 3,508 |
| Restricted cash | 323 | 36 |
| Marketable securities and short-term investments | 2,108 | 566 |
| Receivables, net | 6,820 | 6,434 |
| Contract assets | 985 | 1,025 |
| Inventories, net | 4,469 | 4,184 |
| Prepaid expenses | 201 | 191 |
| Other current assets | 760 | 674 |
| Current assets held for sale and in discontinued operations | 282 | 9,840 |
| Total current assets | 19,226 | 26,458 |
| Restricted cash, non-current | 300 | — |
| Property, plant and equipment, net | 4,174 | 3,972 |
| Operating lease right-of-use assets | 969 | 994 |
| Investments in equity-accounted companies | 1,784 | 33 |
| Prepaid pension and other employee benefits | 360 | 133 |
| Intangible assets, net | 2,078 | 2,252 |
| Goodwill | 10,850 | 10,825 |
| Deferred taxes | 843 | 910 |
| Other non-current assets | 504 | 531 |
| Total assets | 41,088 | 46,108 |
| Accounts payable, trade | 4,571 | 4,353 |
| Contract liabilities | 1,903 | 1,719 |
| Short-term debt and current maturities of long-term debt | 1,293 | 2,287 |
| Current operating leases | 270 | 305 |
| Provisions for warranties | 1,035 | 816 |
| Other provisions | 1,519 | 1,375 |
| Other current liabilities | 4,181 | 3,761 |
| Current liabilities held for sale and in discontinued operations | 644 | 5,650 |
| Total current liabilities | 15,416 | 20,266 |
| Long-term debt | 4,828 | 6,772 |
| Non-current operating leases | 731 | 717 |
| Pension and other employee benefits | 1,231 | 1,793 |
| Deferred taxes | 661 | 911 |
| Other non-current liabilities | 2,025 | 1,669 |
| Non-current liabilities held for sale and in discontinued operations | 197 | — |
| Total liabilities | 25,089 | 32,128 |
| <i>Commitments and contingencies</i> | | |
| Stockholders' equity: | | |
| Common stock, CHF 0.12 par value | | |
| (2,168,148,264 issued shares at December 31, 2020 and 2019) | 188 | 188 |
| Additional paid-in capital | 83 | 73 |
| Retained earnings | 22,946 | 19,640 |
| Accumulated other comprehensive loss | (4,002) | (5,590) |
| Treasury stock, at cost | | |
| (137,314,095 and 34,647,153 shares at December 31, 2020 and 2019, respectively) | (3,530) | (785) |
| Total ABB stockholders' equity | 15,685 | 13,526 |
| Noncontrolling interests | 314 | 454 |
| Total stockholders' equity | 15,999 | 13,980 |
| Total liabilities and stockholders' equity | 41,088 | 46,108 |

Due to rounding, numbers presented may not add to the totals provided.

See accompanying Notes to the Consolidated Financial Statements

ABB Ltd
Consolidated Statements of Cash Flows
Year ended December 31 (\$ in millions)

| | 2020 | 2019 | 2018 |
|---|----------------|----------------|----------------|
| Operating activities: | | | |
| Net income | 5,205 | 1,528 | 2,298 |
| Less: Income from discontinued operations, net of tax | (4,860) | (438) | (723) |
| <i>Adjustments to reconcile net income to net cash provided by operating activities:</i> | | | |
| Depreciation and amortization | 915 | 961 | 916 |
| Impairment of goodwill | 311 | — | — |
| Pension and other employee benefits | 50 | (102) | (100) |
| Deferred taxes | (280) | (83) | (142) |
| Losses from extinguishment of debt | 162 | — | — |
| Net loss (gain) from derivatives and foreign exchange | (2) | 1 | 93 |
| Net gain from sale of property, plant and equipment | (37) | (51) | (57) |
| Net loss (gain) from sale of businesses | 2 | (55) | (57) |
| Fair value adjustment on assets and liabilities held for sale | 33 | 421 | — |
| Share-based payment arrangements | 44 | 46 | 50 |
| Other | (20) | 43 | 24 |
| <i>Changes in operating assets and liabilities:</i> | | | |
| Trade receivables, net | (100) | (202) | (144) |
| Contract assets and liabilities | 186 | 128 | (18) |
| Inventories, net | 196 | (182) | (336) |
| Accounts payable, trade | (13) | 130 | 454 |
| Accrued liabilities | (92) | (76) | 252 |
| Provisions, net | 243 | (36) | 87 |
| Income taxes payable and receivable | (76) | (3) | (102) |
| Other assets and liabilities, net | 8 | (131) | (143) |
| <i>Net cash provided by operating activities — continuing operations</i> | 1,875 | 1,899 | 2,352 |
| <i>Net cash provided by (used in) operating activities — discontinued operations</i> | (182) | 426 | 572 |
| Net cash provided by operating activities | 1,693 | 2,325 | 2,924 |
| Investing activities: | | | |
| Purchases of investments | (5,933) | (748) | (322) |
| Purchases of property, plant and equipment and intangible assets | (694) | (762) | (772) |
| Acquisition of businesses (net of cash acquired) and increases in cost- and equity-accounted companies | (121) | (22) | (2,664) |
| Proceeds from sales of investments | 4,341 | 749 | 567 |
| Proceeds from maturity of investments | 11 | 80 | 160 |
| Proceeds from sales of property, plant and equipment | 114 | 82 | 72 |
| Proceeds from sales of businesses (net of transaction costs and cash disposed) and cost- and equity-accounted companies | (136) | 69 | 113 |
| Net cash from settlement of foreign currency derivatives | 138 | (76) | (30) |
| Other investing activities | 8 | (23) | (32) |
| <i>Net cash used in investing activities — continuing operations</i> | (2,272) | (651) | (2,908) |
| <i>Net cash provided by (used in) investing activities — discontinued operations</i> | 9,032 | (164) | (177) |
| Net cash provided by (used in) investing activities | 6,760 | (815) | (3,085) |
| Financing activities: | | | |
| Net changes in debt with maturities of 90 days or less | (587) | 164 | 221 |
| Increase in debt | 343 | 2,406 | 1,914 |
| Repayment of debt | (3,459) | (2,156) | (830) |
| Delivery of shares | 412 | 10 | 42 |
| Purchase of treasury stock | (3,048) | — | (250) |
| Dividends paid | (1,736) | (1,675) | (1,717) |
| Dividends paid to noncontrolling shareholders | (82) | (90) | (86) |
| Other financing activities | (49) | 13 | (35) |
| <i>Net cash used in financing activities — continuing operations</i> | (8,206) | (1,328) | (741) |
| <i>Net cash provided by (used in) financing activities — discontinued operations</i> | 31 | (55) | (48) |
| Net cash used in financing activities | (8,175) | (1,383) | (789) |
| Effects of exchange rate changes on cash and equivalents and restricted cash | 79 | (28) | (131) |
| Net change in cash and equivalents and restricted cash | 357 | 99 | (1,081) |
| Cash and equivalents and restricted cash, beginning of period | 3,544 | 3,445 | 4,526 |
| Cash and equivalents and restricted cash, end of period | 3,901 | 3,544 | 3,445 |
| Supplementary disclosure of cash flow information: | | | |
| Interest paid | 189 | 284 | 243 |
| Income taxes paid | 905 | 1,005 | 1,026 |

Due to rounding, numbers presented may not add to the totals provided.

See accompanying Notes to the Consolidated Financial Statements

ABB Ltd
Consolidated Statements of Changes in Stockholders' Equity
Years ended December 31, 2020, 2019 and 2018 (\$ in millions)

| | Common stock | Additional paid-in capital | Retained earnings | Accumulated other comprehensive loss | Treasury stock | Total ABB stockholders' equity | Non- controlling interests | Total stockholders' equity |
|--|-----------------|----------------------------------|----------------------|---|-------------------|--------------------------------------|----------------------------------|----------------------------------|
| Balance at January 1, 2018 | 188 | 29 | 19,594 | (4,345) | (647) | 14,819 | 530 | 15,349 |
| Cumulative effect of changes in accounting principles | | | (192) | (9) | | (201) | | (201) |
| Comprehensive income: | | | | | | | | |
| Net income | | | 2,173 | | | 2,173 | 125 | 2,298 |
| Foreign currency translation adjustments, net of tax | | | | (631) | | (631) | (15) | (646) |
| Effect of change in fair value of available-for-sale securities, net of tax | | | | (3) | | (3) | | (3) |
| Unrecognized income (expense) related to pensions and other postretirement plans, net of tax | | | | (295) | | (295) | | (295) |
| Change in derivatives qualifying as cash flow hedges, net of tax | | | | (28) | | (28) | | (28) |
| Total comprehensive income | | | | | | 1,216 | 110 | 1,326 |
| Changes in noncontrolling interests | | (4) | | | | (4) | (19) | (23) |
| Noncontrolling interests recognized in connection with business combination | | | | | | — | 107 | 107 |
| Dividends to noncontrolling shareholders | | | | | | — | (146) | (146) |
| Dividends paid to shareholders | | | (1,736) | | | (1,736) | | (1,736) |
| Share-based payment arrangements | | 60 | | | | 60 | | 60 |
| Purchase of treasury stock | | | | | (249) | (249) | | (249) |
| Delivery of shares | | (35) | | | 77 | 42 | | 42 |
| Call options | | 5 | | | | 5 | | 5 |
| Balance at December 31, 2018 | 188 | 56 | 19,839 | (5,311) | (820) | 13,952 | 582 | 14,534 |
| Adoption of accounting standard update | | | 36 | (36) | | — | | — |
| Comprehensive income: | | | | | | | | |
| Net income | | | 1,439 | | | 1,439 | 89 | 1,528 |
| Foreign currency translation adjustments, net of tax | | | | (126) | | (126) | (6) | (132) |
| Effect of change in fair value of available-for-sale securities, net of tax | | | | 14 | | 14 | | 14 |
| Unrecognized income (expense) related to pensions and other postretirement plans, net of tax | | | | (142) | | (142) | | (142) |
| Change in derivatives qualifying as cash flow hedges, net of tax | | | | 11 | | 11 | | 11 |
| Total comprehensive income | | | | | | 1,196 | 83 | 1,279 |
| Changes in noncontrolling interests | | (17) | | | | (17) | 12 | (5) |
| Fair value adjustment to noncontrolling interests recognized in business combination | | | | | | — | (44) | (44) |
| Changes in noncontrolling interests in connection with divestments | | | | | | — | (55) | (55) |
| Dividends to noncontrolling shareholders | | | | | | — | (122) | (122) |
| Dividends paid to shareholders | | | (1,675) | | | (1,675) | | (1,675) |
| Share-based payment arrangements | | 55 | | | | 55 | | 55 |
| Delivery of shares | | (24) | | | 34 | 10 | | 10 |
| Call options | | 4 | | | | 4 | | 4 |
| Balance at December 31, 2019 | 188 | 73 | 19,640 | (5,590) | (785) | 13,526 | 454 | 13,980 |
| Adoption of accounting standard update | | | (82) | | | (82) | (9) | (91) |
| Comprehensive income: | | | | | | | | |
| Net income | | | 5,146 | | | 5,146 | 59 | 5,205 |
| Foreign currency translation adjustments, net of tax | | | | 990 | | 990 | 27 | 1,017 |
| Effect of change in fair value of available-for-sale securities, net of tax | | | | 7 | | 7 | | 7 |
| Unrecognized income (expense) related to pensions and other postretirement plans, net of tax | | | | 589 | | 589 | | 589 |
| Change in derivatives qualifying as cash flow hedges, net of tax | | | | 2 | | 2 | | 2 |
| Total comprehensive income | | | | | | 6,734 | 86 | 6,820 |
| Changes in noncontrolling interests | | (16) | | | | (16) | 19 | 3 |
| Changes in noncontrolling interests in connection with divestments | | | | | | — | (138) | (138) |
| Dividends to noncontrolling shareholders | | | | | | — | (98) | (98) |
| Dividends paid to shareholders | | | (1,758) | | | (1,758) | | (1,758) |
| Share-based payment arrangements | | 54 | | | | 54 | | 54 |
| Purchase of treasury stock | | | | | (3,181) | (3,181) | | (3,181) |
| Delivery of shares | | (24) | | | 436 | 412 | | 412 |
| Other | | (3) | | | | (3) | | (3) |
| Balance at December 31, 2020 | 188 | 83 | 22,946 | (4,002) | (3,530) | 15,685 | 314 | 15,999 |

Due to rounding, numbers presented may not add to the totals provided.

See accompanying Notes to the Consolidated Financial Statements

Note 1—The Company

ABB Ltd and its subsidiaries (collectively, the Company) together form a leading global technology company, connecting software to its electrification, robotics, automation and motion portfolio to drive performance to new levels.

Note 2—Significant accounting policies

The following is a summary of significant accounting policies followed in the preparation of these Consolidated Financial Statements.

Basis of presentation

The Consolidated Financial Statements are prepared in accordance with United States of America (United States or U.S.) generally accepted accounting principles (U.S. GAAP) and are presented in United States dollars (\$) or USD) unless otherwise stated. Due to rounding, numbers presented may not add to the totals provided. The par value of capital stock is denominated in Swiss francs.

Reclassifications

Certain amounts reported for prior years in the Consolidated Financial Statements and the accompanying Notes have been reclassified to conform to the current year's presentation. These changes primarily relate to the separate presentation of Restricted cash in the Consolidated Balance Sheets.

Scope of consolidation

The Consolidated Financial Statements include the accounts of ABB Ltd and companies which are directly or indirectly controlled by ABB Ltd. Additionally, the Company consolidates variable interest entities if it has determined that it is the primary beneficiary. Intercompany accounts and transactions are eliminated. Investments in joint ventures and affiliated companies in which the Company has the ability to exercise significant influence over operating and financial policies (generally through direct or indirect ownership of 20 percent to 50 percent of the voting rights), are recorded in the Consolidated Financial Statements using the equity method of accounting.

Translation of foreign currencies and foreign exchange transactions

The functional currency for most of the Company's subsidiaries is the applicable local currency. The translation from the applicable functional currencies into the Company's reporting currency is performed for balance sheet accounts using exchange rates in effect at the balance sheet date and for income statement accounts using average exchange rates prevailing during the year. The resulting translation adjustments are excluded from the determination of earnings and are recognized in "Accumulated other comprehensive loss" until the subsidiary is sold, substantially liquidated or evaluated for impairment in anticipation of disposal.

Foreign currency exchange gains and losses, such as those resulting from foreign currency denominated receivables or payables, are included in the determination of earnings, except as they relate to intercompany loans that are equity-like in nature with no reasonable expectation of repayment, which are recognized in "Accumulated other comprehensive loss". Exchange gains and losses recognized in earnings are included in "Total revenues", "Total cost of sales", "Selling, general and administrative expenses" or "Interest and other finance expense" consistent with the nature of the underlying item.

Discontinued operations

The Company reports a disposal, or planned disposal, of a component or a group of components as a discontinued operation if the disposal represents a strategic shift that has or will have a major effect on the Company's operations and financial results. A strategic shift could include a disposal of a major geographical area, a major line of business or other major parts of the Company. A component may be a reportable segment or an operating segment, a reporting unit, a subsidiary, or an asset group.

The assets and liabilities of a component reported as a discontinued operation are presented separately as held for sale in the Company's Consolidated Balance Sheets.

Interest expense that is not directly attributable to or related to the Company's continuing business or discontinued business is allocated to discontinued operations based on the ratio of net assets to be sold less debt that is required to be paid as a result of the planned disposal transaction to the sum of total net assets of the Company plus consolidated debt. General corporate overhead is not allocated to discontinued operations (see Note 3).

Operating cycle

A portion of the Company's activities (primarily long-term system integration activities) has an operating cycle that exceeds one year. For classification of current assets and liabilities related to such activities, the Company elected to use the duration of the individual contracts as its operating cycle. Accordingly, there are accounts receivable, inventories and provisions related to these contracts which will not be realized within one year that have been classified as current.

Use of estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make assumptions and estimates that directly affect the amounts reported in the Consolidated Financial Statements and the accompanying Notes. These accounting assumptions and estimates include:

- growth rates, discount rates and other assumptions used to determine impairment of long-lived assets and in testing goodwill for impairment,
- estimates to determine valuation allowances for deferred tax assets and amounts recorded for unrecognized tax benefits,
- assumptions used in determining inventory obsolescence and net realizable value,
- estimates and assumptions used in determining the initial fair value of retained noncontrolling interest and certain obligations in connection with divestments,
- estimates and assumptions used in determining the fair values of assets and liabilities assumed in business combinations,
- assumptions used in the determination of corporate costs directly attributable to discontinued operations,
- estimates of loss contingencies associated with litigation or threatened litigation and other claims and inquiries, environmental damages, product warranties, self-insurance reserves, regulatory and other proceedings,
- estimates used to record expected costs for employee severance in connection with restructuring programs,
- estimates related to credit losses expected to occur over the remaining life of financial assets such as trade and other receivables, loans and other instruments,

- assumptions used in the calculation of pension and postretirement benefits and the fair value of pension plan assets, and
- assumptions and projections, principally related to future material, labor and project-related overhead costs, used in determining the percentage-of-completion on projects, as well as the amount of variable consideration the Company expects to be entitled to.

The actual results and outcomes may differ from the Company's estimates and assumptions.

Cash and equivalents

Cash and equivalents include highly liquid investments with maturities of three months or less at the date of acquisition.

Currency and other local regulatory limitations related to the transfer of funds exist in a number of countries where the Company operates. Funds, other than regular dividends, fees or loan repayments, cannot be readily transferred abroad from these countries and are therefore deposited and used for working capital needs locally. These funds are included in cash and equivalents as they are not considered restricted.

Cash and equivalents that are subject to contractual restrictions or other legal obligations and not readily available are classified as "Restricted cash".

Marketable securities and short-term investments

Management determines the appropriate classification of held-to-maturity and available-for-sale debt securities at the time of purchase. Debt securities are classified as held-to-maturity when the Company has the positive intent and ability to hold the securities to maturity. Held-to-maturity debt securities are carried at amortized cost, adjusted for accretion of discounts or amortization of premiums to maturity computed under the effective interest method. Such accretion or amortization is included in "Interest and dividend income". Marketable debt securities not classified as held-to-maturity are classified as available-for-sale and reported at fair value.

Unrealized gains and losses on available-for-sale debt securities are excluded from the determination of earnings and are instead recognized in the "Accumulated other comprehensive loss" component of stockholders' equity, net of tax, until realized. Realized gains and losses on available-for-sale debt securities are computed based upon the historical cost of these securities, using the specific identification method.

Marketable debt securities are classified as either "Cash and equivalents" or "Marketable securities and short-term investments" according to their maturity at the time of acquisition.

Marketable equity securities are generally classified as "Marketable securities and short-term investments", however, any marketable securities held as a long-term investment rather than as an investment of excess liquidity are classified as "Other non-current assets". Equity securities are measured at fair value with fair value changes reported in net income. Fair value changes for equity securities are generally reported in "Interest and other finance expense", however, fair value changes for certain equity securities classified as long-term investments are reported in "Other income (expense), net".

For debt securities classified as available-for-sale where fair value has declined below amortized cost due to credit losses, the Company records an allowance for expected credit losses and adjusts the allowance in subsequent periods in "Interest and other finance expense". All fair value changes other than those related to credit risk are reported in "Accumulated other comprehensive loss" until the security is sold.

In addition, equity securities without readily determinable fair values are written down to fair value if a qualitative assessment indicates that the investment is impaired and the fair value of the investment is less than its carrying amount. The impairment charge is recorded in "Interest and other finance expense".

Accounts receivable and allowance for expected credit losses

Accounts receivable are recorded at the invoiced amount. The Company has a group-wide policy on the management of credit risk. The policy includes a credit assessment methodology to assess the creditworthiness of customers and assign to those customers a risk category. Third-party agencies' ratings are considered, if available. For customers where agency ratings are not available, the customer's most recent financial statements, payment history and other relevant information are considered in the assignment to a risk category. Customers are assessed at least annually or more frequently when information on significant changes in the customer's financial position becomes known. In addition to the assignment to a risk category, a credit limit per customer is set.

The Company recognizes an allowance for credit losses to present the net amount of receivables expected to be collected as of the balance sheet date. The allowance is based on the credit losses expected to arise over the asset's contractual term taking into account historical loss experience, customer-specific data as well as forward looking estimates. Receivables are grouped in pools based on similar risk characteristics to estimate expected credit losses. Expected credit losses are estimated individually when the related assets do not share similar risk characteristics.

Accounts receivable are written off when deemed uncollectible and are recognized as a deduction from the allowance for credit losses. Expected recoveries, which are not to exceed the amount previously written off, are considered in determining the allowance balance at the balance sheet date.

The Company, in its normal course of business, transfers receivables to third parties, generally without recourse. The transfer is accounted for as a sale when the Company has surrendered control over the receivables. Control is deemed to have been surrendered when (i) the transferred receivables have been put presumptively beyond the reach of the Company and its creditors, even in bankruptcy or other receivership, (ii) the third-party transferees have the right to pledge or exchange the transferred receivables, and (iii) the Company has relinquished effective control over the transferred receivables and does not retain the ability or obligation to repurchase or redeem the transferred receivables. At the time of sale, the sold receivables are removed from the Consolidated Balance Sheets and the related cash inflows are classified as operating activities in the Consolidated Statements of Cash Flows. Costs associated with the sale of receivables, including the related gains and losses from the sales, are included in "Interest and other finance expense". Transfers of receivables that do not meet the requirements for treatment as sales are accounted for as secured borrowings and the related cash flows are classified as financing activities in the Consolidated Statements of Cash Flows.

Concentrations of credit risk

The Company sells a broad range of products, systems, services and software to a wide range of industrial, commercial and utility customers as well as various government agencies and quasi-governmental agencies throughout the world. Concentrations of credit risk with respect to accounts receivable are limited, as the Company's customer base is comprised of a large number of individual customers. Ongoing credit evaluations of customers' financial positions are performed to determine whether the use of credit support instruments such as guarantees, letters of credit or credit insurance are necessary; collateral is not generally required. The Company maintains an allowance for credit losses as discussed above in "Accounts receivable and allowance for expected credit losses". Such losses, in the aggregate, are in line with the Company's expectations.

It is the Company's policy to invest cash in deposits with banks throughout the world with certain minimum credit ratings and in high quality, low risk, liquid investments. The Company actively manages its credit risk by routinely reviewing the creditworthiness of the banks and the investments held. The Company has not incurred significant credit losses related to such investments.

The Company's exposure to credit risk on derivative financial instruments is the risk that the counterparty will fail to meet its obligations. To reduce this risk, the Company has credit policies that require the establishment and periodic review of credit limits for individual counterparties. In addition, the Company has entered into close-out netting agreements with most derivative counterparties. Close-out netting agreements provide for the termination, valuation and net settlement of some or all outstanding transactions between two counterparties on the occurrence of one or more pre-defined trigger events. Derivative instruments are presented on a gross basis in the Consolidated Financial Statements.

Revenue recognition

A customer contract exists if collectability under the contract is considered probable, the contract has commercial substance, contains payment terms, as well as the rights and commitments of both parties, and has been approved.

The Company offers arrangements with multiple performance obligations to meet its customers' needs. These arrangements may involve the delivery of multiple products and/or performance of services (such as installation and training) and the delivery and/or performance may occur at different points in time or over different periods of time. Goods and services under such arrangements are evaluated to determine whether they form distinct performance obligations and should be accounted for as separate revenue transactions. The Company allocates the sales price to each distinct performance obligation based on the price of each item sold in separate transactions at the inception of the arrangement.

The Company generally recognizes revenues for the sale of non-customized products including circuit breakers, modular substation packages, control products, motors, generators, drives, robots, turbochargers, measurement and analytical instrumentation, and other goods which are manufactured on a standardized basis at a point in time. Revenues are recognized at the point in time that the customer obtains control of the goods, which is when it has taken title to the products and assumed the risks and rewards of ownership of the products specified in the purchase order or sales agreement. Generally, the transfer of title and risks and rewards of ownership are governed by the contractually defined shipping terms. The Company uses various International Commercial Terms (as promulgated by the International Chamber of Commerce) in its sales of products to third party customers, such as Ex Works (EXW), Free Carrier (FCA) and Delivered Duty Paid (DDP).

Billing terms for these point in time contracts vary but generally coincide with delivery to the customer. Payment is generally due upon receipt of the invoice, payable within 90 days or less.

The Company generally recognizes revenues for the sale of customized products, including integrated automation and electrification systems and solutions, on an over time basis using the percentage-of-completion method of accounting. These systems are generally accounted for as a single performance obligation as the Company is required to integrate equipment and services into one deliverable for the customer. Revenues are recognized as the systems are customized during the manufacturing or integration process and as control is transferred to the customer as evidenced by the Company's right to payment for work performed or by the customer's ownership of the work in process. The Company principally uses the cost-to-cost method to measure progress towards completion on contracts. Under this method, progress of contracts is measured by actual costs incurred in relation to the Company's best estimate of total costs based on the Company's history of manufacturing or constructing similar assets for customers. Estimated costs are reviewed and updated routinely for contracts in progress to reflect changes in quantity or pricing of the inputs. The cumulative effect of any change in estimate is recorded in the period when the change in estimate is determined. Contract costs include all direct materials, labor and subcontract costs and indirect costs related to contract performance, such as indirect labor, supplies, tools and depreciation costs.

The nature of the Company's contracts for the sale of customized products gives rise to several types of variable consideration, including claims, unpriced change orders, liquidated damages and penalties. These amounts are estimated based upon the most likely amount of consideration to which the customer or the Company will be entitled. The estimated amounts are included in the sales price to the extent it is probable that a significant reversal of cumulative revenues recognized will not occur when the uncertainty associated with the variable consideration is resolved. All estimates of variable consideration are reassessed periodically. Back charges to suppliers or subcontractors are recognized as a reduction of cost when it is determined that recovery of such cost is probable and the amounts can be reliably estimated.

Billing terms for these over-time contracts vary but are generally based on achieving specified milestones. The differences between the timing of revenues recognized and customer billings result in changes to contract assets and contract liabilities. Payment is generally due upon receipt of the invoice, payable within 90 days or less. Contractual retention amounts billed to customers are generally due upon expiration of the contractual warranty period.

Service revenues reflect revenues earned from the Company's activities in providing services to customers primarily subsequent to the sale and delivery of a product or complete system. Such revenues consist of maintenance type contracts, repair services, equipment upgrades, field service activities that include personnel and accompanying spare parts, training, and installation and commissioning of products as a stand-alone service or as part of a service contract. The Company generally recognizes revenues from service transactions as services are performed or at the point in time that the customer obtains control of the spare parts. For long-term service contracts including monitoring and maintenance services, revenues are recognized on a straight line basis over the term of the contract consistent with the nature, timing and extent of the services or, if the performance pattern is other than straight line, as the services are provided based on costs incurred relative to total expected costs.

In limited circumstances the Company sells extended warranties that extend the warranty coverage beyond the standard coverage offered on specific products. Revenues for these warranties are recorded over the length of the warranty period based on their stand-alone selling price.

Billing terms for service contracts vary but are generally based on the occurrence of a service event. Payment is generally due upon receipt of the invoice, payable within 90 days or less.

Revenues are reported net of customer rebates, early settlement discounts, and similar incentives. Rebates are estimated based on sales terms, historical experience and trend analysis. The most common incentives relate to amounts paid or credited to customers for achieving defined volume levels.

Taxes assessed by a governmental authority that are directly imposed on revenue-producing transactions between the Company and its customers, such as sales, use, value added and some excise taxes, are excluded from revenues.

The Company does not adjust the contract price for the effects of a financing component if the Company expects, at contract inception, that the time between control transfer and cash receipt is less than 12 months.

Sales commissions are expensed immediately when the amortization period for the costs to obtain the contract is less than a year.

Contract loss provisions

Losses on contracts are recognized in the period when they are identified and are based upon the anticipated excess of contract costs over the related contract revenues.

Shipping and handling costs

Shipping and handling costs are recorded as a component of cost of sales.

Inventories

Inventories are stated at the lower of cost or net realizable value. Cost is determined using the first-in, first-out method, the weighted-average cost method, or the specific identification method. Inventoried costs are stated at acquisition cost or actual production cost, including direct material and labor and applicable manufacturing overheads. Adjustments to reduce the cost of inventory to its net realizable value are made, if required, for decreases in sales prices, obsolescence or similar reductions in value.

Impairment of long-lived assets

Long-lived assets that are held and used are evaluated for impairment for each of the Company's asset groups when events or circumstances indicate that the carrying amount of the long-lived asset or asset group may not be recoverable. If the asset group's net carrying value exceeds the asset group's net undiscounted cash flows expected to be generated over its remaining useful life including net proceeds expected from disposition of the asset group, if any, the carrying amount of the asset group is reduced to its estimated fair value. The estimated fair value is determined using a market, income and/or cost approach.

Property, plant and equipment

Property, plant and equipment is stated at cost, less accumulated depreciation and is depreciated using the straight-line method. The estimated useful lives of the assets are generally as follows:

- factories and office buildings: 30 to 40 years,
- other facilities: 15 years,
- machinery and equipment: 3 to 15 years,
- furniture and office equipment: 3 to 8 years, and
- leasehold improvements are depreciated over their estimated useful life or, for operating leases, over the lease term, if shorter.

Goodwill and intangible assets

Goodwill is reviewed for impairment annually as of October 1, or more frequently if events or circumstances indicate that the carrying value may not be recoverable.

Goodwill is evaluated for impairment at the reporting unit level. A reporting unit is an operating segment or one level below an operating segment. For the annual impairment review performed in 2020, the reporting units were determined to be one level below the operating segments.

When evaluating goodwill for impairment, the Company uses either a qualitative or quantitative assessment method for each reporting unit. The qualitative assessment involves determining, based on an evaluation of qualitative factors, if it is more likely than not that the fair value of a reporting unit is less than its carrying value. If, based on this qualitative assessment, it is determined to be more likely than not that the reporting unit's fair value is less than its carrying value, a quantitative impairment test is performed, otherwise no further analysis is required. If the Company elects not to perform the qualitative assessment for a reporting unit, then a quantitative impairment test is performed.

When performing a quantitative impairment test, the Company calculates the fair value of a reporting unit using an income approach based on the present value of future cash flows, applying a discount rate that represents the reporting unit's weighted-average cost of capital, and compares it to the reporting unit's carrying value. If the carrying value of the net assets of a reporting unit exceeds the fair value of the reporting unit then the Company records an impairment charge equal to the difference, provided that the loss recognized does not exceed the total amount of goodwill allocated to that reporting unit.

The cost of acquired intangible assets with a finite life is amortized using a method of amortization that reflects the pattern of intangible assets' expected contributions to future cash flows. If that pattern cannot be reliably determined, the straight-line method is used. The amortization periods range from 3 to 5 years for software and from 5 to 20 years for customer-, technology- and marketing-related intangibles. Intangible assets with a finite life are tested for impairment upon the occurrence of certain triggering events.

Derivative financial instruments and hedging activities

The Company uses derivative financial instruments to manage currency, commodity, interest rate and equity exposures, arising from its global operating, financing and investing activities (see Note 6).

The Company recognizes all derivatives, other than certain derivatives indexed to the Company's own stock, at fair value in the Consolidated Balance Sheets. Derivatives that are not designated as hedging instruments are reported at fair value with derivative gains and losses reported through earnings and classified consistent with the nature of the underlying transaction.

If the derivatives are designated as a hedge, depending on the nature of the hedge, changes in the fair value of the derivatives will either be offset against the change in fair value of the hedged item attributable to the risk being hedged through earnings (in the case of a fair value hedge) or recognized in "Accumulated other comprehensive loss" until the hedged item is recognized in earnings (in the case of a cash flow hedge). Where derivative financial instruments have been designated as cash flow hedges of forecasted transactions and such forecasted transactions are no longer probable of occurring, hedge accounting is discontinued and any derivative gain or loss previously included in "Accumulated other comprehensive loss" is reclassified into earnings consistent with the nature of the original forecasted transaction. Gains or losses from derivatives designated as hedging instruments in a fair value hedge are reported through earnings and classified consistent with the nature of the underlying hedged transaction.

Certain commercial contracts may grant rights to the Company or the counterparties, or contain other provisions that are considered to be derivatives. Such embedded derivatives are assessed at inception of the contract and depending on their characteristics, accounted for as separate derivative instruments and shown at their fair value in the Consolidated Balance Sheets with changes in their fair value reported in earnings consistent with the nature of the commercial contract to which they relate.

Derivatives are classified in the Consolidated Statements of Cash Flows in the same section as the underlying item. Cash flows from the settlement of undesignated derivatives used to manage the risks of different underlying items on a net basis are classified within "Net cash provided by operating activities", as the underlying items are primarily operational in nature. Other cash flows on the settlement of derivatives are recorded within "Net cash provided by (used in) investing activities".

Leases

The Company leases primarily real estate, vehicles and machinery.

In January 2019, the Company adopted a new lease accounting standard. Prior to the adoption of the new accounting standard, lease transactions where substantially all risks and rewards incident to ownership were transferred from the lessor to the lessee were accounted for as capital leases. All other leases were accounted for as operating leases. The periodic rent expense for operating leases was recorded on a straight-line basis over the life of the lease term. Amounts due under capital leases were recorded as a liability. The value of the assets under capital leases were recorded as property, plant and equipment. Depreciation and amortization of assets recorded under capital leases was included in depreciation and amortization expense.

Under the new lease accounting standard, the Company evaluates if a contract contains a lease at inception of the contract. A contract is or contains a lease if it conveys the right to control the use of identified property, plant, or equipment (an identified asset) for a period of time in exchange for consideration. To determine this, the Company assesses whether, throughout the period of use, it has both the right to obtain substantially all of the economic benefits from use of the identified asset and the right to direct the use of the identified asset. Leases are classified as either finance or operating, with the classification determining the pattern of expense recognition in the Consolidated Income Statements. Lease expense for operating leases continues to be recorded on a straight-line basis over the lease term. Lease expense for finance leases is separated between amortization of right-of-use assets and lease interest expense.

In many cases, the Company's leases include one or more options to renew, with renewal terms that can extend up to 5 years. The exercise of lease renewal options is at the Company's discretion. Renewal periods are included in the expected lease term if they are reasonably certain of being exercised by the Company. Certain leases also include options to purchase the leased property. None of the Company's lease agreements contain material residual value guarantees or material restrictions or covenants.

Long-term leases (leases with terms greater than 12 months) are recorded in the Consolidated Balance Sheets at the commencement date of the lease based on the present value of the minimum lease payments. The present value of the lease payments is determined by using the interest rate implicit in the lease if available. As most of the Company's leases do not provide an implicit rate, the Company's incremental borrowing rate is used for most leases and is determined for portfolios of leases based on the remaining lease term, currency of the lease, and the internal credit rating of the subsidiary which entered into the lease.

Short-term leases (leases with an initial lease term of 12 months or less and where it is reasonably certain that the property will not be leased for a term greater than 12 months) are not recorded in the Consolidated Balance Sheets and are expensed on a straight-line basis over the lease term. The majority of short-term leases relate to real estate and machinery.

Assets under operating lease are included in "Operating lease right-of-use assets". Operating lease liabilities are reported both as current and non-current operating lease liabilities. Right-of-use assets represent the Company's right to use an underlying asset for the lease term and lease liabilities represent its obligation to make lease payments arising from the lease.

Assets under finance lease are included in "Property, plant and equipment, net" while finance lease liabilities are included in "Long-term debt" (including "Current maturities of long-term debt" as applicable).

Lease and non-lease components for leases other than real estate are not accounted for separately.

Income taxes

The Company uses the asset and liability method to account for deferred taxes. Under this method, deferred tax assets and liabilities are determined based on temporary differences between the financial reporting and the tax bases of assets and liabilities. Deferred tax assets and liabilities are measured using enacted tax rates and laws that are expected to be in effect when the differences are expected to reverse. The Company records a deferred tax asset when it determines that it is more likely than not that the deduction will be sustained based upon the deduction's technical merit. Deferred tax assets and liabilities that can be offset against each other are reported on a net basis. A valuation allowance is recorded to reduce deferred tax assets to the amount that is more likely than not to be realized.

Deferred taxes are provided on unredeemed retained earnings of the Company's subsidiaries. However, deferred taxes are not provided on such unredeemed retained earnings to the extent it is expected that the earnings are permanently reinvested. Such earnings may become taxable upon the sale or liquidation of these subsidiaries or upon the remittance of dividends.

The Company operates in numerous tax jurisdictions and, as a result, is regularly subject to audit by tax authorities. The Company provides for tax contingencies whenever it is deemed more likely than not that a tax asset has been impaired or a tax liability has been incurred. Contingency provisions are recorded based on the technical merits of the Company's filing position, considering the applicable tax laws and Organisation for Economic Co-operation and Development (OECD) guidelines and are based on its evaluations of the facts and circumstances as of the end of each reporting period.

The Company applies a two-step approach to recognize and measure uncertainty in income taxes. The first step is to evaluate the tax position for recognition by determining if the weight of available evidence indicates that it is more likely than not that the position will be sustained on audit, including resolution of related appeals or litigation processes, if any. The second step is to measure the tax benefit as the largest amount which is more than 50 percent likely of being realized upon ultimate settlement. Uncertain tax positions that could be settled against existing loss carryforwards or income tax credits are reported net.

Expenses related to tax penalties are classified in the Consolidated Income Statements as “Income tax expense” while interest thereon is classified as “Interest and other finance expense”. Current income tax relating to certain items is recognized directly in “Accumulated other comprehensive loss” and not in earnings. In general, the Company applies the individual items approach when releasing income tax effects from “Accumulated other comprehensive loss”.

Research and development

Research and development costs not related to specific customer orders are generally expensed as incurred.

Earnings per share

Basic earnings per share is calculated by dividing income by the weighted-average number of shares outstanding during the year. Diluted earnings per share is calculated by dividing income by the weighted-average number of shares outstanding during the year, assuming that all potentially dilutive securities were exercised, if dilutive. Potentially dilutive securities comprise outstanding written call options, outstanding options and shares granted subject to certain conditions under the Company’s share-based payment arrangements. See further discussion related to earnings per share in Note 20 and of potentially dilutive securities in Note 18.

Share-based payment arrangements

The Company has various share-based payment arrangements for its employees, which are described more fully in Note 18. Such arrangements are accounted for under the fair value method. For awards that are equity-settled, total compensation is measured at grant date, based on the fair value of the award at that date, and recorded in earnings over the period the employees are required to render service. For awards that are cash-settled, compensation is initially measured at grant date and subsequently remeasured at each reporting period, based on the fair value and vesting percentage of the award at each of those dates, with changes in the liability recorded in earnings.

Fair value measures

The Company uses fair value measurement principles to record certain financial assets and liabilities on a recurring basis and, when necessary, to record certain non-financial assets at fair value on a non-recurring basis, as well as to determine fair value disclosures for certain financial instruments carried at amortized cost in the financial statements. Financial assets and liabilities recorded at fair value on a recurring basis include foreign currency, commodity and interest rate derivatives, as well as cash-settled call options and available-for-sale securities. Non-financial assets recorded at fair value on a non-recurring basis include long-lived assets that are reduced to their estimated fair value due to impairments.

Fair value is the price that would be received when selling an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. In determining fair value, the Company uses various valuation techniques including the market approach (using observable market data for identical or similar assets and liabilities), the income approach (discounted cash flow models) and the cost approach (using costs a market participant would incur to develop a comparable asset). Inputs used to determine the fair value of assets and liabilities are defined by a three-level hierarchy, depending on the nature of those inputs. The Company has categorized its financial assets and liabilities and non-financial assets measured at fair value within this hierarchy based on whether the inputs to the valuation technique are observable or unobservable. An observable input is based on market data obtained from independent sources, while an unobservable input reflects the Company’s assumptions about market data.

The levels of the fair value hierarchy are as follows:

- Level 1: Valuation inputs consist of quoted prices in an active market for identical assets or liabilities (observable quoted prices). Assets and liabilities valued using Level 1 inputs include exchange-traded equity securities, listed derivatives which are actively traded such as commodity futures, interest rate futures and certain actively traded debt securities.
- Level 2: Valuation inputs consist of observable inputs (other than Level 1 inputs) such as actively quoted prices for similar assets, quoted prices in inactive markets and inputs other than quoted prices such as interest rate yield curves, credit spreads, or inputs derived from other observable data by interpolation, correlation, regression or other means. The adjustments applied to quoted prices or the inputs used in valuation models may be both observable and unobservable. In these cases, the fair value measurement is classified as Level 2 unless the unobservable portion of the adjustment or the unobservable input to the valuation model is significant, in which case the fair value measurement would be classified as Level 3. Assets and liabilities valued or disclosed using Level 2 inputs include investments in certain funds, certain debt securities that are not actively traded, interest rate swaps, commodity swaps, cash-settled call options, forward foreign exchange contracts, foreign exchange swaps and forward rate agreements, time deposits, as well as financing receivables and debt.
- Level 3: Valuation inputs are based on the Company's assumptions of relevant market data (unobservable input).

Investments in private equity, real estate and collective funds held within the Company's pension plans are generally valued using the net asset value (NAV) per share as a practical expedient for fair value provided certain criteria are met. The NAVs are determined based on the fair values of the underlying investments in the funds. These assets are not classified in the fair value hierarchy but are separately disclosed.

Whenever quoted prices involve bid-ask spreads, the Company ordinarily determines fair values based on mid-market quotes. However, for the purpose of determining the fair value of cash-settled call options serving as hedges of the Company's management incentive plan (MIP), bid prices are used.

When determining fair values based on quoted prices in an active market, the Company considers if the level of transaction activity for the financial instrument has significantly decreased, or would not be considered orderly. In such cases, the resulting changes in valuation techniques would be disclosed. If the market is considered disorderly or if quoted prices are not available, the Company is required to use another valuation technique, such as an income approach.

Disclosures about the Company's fair value measurements of assets and liabilities are included in Note 7.

Contingencies

The Company is subject to proceedings, litigation or threatened litigation and other claims and inquiries, related to environmental, labor, product, regulatory, tax (other than income tax) and other matters, and is required to assess the likelihood of any adverse judgments or outcomes to these matters, as well as potential ranges of probable losses. A determination of the provision required, if any, for these contingencies is made after analysis of each individual issue, often with assistance from both internal and external legal counsel and technical experts. The required amount of a provision for a contingency of any type may change in the future due to new developments in the particular matter, including changes in the approach to its resolution.

The Company records a provision for its contingent obligations when it is probable that a loss will be incurred and the amount can be reasonably estimated. Any such provision is generally recognized on an undiscounted basis using the Company's best estimate of the amount of loss incurred or at the lower end of an estimated range when a single best estimate is not determinable. In some cases, the Company may be able to recover a portion of the costs relating to these obligations from insurers or other third parties; however, the Company records such amounts only when it is probable that they will be collected.

The Company provides for anticipated costs for warranties when it recognizes revenues on the related products or contracts. Warranty costs include calculated costs arising from imperfections in design, material and workmanship in the Company's products. The Company makes individual assessments on contracts with risks resulting from order-specific conditions or guarantees and assessments on an overall, statistical basis for similar products sold in larger quantities.

The Company may have legal obligations to perform environmental clean-up activities related to land and buildings as a result of the normal operations of its business. In some cases, the timing or the method of settlement, or both, are conditional upon a future event that may or may not be within the control of the Company, but the underlying obligation itself is unconditional and certain. The Company recognizes a provision for these obligations when it is probable that a liability for the clean-up activity has been incurred and a reasonable estimate of its fair value can be made. In some cases, a portion of the costs expected to be incurred to settle these matters may be recoverable. An asset is recorded when it is probable that such amounts are recoverable. Provisions for environmental obligations are not discounted to their present value when the timing of payments cannot be reasonably estimated.

Pensions and other postretirement benefits

The Company has a number of defined benefit pension plans, defined contribution pension plans and termination indemnity plans. The Company recognizes an asset for such a plan's overfunded status or a liability for such a plan's underfunded status in its Consolidated Balance Sheets. Additionally, the Company measures such a plan's assets and obligations that determine its funded status as of the end of the year and recognizes the changes in the funded status in the year in which the changes occur. Those changes are reported in "Accumulated other comprehensive loss".

The Company uses actuarial valuations to determine its pension and postretirement benefit costs and credits. The amounts calculated depend on a variety of key assumptions, including discount rates and expected return on plan assets. Current market conditions are considered in selecting these assumptions.

The Company's various pension plan assets are assigned to their respective levels in the fair value hierarchy in accordance with the valuation principles described in the "Fair value measures" section above.

See Note 17 for further discussion of the Company's employee benefit plans.

Business combinations

The Company accounts for assets acquired and liabilities assumed in business combinations using the acquisition method and records these at their respective fair values. Contingent consideration is recorded at fair value as an element of purchase price with subsequent adjustments recognized in income.

Identifiable intangibles consist of intellectual property such as trademarks and trade names, customer relationships, patented and unpatented technology, in-process research and development, order backlog and capitalized software; these are amortized over their estimated useful lives. Such intangibles are subsequently subject to evaluation for potential impairment if events or circumstances indicate the carrying amount may not be recoverable. See "Goodwill and intangible assets" above. Acquisition-related costs are recognized separately from the acquisition and expensed as incurred. Upon gaining control of an entity in which an equity method or cost basis investment was held by the Company, the carrying value of that investment is adjusted to fair value with the related gain or loss recorded in income.

Deferred tax assets and liabilities based on temporary differences between the financial reporting and the tax base of assets and liabilities as well as uncertain tax positions and valuation allowances on acquired deferred tax assets assumed in connection with a business combination are initially estimated as of the acquisition date based on facts and circumstances that existed at the acquisition date. These estimates are subject to change within the measurement period (a period of up to 12 months after the acquisition date during which the acquirer may adjust the provisional acquisition amounts) with any adjustments to the preliminary estimates being recorded to goodwill. Changes in deferred taxes, uncertain tax positions and valuation allowances on acquired deferred tax assets that occur after the measurement period are recognized in income.

New accounting pronouncements

Applicable for current period

Measurement of credit losses on financial instruments

In January 2020, the Company adopted a new accounting standard update, along with additional related updates containing targeted improvements and clarifications, that replaces the previous incurred loss impairment methodology for most financial assets with a new “current expected credit loss” model. The new model requires immediate recognition of the estimated credit losses expected to occur over the remaining life of financial assets such as trade and other receivables, held-to-maturity debt securities, loans and other instruments. Measurement of expected credit losses is now based on historical experience, current conditions, and reasonable and supportable forecasts. The update also requires additional disclosures related to estimates and judgments used to measure credit losses. Credit losses relating to available-for-sale debt securities are now measured in a manner similar to the loss impairment methodology, except that the losses are recorded through an allowance for credit losses rather than as a direct write-down of the security.

The Company has adopted these updates on a modified retrospective basis and has therefore recorded a cumulative-effect adjustment of \$91 million to the opening balance of retained earnings on January 1, 2020, relating to an increase in the allowance for credit losses on financial assets carried at amortized cost. This adjustment consisted primarily of an impact on the opening balance of trade receivables of \$98 million (excluding an offsetting amount for deferred tax), of which \$56 million related to continuing operations and \$42 million related to the Power Grids business, which is included in discontinued operations.

Disclosure Framework — Changes to the disclosure requirements for fair value measurement

In January 2020, the Company adopted a new accounting standard update which modified the disclosure requirements for fair value measurements. The update eliminates the requirements to disclose the amount of and reasons for transfers between Level 1 and 2 of the fair value hierarchy, the timing of transfers between levels and the Level 3 valuation process, while expanding the Level 3 disclosures to include the range and weighted-average used to develop significant unobservable inputs and the changes in unrealized gains and losses on recurring fair value measurements. This update was applied prospectively for the changes and modifications to the Level 3 disclosures, while all other amendments were applied retrospectively. The update does not have a significant impact on the Company’s Consolidated Financial Statements.

Applicable for future periods

Simplifying the accounting for income taxes

In December 2019, an accounting standard update was issued which enhances and simplifies various aspects of the income tax accounting guidance related to intraperiod tax allocations, ownership changes in investments, and certain aspects of interim period tax accounting. This update is effective for the Company for annual and interim periods beginning January 1, 2021. Depending on the amendment, adoption may be applied on a retrospective, modified retrospective or prospective basis. The Company does not expect this update to have a significant impact on its Consolidated Financial Statements.

Facilitation of the effects of reference rate reform on financial reporting

In March 2020, an accounting standard update was issued which provides temporary optional expedients and exceptions to the current guidance on contract modifications and hedge accounting to ease the financial reporting burdens related to the expected market transition from the London Interbank Offered Rate (LIBOR) and other interbank offered rates to alternative reference rates. The update can be adopted and applied no later than December 31, 2022, with early adoption permitted. The Company is currently evaluating the impact of adopting this optional guidance on its Consolidated Financial Statements.

Note 3—Discontinued operations

Divestment of the Power Grids business

On July 1, 2020, the Company completed the sale of 80.1 percent of its Power Grids business to Hitachi Ltd (Hitachi). The transaction was executed through the sale of 80.1 percent of the shares of Hitachi ABB Power Grids Ltd (“Hitachi ABB PG” or “HAPG”). Cash consideration received at the closing date was \$9,241 million net of cash disposed. Further, for accounting purposes, the 19.9 percent ownership interest retained by the Company is deemed to have been both divested and reacquired at its fair value on July 1, 2020. The Company also obtained a put option, exercisable commencing in April 2023, allowing the Company to require Hitachi to purchase the remaining interest for fair value, subject to a minimum floor price equivalent to a 10 percent discount compared to the price paid for the initial 80.1 percent. The combined fair value of the retained investment and the related put option, which amounted to \$1,779 million, was recorded at fair value on July 1, 2020, and also was accounted for as part of the proceeds for the sale of the entire Power Grids business (see Note 4). The Company also recorded a liability in discontinued operations for estimated future costs and other cash payments of \$487 million for various contractual items relating to the sale of the business including required future cost reimbursements payable to HAPG, costs incurred by the Company for the direct benefit of HAPG and an amount due to Hitachi Ltd in connection with the expected purchase price finalization of the closing debt and working capital balances. From the date of the disposal through December 31, 2020, \$33 million of these liabilities have been paid and are reported as reductions in the cash consideration received.

As a result of the Power Grids sale, the Company has recognized a net gain of \$5,141 million, net of transaction costs, for the sale of the entire Power Grids business which is included in Income from discontinued operations, net of tax, in 2020. Included in the calculation of the net gain was a cumulative translation loss relating to the Power Grids business of \$420 million which was reclassified from Accumulated other comprehensive loss (see Note 21). Certain amounts included in the net gain are estimated or otherwise subject to change in value and, as a result, the Company may record additional adjustments to the gain in future periods which are not expected to have a material impact on the Consolidated Financial Statements. In 2020, the Company has also recorded \$262 million in Income tax expense within discontinued operations in connection with the reorganization of the legal entity structure of the Power Grids business required to facilitate the sale.

Certain entities of the Power Grids business for which the legal process or other regulatory delays resulted in the Company not yet having transferred legal titles to Hitachi have been accounted for as being sold since control of the business as well as all risks and rewards of the business have been fully transferred to Hitachi ABB PG. The proceeds for these entities are included in the cash proceeds described above and certain funds have been placed in escrow and are reflected as current restricted cash of \$302 million at December 31, 2020. All entities are expected to be transferred to HAPG by the first half of 2021.

The Company has recognized liabilities in discontinued operations in connection with the divestment for certain indemnities (see Note 15 for additional information). The Company has also recorded an initial liability of \$258 million representing the fair value of the right granted to Hitachi ABB PG for the use of the ABB brand for up to 8 years.

Upon closing of the sale, the Company entered into various transition services agreements (TSAs). Pursuant to these TSAs, the Company and Hitachi ABB PG provide to each other, on an interim, transitional basis, various services. The services provided by the Company primarily include finance, information technology, human resources and certain other administrative services. Under the current terms, the TSAs will continue for up to 3 years, and can only be extended on an exceptional basis for business-critical services for an additional period which is reasonably necessary to avoid a material adverse impact on the business. In 2020, the Company has recognized within its continuing operations, general and administrative expenses incurred to perform the TSAs, offset by \$91 million in TSA-related income for such services that is reported in Other income and expense, net.

Discontinued operations

As a result of the sale of the Power Grids business, substantially all Power Grids-related assets and liabilities have been sold. As this divestment represented a strategic shift that would have a major effect on the Company's operations and financial results, the results of operations for this business have been presented as discontinued operations and the assets and liabilities are presented as held for sale and in discontinued operations for all periods presented. Certain of the business contracts in the Power Grids business continue to be executed by subsidiaries of the Company for the benefit/risk of Hitachi ABB PG. Assets and liabilities relating to, as well as the net financial results of, these contracts will continue to be included in discontinued operations until they have been completed or otherwise transferred to Hitachi ABB PG.

Prior to the divestment, interest expense that was not directly attributable to or related to the Company's continuing business or discontinued business was allocated to discontinued operations based on the ratio of net assets to be sold less debt that was required to be paid as a result of the planned disposal transaction to the sum of total net assets of the Company plus consolidated debt. General corporate overhead was not allocated to discontinued operations.

Operating results of the discontinued operations are summarized as follows:

| (\$ in millions) | 2020 | 2019 | 2018 |
|---|--------------|--------------|--------------|
| Total revenues | 4,008 | 9,037 | 9,698 |
| Total cost of sales | (3,058) | (6,983) | (7,378) |
| Gross profit | 950 | 2,054 | 2,320 |
| Expenses | (808) | (1,394) | (1,326) |
| Net gain recognized on sale of the Power Grids business | 5,141 | — | — |
| Income from operations | 5,282 | 660 | 994 |
| Net interest and other finance expense | (5) | (61) | (55) |
| Non-operational pension (cost) credit | (94) | 5 | 12 |
| Income from discontinued operations before taxes | 5,182 | 605 | 951 |
| Income tax expense | (322) | (167) | (228) |
| Income from discontinued operations, net of tax | 4,860 | 438 | 723 |

Of the total Income from discontinued operations before taxes in the table above, \$5,170 million, \$566 million and \$874 million in 2020, 2019 and 2018, respectively, are attributable to the Company, while the remainder is attributable to noncontrolling interests.

Until the date of the divestment, Income from discontinued operations before taxes excluded stranded costs which were previously able to be allocated to the Power Grids operating segment. As a result, \$40 million, \$225 million and \$297 million, for 2020, 2019 and 2018, respectively, of allocated overhead and other management costs which were previously included in the measure of segment profit for the Power Grids operating segment are now reported as part of Corporate and Other. In the table above, Net interest and other finance expense in 2020, 2019 and 2018 includes \$20 million, \$44 million and \$43 million, respectively, of interest expense which has been recorded on an allocated basis in accordance with the Company's accounting policy election until the divestment date. In addition, as required by U.S. GAAP, subsequent to December 17, 2018, (the date of the original agreement to sell the Power Grids business) the Company has not recorded depreciation or amortization on the property, plant and equipment and intangible assets reported as discontinued operations. In 2018, a total of \$258 million of depreciation and amortization expense was recorded for such assets.

Included in the reported Total revenues of the Company for 2020, 2019 and 2018 are revenues for sales from the Company's operating segments to the Power Grids business of \$108 million, \$213 million and \$243 million, respectively, which represent intercompany transactions that, prior to Power Grids being classified as a discontinued operation, were eliminated in the Company's Consolidated Financial Statements (see Note 23). Subsequent to the divestment, sales to Hitachi ABB PG are reported as third-party revenues.

In addition, the Company also has retained obligations (primarily for environmental and taxes) related to other businesses disposed or otherwise exited that qualified as discontinued operations. Changes to these retained obligations are also included in Income from discontinued operations, net of tax, above.

The major components of assets and liabilities held for sale and in discontinued operations in the Company's Consolidated Balance Sheets are summarized as follows:

| (\$ in millions) | December 31, | |
|---|---------------------|--------------|
| | 2020 ⁽¹⁾ | 2019 |
| Receivables, net | 280 | 2,541 |
| Contract assets | — | 1,243 |
| Inventories, net | 1 | 1,667 |
| Property, plant and equipment, net | — | 1,754 |
| Goodwill | — | 1,631 |
| Other current assets | 1 | 1,004 |
| Current assets held for sale and in discontinued operations | 282 | 9,840 |
| Accounts payable, trade | 188 | 1,722 |
| Contract liabilities | — | 1,121 |
| Pension and other employee benefits | — | 419 |
| Other current liabilities | 456 | 1,984 |
| Current liabilities held for sale and in discontinued operations | 644 | 5,246 |
| Other non-current liabilities | 197 | — |
| Non-current liabilities held for sale and in discontinued operations | 197 | — |

(1) At December 31, 2020, the balances reported as held for sale and in discontinued operations pertain to Power Grids activities and other obligations which will remain with the Company until such time as the obligation is settled or the activities are fully wound down.

Note 4—Acquisitions, divestments and equity-accounted companies

Acquisition of controlling interests

Acquisitions of controlling interests were as follows:

| (\$ in millions, except number of acquired businesses) | 2020 | 2019 | 2018 |
|--|------|------|-------|
| Purchase price for acquisitions (net of cash acquired) | 79 | — | 2,638 |
| Aggregate excess of purchase price over fair value of net assets acquired ⁽¹⁾ | 92 | 92 | 1,472 |
| Number of acquired businesses | 3 | — | 3 |

(1) Recorded as goodwill (see Note 11). Includes adjustments of \$92 million in 2019 arising during the measurement period of acquisitions, primarily reflecting changes in the valuation of net working capital, deferred tax liabilities and intangible assets acquired.

Acquisitions of controlling interests have been accounted for under the acquisition method and have been included in the Company's Consolidated Financial Statements since the date of acquisition. In 2020 and 2019, acquisitions of controlling interests were not material.

On June 30, 2018, the Company acquired through numerous share and asset purchases substantially all the assets, liabilities and business activities of GEIS, General Electric's global electrification solutions business. GEIS, headquartered in Atlanta, United States, provides technologies that distribute and control electricity and support the commercial, data center, health care, mining, renewable energy, oil and gas, water and telecommunications sectors. The resulting cash outflows for the Company amounted to \$2,622 million (net of cash acquired of \$192 million). The acquisition strengthens the Company's global position in electrification and expands its access to the North American market through strong customer relationships, a large installed base and extensive distribution networks. Consequently, the goodwill acquired represents expected operating synergies and cost savings as well as intangible assets that are not separable such as employee know-how and expertise.

While the Company uses its best estimates and assumptions as part of the purchase price allocation process to value assets acquired and liabilities assumed at the acquisition date, the purchase price allocation for acquisitions is preliminary for up to 12 months after the acquisition date and is subject to refinement as more detailed analyses are completed and additional information about the fair values of the acquired assets and liabilities becomes available. The purchase price allocation relating to the GEIS acquisition was finalized during the second quarter of 2019 and resulted in \$92 million of net measurement period adjustments, increasing goodwill, primarily related to changes in the valuation of net working capital, deferred tax liabilities and intangible assets acquired.

In addition, in November 2019, the Company recognized a gain of \$92 million relating to the receipt of cash from General Electric for a favorable resolution of an uncertainty with respect to the price paid to acquire GEIS. This occurred after the end of the measurement period and as a result, the Company recorded a gain in "Other income (expense), net".

The final allocation of purchase consideration for GEIS was as follows:

| (\$ in millions) | GEIS | |
|---|-------------------|------------------------------|
| | Allocated amounts | Weighted-average useful life |
| Technology | 92 | 7 years |
| Customer relationships | 178 | 12 years |
| Trade names | 135 | 13 years |
| Supply agreement | 32 | 13 years |
| Intangible assets | 437 | |
| Property, plant and equipment | 373 | |
| Deferred tax liabilities | (45) | |
| Inventories | 405 | |
| Other assets and liabilities, net ⁽¹⁾ | (19) | |
| Goodwill ⁽²⁾ | 1,534 | |
| Noncontrolling interest | (63) | |
| Total consideration (net of cash acquired)⁽³⁾ | 2,622 | |

(1) Gross receivables from the GEIS acquisition totaled \$658 million; the fair value of which was \$624 million after adjusting for contractual cash flows not expected to be collected.

(2) The amount of goodwill which is tax deductible is \$769 million.

(3) Cash acquired in the GEIS acquisition totaled \$192 million.

The Company's Consolidated Income Statement for 2018, includes total revenues of \$1,317 million and net income of \$1 million in respect of GEIS since the date of acquisition.

The unaudited pro forma financial information in the table below summarizes the combined pro forma results of the Company and GEIS for 2018 as if GEIS had been acquired on January 1, 2017.

| (\$ in millions) | <u>2018</u> |
|---|-------------|
| Total revenues | 28,936 |
| Income from continuing operations, net of tax | 1,622 |

The pro forma results are for information purposes only and do not include any anticipated cost synergies or other effects of the planned integration of GEIS. Accordingly, such pro forma amounts are not necessarily indicative of the results that would have occurred had the acquisition been completed on the date indicated, nor are they indicative of the future operating results of the combined company.

The unaudited pro forma results above include certain adjustments related to the GEIS acquisition. The table below summarizes the adjustments necessary to present the pro forma financial information of the combined entity as if GEIS had been acquired on January 1, 2017.

| (\$ in millions) | <u>2018</u> |
|--|------------------|
| Impact on cost of sales from additional amortization of intangible assets | (10) |
| Impact on cost of sales from fair valuing acquired inventory | 26 |
| Impact on cost of sales from additional depreciation of property, plant and equipment | (4) |
| Impact on selling, general and administrative expenses from additional amortization of intangible assets | (5) |
| Impact on selling, general and administrative expenses from acquisition-related costs | 44 |
| Impact on interest expense from financing costs | (15) |
| Taxation adjustments | (5) |
| Total pro forma adjustments | <u>31</u> |

Acquisition of noncontrolling interests

In connection with the divestment of its Power Grids business to Hitachi (see Note 3), the Company retained a 19.9 percent interest in the business. For accounting purposes the 19.9 percent interest is deemed to have been both divested and reacquired, with a fair value at the transaction date of \$1,661 million. The fair value was based on a discounted cash flow model considering the expected results of the future business operations of Hitachi ABB PG and using relevant market inputs including a risk-adjusted weighted-average cost of capital. The Company also obtained a right to require Hitachi to purchase this investment (see Note 3) with a floor price equivalent to a 10 percent discount compared to the price paid for the initial 80.1 percent. This option was valued at \$118 million using a standard option pricing model with inputs considering the nature of the investment and the expected period until option exercise. As this option is not separable from the investment the value has been combined with the value of the underlying investment and is accounted for together.

The Company has concluded that based on its continuing involvement with the Power Grids business, including membership in its governing board of directors, it has significant influence over Hitachi ABB PG. As a result, the investment (including the value of the option) is accounted for using the equity method.

The difference between the initial carrying value of the Company's investment in Hitachi ABB PG at fair value and its proportionate share of the underlying net assets created basis differences of \$8,503 million (\$1,692 million for the Company's 19.9 percent ownership), which are allocated as follows:

| (\$ in millions) | Allocated amounts | Weighted-average useful life |
|--|-------------------|------------------------------|
| Inventories | 169 | 5 months |
| Order backlog | 727 | 2 years |
| Property, plant and equipment ⁽¹⁾ | 1,016 | |
| Intangible assets ⁽²⁾ | 1,731 | 9 years |
| Other contractual rights | 251 | 2 years |
| Other assets | 43 | |
| Deferred tax liabilities | (942) | |
| Goodwill | 5,959 | |
| Less: Amount attributed to noncontrolling interest | (451) | |
| Basis difference | 8,503 | |

(1) Property, plant and equipment includes assets subject to amortization having an initial fair value difference of \$686 million and a weighted-average useful life of 14 years.

(2) Intangible assets include brand license agreement, technology and customer relationships.

For assets subject to depreciation or amortization, the Company amortizes these basis differences over the estimated remaining useful lives of the assets that gave rise to this difference, recording the amortization, net of related deferred tax benefit, as a reduction of income from equity-accounted companies. Certain other assets are recorded as an expense as the benefits from the assets are realized. At December 31, 2020, the Company determined that no impairment of its equity-accounted investments existed.

The carrying value of the Company's investments in equity-accounted companies and respective percentage of ownership is as follows:

| (\$ in millions, except ownership share in %) | Ownership as of | Carrying value at December 31, | |
|---|-------------------|--------------------------------|-----------|
| | December 31, 2020 | 2020 | 2019 |
| Hitachi ABB Power Grids Ltd | 19.9% | 1,710 | — |
| Others | | 74 | 33 |
| Total | | 1,784 | 33 |

In 2020, 2019 and 2018, the Company recorded a loss of \$66 million, and gains of \$8 million and \$6 million, respectively, in Other income (expense), net, representing the Company's share of the earnings of investees accounted for under the equity method of accounting, the components of which are as follows:

| (\$ in millions) | 2020 | 2019 | 2018 |
|--|-------------|----------|----------|
| Income from equity-accounted companies, net of taxes | 29 | 8 | 6 |
| Basis difference amortization (net of deferred income tax benefit) | (95) | — | — |
| Income (loss) from equity-accounted companies | (66) | 8 | 6 |

Business divestments

In 2020, the Company completed the sale of its Power Grids business (see Note 3 for details) and its solar inverters business. In 2019, the Company recorded net gains (including transactions costs) of \$55 million, primarily due to the divestment of two businesses in China, and in 2018, there were no significant amounts recognized from divestments of consolidated businesses.

Divestment of the solar inverters business

In February 2020, the Company completed the sale of its solar inverters business for no consideration. Under the agreement, which was reached in July 2019, the Company was required to transfer \$143 million of cash to the buyer on the closing date. In addition, payments totaling EUR 132 million (\$145 million) are required to be transferred to the buyer from 2020 through 2025. In 2019, the Company recorded a loss of \$421 million, in “Other income (expense), net”, representing the excess of the carrying value, which includes a loss of \$99 million arising from the cumulative translation adjustment, over the estimated fair value of this business. In 2020, a further loss of \$33 million was recorded in “Other income (expense), net” for changes in fair value of this business. The loss in 2020 includes the \$99 million reclassification from other comprehensive income of the currency translation adjustment related to the business.

The fair value was based on the estimated current market values using Level 3 inputs, considering the agreed-upon sale terms with the buyer. The solar inverters business, which includes the solar inverter business acquired as part of the Power-One acquisition in 2013, was part of the Company’s Electrification operating segment.

As this divestment does not qualify as a discontinued operation, the results of operations for this business prior to its disposal are included in the Company’s continuing operations for all periods presented. The assets and liabilities of this business were shown as assets and liabilities held for sale in the Company’s Consolidated Balance Sheet at December 31, 2019, and as at that date, the carrying amounts of the major classes of assets and liabilities held for sale were as follows:

| (\$ in millions) | December 31, 2019 |
|---|-------------------|
| Assets | |
| Receivables, net | 70 |
| Inventories, net | 127 |
| Property, plant and equipment, net | 69 |
| Intangible assets, net | 27 |
| Other assets | 26 |
| Valuation allowance on assets held for sale | (319) |
| Current assets held for sale | — |
| Liabilities | |
| Accounts payable, trade | 86 |
| Contract liabilities | 59 |
| Provisions for warranties | 108 |
| Other liabilities | 49 |
| Fair value adjustment on disposal group | 102 |
| Current liabilities held for sale | 404 |

Including the above loss of \$33 million and \$421 million in 2020 and 2019, respectively, Income from continuing operations before taxes includes net losses of \$63 million and \$490 million, from the solar inverters business. In 2018, net losses of \$94 million from this business were included in Income from continuing operations before taxes.

Note 5—Cash and equivalents, marketable securities and short-term investments

Current assets

Cash and equivalents and marketable securities and short-term investments consisted of the following:

| December 31, 2020 | | | | | | |
|--|------------|------------------------------|-------------------------------|------------|-------------------------|--|
| | | Gross unrealized gains | Gross unrealized losses | Fair value | Cash and equivalents | Marketable securities and short-term investments |
| (\$ in millions) | Cost basis | | | | | |
| Changes in fair value recorded in net income | | | | | | |
| Cash | 2,388 | | | 2,388 | 2,388 | |
| Time deposits | 1,513 | | | 1,513 | 1,513 | |
| Equity securities | 1,704 | 12 | | 1,716 | | 1,716 |
| | 5,605 | 12 | — | 5,617 | 3,901 | 1,716 |
| Changes in fair value recorded in other comprehensive income | | | | | | |
| Debt securities available-for-sale: | | | | | | |
| —U.S. government obligations | 274 | 19 | | 293 | | 293 |
| —European government obligations | 24 | | | 24 | | 24 |
| —Corporate | 69 | 6 | | 75 | | 75 |
| | 367 | 25 | — | 392 | — | 392 |
| Total | 5,972 | 37 | — | 6,009 | 3,901 | 2,108 |
| Of which: | | | | | | |
| —Restricted cash, current | | | | | 323 | |
| —Restricted cash, non-current | | | | | 300 | |
| December 31, 2019 | | | | | | |
| | | Gross unrealized gains | Gross unrealized losses | Fair value | Cash and equivalents | Marketable securities and short-term investments |
| (\$ in millions) | Cost basis | | | | | |
| Changes in fair value recorded in net income | | | | | | |
| Cash | 2,111 | | | 2,111 | 2,111 | |
| Time deposits | 1,433 | | | 1,433 | 1,433 | |
| Equity securities | 294 | 10 | | 304 | | 304 |
| | 3,838 | 10 | — | 3,848 | 3,544 | 304 |
| Changes in fair value recorded in other comprehensive income | | | | | | |
| Debt securities available-for-sale: | | | | | | |
| —U.S. government obligations | 191 | 7 | (1) | 197 | | 197 |
| —Corporate | 61 | 4 | | 65 | | 65 |
| | 252 | 11 | (1) | 262 | — | 262 |
| Total | 4,090 | 21 | (1) | 4,110 | 3,544 | 566 |
| Of which: | | | | | | |
| —Restricted cash, current | | | | | 36 | |

Contractual maturities

Contractual maturities of debt securities consisted of the following:

| (\$ in millions) | December 31, 2020 | |
|---------------------|--------------------|------------|
| | Available-for-sale | |
| | Cost basis | Fair value |
| Less than one year | 104 | 104 |
| One to five years | 133 | 139 |
| Six to ten years | 70 | 76 |
| Due after ten years | 60 | 73 |
| Total | 367 | 392 |

At December 31, 2020 and 2019, the Company pledged \$66 million and \$66 million, respectively, of available-for-sale marketable securities as collateral for issued letters of credit and other security arrangements.

Note 6—Derivative financial instruments

The Company is exposed to certain currency, commodity, interest rate and equity risks arising from its global operating, financing and investing activities. The Company uses derivative instruments to reduce and manage the economic impact of these exposures.

Currency risk

Due to the global nature of the Company's operations, many of its subsidiaries are exposed to currency risk in their operating activities from entering into transactions in currencies other than their functional currency. To manage such currency risks, the Company's policies require its subsidiaries to hedge their foreign currency exposures from binding sales and purchase contracts denominated in foreign currencies. For forecasted foreign currency denominated sales of standard products and the related foreign currency denominated purchases, the Company's policy is to hedge up to a maximum of 100 percent of the forecasted foreign currency denominated exposures, depending on the length of the forecasted exposures. Forecasted exposures greater than 12 months are not hedged. Forward foreign exchange contracts are the main instrument used to protect the Company against the volatility of future cash flows (caused by changes in exchange rates) of contracted and forecasted sales and purchases denominated in foreign currencies. In addition, within its treasury operations, the Company primarily uses foreign exchange swaps and forward foreign exchange contracts to manage the currency and timing mismatches arising in its liquidity management activities.

Commodity risk

Various commodity products are used in the Company's manufacturing activities. Consequently it is exposed to volatility in future cash flows arising from changes in commodity prices. To manage the price risk of commodities, the Company's policies require that its subsidiaries hedge the commodity price risk exposures from binding contracts, as well as at least 50 percent (up to a maximum of 100 percent) of the forecasted commodity exposure over the next 12 months or longer (up to a maximum of 18 months). Primarily swap contracts are used to manage the associated price risks of commodities.

Interest rate risk

The Company has issued bonds at fixed rates. Interest rate swaps are used to manage the interest rate risk associated with certain debt and generally such swaps are designated as fair value hedges. In addition, from time to time, the Company uses instruments such as interest rate swaps, interest rate futures, bond futures or forward rate agreements to manage interest rate risk arising from the Company's balance sheet structure but does not designate such instruments as hedges.

Equity risk

The Company is exposed to fluctuations in the fair value of its warrant appreciation rights (WARs) issued under its MIP (Management Incentive Plan) (see Note 18). A WAR gives its holder the right to receive cash equal to the market price of an equivalent listed warrant on the date of exercise. To eliminate such risk, the Company has purchased cash-settled call options, indexed to the shares of the Company, which entitle the Company to receive amounts equivalent to its obligations under the outstanding WARs.

Volume of derivative activity

In general, while the Company's primary objective in its use of derivatives is to minimize exposures arising from its business, certain derivatives are designated and qualify for hedge accounting treatment while others either are not designated or do not qualify for hedge accounting.

Foreign exchange and interest rate derivatives

The gross notional amounts of outstanding foreign exchange and interest rate derivatives (whether designated as hedges or not) were as follows:

| Type of derivative (\$ in millions) | Total notional amounts at December 31, | | |
|--|--|--------|--------|
| | 2020 | 2019 | 2018 |
| Foreign exchange contracts | 12,610 | 15,015 | 13,612 |
| Embedded foreign exchange derivatives | 1,134 | 924 | 733 |
| Interest rate contracts | 3,227 | 5,188 | 3,300 |

Derivative commodity contracts

The Company uses derivatives to hedge its direct or indirect exposure to the movement in the prices of commodities which are primarily copper, silver and aluminum. The following table shows the notional amounts of outstanding derivatives (whether designated as hedges or not), on a net basis, to reflect the Company's requirements for these commodities:

| Type of derivative | Unit | Total notional amounts at December 31, | | |
|--------------------|---------------|--|-----------|-----------|
| | | 2020 | 2019 | 2018 |
| Copper swaps | metric tonnes | 39,390 | 42,494 | 46,143 |
| Silver swaps | ounces | 1,966,677 | 2,508,770 | 2,861,294 |
| Aluminum swaps | metric tonnes | 8,112 | 8,388 | 9,491 |

Equity derivatives

At December 31, 2020, 2019 and 2018, the Company held 22 million, 40 million and 41 million cash-settled call options indexed to ABB Ltd shares (conversion ratio 5:1) with a total fair value of \$21 million, \$26 million and \$6 million, respectively.

Cash flow hedges

As noted above, the Company mainly uses forward foreign exchange contracts to manage the foreign exchange risk of its operations, commodity swaps to manage its commodity risks and cash-settled call options to hedge its WAR liabilities. Where such instruments are designated and qualify as cash flow hedges, the effective portion of the changes in their fair value is recorded in "Accumulated other comprehensive loss" and subsequently reclassified into earnings in the same line item and in the same period as the underlying hedged transaction affects earnings. Any ineffectiveness in the hedge relationship, or hedge component excluded from the assessment of effectiveness, is recognized in earnings during the current period.

At December 31, 2020, 2019 and 2018, “Accumulated other comprehensive loss” included net unrealized losses of \$3 million, \$5 million and net unrealized gains of \$12 million, respectively, net of tax, on derivatives designated as cash flow hedges. Of the amount at December 31, 2020, net losses of \$1 million are expected to be reclassified to earnings in 2021. At December 31, 2020, the longest maturity of a derivative classified as a cash flow hedge was 49 months.

In 2020, 2019 and 2018, the amounts of gains or losses, net of tax, reclassified into earnings due to the discontinuance of cash flow hedge accounting and the amount of ineffectiveness in cash flow hedge relationships directly recognized in earnings were not significant.

The pre-tax effects of derivative instruments, designated and qualifying as cash flow hedges, on “Accumulated other comprehensive loss” and the Consolidated Income Statements in 2020, 2019 and 2018, were not significant.

Fair value hedges

To reduce its interest rate exposure arising primarily from its debt issuance activities, the Company uses interest rate swaps. Where such instruments are designated as fair value hedges, the changes in the fair value of these instruments, as well as the changes in fair value of the risk component of the underlying debt being hedged, are recorded as offsetting gains and losses in “Interest and other finance expense”.

The effect of Interest rate contracts, designated and qualifying as fair value hedges, on the Consolidated Income Statements was as follows:

| (\$ in millions) | 2020 | 2019 | 2018 |
|--|------|------|------|
| Gains (losses) recognized in Interest and other finance expense: | | | |
| - on derivatives designated as fair value hedges | 11 | 38 | (4) |
| - on hedged item | (11) | (38) | 5 |

Derivatives not designated in hedge relationships

Derivative instruments that are not designated as hedges or do not qualify as either cash flow or fair value hedges are economic hedges used for risk management purposes. Gains and losses from changes in the fair values of such derivatives are recognized in the same line in the income statement as the economically hedged transaction.

Furthermore, under certain circumstances, the Company is required to split and account separately for foreign currency derivatives that are embedded within certain binding sales or purchase contracts denominated in a currency other than the functional currency of the subsidiary and the counterparty.

The gains (losses) recognized in the Consolidated Income Statements on derivatives not designated in hedging relationships were as follows:

| (\$ in millions) Type of derivative not designated as a hedge | Gains (losses) recognized in income | | | |
|--|--|------------|--------------|----------|
| | Location | 2020 | 2019 | 2018 |
| Foreign exchange contracts | Total revenues | 94 | (7) | (121) |
| | Total cost of sales | — | (64) | 46 |
| | SG&A expenses ⁽¹⁾ | (11) | 2 | 10 |
| | Non-order related research and development | (2) | 1 | (1) |
| | Interest and other finance expense | 207 | (122) | 40 |
| Embedded foreign exchange contracts | Total revenues | (34) | 17 | 58 |
| | Total cost of sales | (1) | (6) | (4) |
| | SG&A expenses ⁽¹⁾ | — | — | 2 |
| Commodity contracts | Total cost of sales | 56 | 12 | (33) |
| Other | Interest and other finance expense | 1 | — | 3 |
| Total | | 310 | (167) | — |

(1) SG&A expenses represent “Selling, general and administrative expenses”.

The fair values of derivatives included in the Consolidated Balance Sheets were as follows:

| (\$ in millions) | December 31, 2020 | | | |
|---|-----------------------------------|---|--|--|
| | Derivative assets | | Derivative liabilities | |
| | Current in “Other current assets” | Non-current in “Other non-current assets” | Current in “Other current liabilities” | Non-current in “Other non-current liabilities” |
| <i>Derivatives designated as hedging instruments:</i> | | | | |
| Foreign exchange contracts | | 1 | 2 | 4 |
| Interest rate contracts | 6 | 78 | | |
| Cash-settled call options | 10 | 11 | | |
| Total | 16 | 90 | 2 | 4 |
| <i>Derivatives not designated as hedging instruments:</i> | | | | |
| Foreign exchange contracts | 221 | 22 | 106 | 26 |
| Commodity contracts | 59 | | 7 | |
| Interest rate contracts | 2 | | 2 | |
| Embedded foreign exchange derivatives | 10 | 2 | 28 | 16 |
| Total | 292 | 24 | 143 | 42 |
| Total fair value | 308 | 114 | 145 | 46 |

| | December 31, 2019 | | | |
|---|---|--|--|---|
| | Derivative assets | | Derivative liabilities | |
| | Current in “Other current assets” | Non-current in “Other non-current assets” | Current in “Other current liabilities” | Non-current in “Other non-current liabilities” |
| (\$ in millions) | | | | |
| <i>Derivatives designated as hedging instruments:</i> | | | | |
| Foreign exchange contracts | | | 2 | 6 |
| Interest rate contracts | | 72 | | |
| Cash-settled call options | 11 | 14 | | |
| Total | 11 | 86 | 2 | 6 |
| <i>Derivatives not designated as hedging instruments:</i> | | | | |
| Foreign exchange contracts | 85 | 14 | 127 | 14 |
| Commodity contracts | 17 | | 2 | |
| Cash-settled call options | | 1 | | |
| Embedded foreign exchange derivatives | 7 | 3 | 12 | 3 |
| Total | 109 | 18 | 141 | 17 |
| Total fair value | 120 | 104 | 143 | 23 |

Close-out netting agreements provide for the termination, valuation and net settlement of some or all outstanding transactions between two counterparties on the occurrence of one or more pre-defined trigger events.

Although the Company is party to close-out netting agreements with most derivative counterparties, the fair values in the tables above and in the Consolidated Balance Sheets at December 31, 2020 and 2019, have been presented on a gross basis.

The Company’s netting agreements and other similar arrangements allow net settlements under certain conditions. At December 31, 2020 and 2019, information related to these offsetting arrangements was as follows:

| (\$ in millions) | December 31, 2020 | | | | |
|---|---|--|-----------------------------|---------------------------------|-----------------------|
| | Gross amount of recognized assets | Derivative liabilities eligible for set-off in case of default | Cash collateral received | Non-cash collateral received | Net asset exposure |
| Type of agreement or similar arrangement | | | | | |
| Derivatives | 410 | (106) | | | 304 |
| Total | 410 | (106) | — | — | 304 |

| (\$ in millions) | December 31, 2020 | | | | |
|---|--|--|----------------------------|--------------------------------|---------------------------|
| | Gross amount of recognized liabilities | Derivative liabilities eligible for set-off in case of default | Cash collateral pledged | Non-cash collateral pledged | Net liability exposure |
| Type of agreement or similar arrangement | | | | | |
| Derivatives | 147 | (106) | | | 41 |
| Total | 147 | (106) | — | — | 41 |

| (\$ in millions) | December 31, 2019 | | | | |
|--|-----------------------------------|--|--------------------------|------------------------------|--------------------|
| Type of agreement or similar arrangement | Gross amount of recognized assets | Derivative liabilities eligible for set-off in case of default | Cash collateral received | Non-cash collateral received | Net asset exposure |
| Derivatives | 214 | (102) | | | 112 |
| Total | 214 | (102) | — | — | 112 |

| (\$ in millions) | December 31, 2019 | | | | |
|--|--|--|-------------------------|-----------------------------|------------------------|
| Type of agreement or similar arrangement | Gross amount of recognized liabilities | Derivative liabilities eligible for set-off in case of default | Cash collateral pledged | Non-cash collateral pledged | Net liability exposure |
| Derivatives | 151 | (102) | | | 49 |
| Total | 151 | (102) | — | — | 49 |

Note 7—Fair values

Recurring fair value measures

The fair values of financial assets and liabilities measured at fair value on a recurring basis were as follows:

| (\$ in millions) | December 31, 2020 | | | Total fair value |
|---|-------------------|--------------|----------|------------------|
| | Level 1 | Level 2 | Level 3 | |
| Assets | | | | |
| Securities in “Marketable securities and short-term investments”: | | | | |
| Equity securities | | 1,716 | | 1,716 |
| Debt securities—U.S. government obligations | 293 | | | 293 |
| Debt securities—European government obligations | 24 | | | 24 |
| Debt securities—Corporate | | 75 | | 75 |
| Derivative assets—current in “Other current assets” | | 308 | | 308 |
| Derivative assets—non-current in “Other non-current assets” | | 114 | | 114 |
| Total | 317 | 2,213 | — | 2,530 |
| Liabilities | | | | |
| Derivative liabilities—current in “Other current liabilities” | | 145 | | 145 |
| Derivative liabilities—non-current in “Other non-current liabilities” | | 46 | | 46 |
| Total | — | 191 | — | 191 |

| (\$ in millions) | December 31, 2019 | | |
|---|-------------------|------------|---------------------|
| | Level 1 | Level 2 | Total fair value |
| Assets | | | |
| Securities in “Marketable securities and short-term investments”: | | | |
| Equity securities | | 304 | 304 |
| Debt securities—U.S. government obligations | 197 | | 197 |
| Debt securities—Corporate | | 65 | 65 |
| Derivative assets—current in “Other current assets” | | 120 | 120 |
| Derivative assets—non-current in “Other non-current assets” | | 104 | 104 |
| Total | 197 | 593 | 790 |
| Liabilities | | | |
| Derivative liabilities—current in “Other current liabilities” | | 143 | 143 |
| Derivative liabilities—non-current in “Other non-current liabilities” | | 23 | 23 |
| Total | — | 166 | 166 |

During 2020, 2019 and 2018 there have been no reclassifications for any financial assets or liabilities between Level 1 and Level 2.

The Company uses the following methods and assumptions in estimating fair values of financial assets and liabilities measured at fair value on a recurring basis:

- *Securities in “Marketable securities and short-term investments”*: If quoted market prices in active markets for identical assets are available, these are considered Level 1 inputs; however, when markets are not active, these inputs are considered Level 2. If such quoted market prices are not available, fair value is determined using market prices for similar assets or present value techniques, applying an appropriate risk-free interest rate adjusted for non-performance risk. The inputs used in present value techniques are observable and fall into the Level 2 category.
- *Derivatives*: The fair values of derivative instruments are determined using quoted prices of identical instruments from an active market, if available (Level 1 inputs). If quoted prices are not available, price quotes for similar instruments, appropriately adjusted, or present value techniques, based on available market data, or option pricing models are used. Cash-settled call options hedging the Company’s WAR liability are valued based on bid prices of the equivalent listed warrant. The fair values obtained using price quotes for similar instruments or valuation techniques represent a Level 2 input unless significant unobservable inputs are used.

Non-recurring fair value measures

The Company elects to record private equity investments without readily determinable fair values at cost, less impairment, adjusted for observable price changes. The Company reassesses at each reporting period whether these investments continue to qualify for this treatment. In 2020, the Company recognized net increases in fair value of \$73 million related to certain of its private equity investments based on observable market price changes for an identical or similar investment of the same issuer. The fair values of these investments totaled \$105 million and were determined using Level 2 inputs.

Based on valuations at July 1, 2020, the Company recorded goodwill impairment charges of \$311 million in the third quarter of 2020. The fair value measurements used in the analyses were calculated using the income approach (discounted cash flow method). The discounted cash flow models were calculated using unobservable inputs, which classified the fair value measurement as Level 3 (see Note 11 for additional information including further detailed information related to these charges and significant unobservable inputs).

In June 2019, upon meeting the criteria as held for sale, the Company adjusted the carrying value of the solar inverters business which was sold in February 2020 (see Note 4). Apart from the transactions above, there were no additional significant non-recurring fair value measurements during 2020 and 2019.

Disclosure about financial instruments carried on a cost basis

The fair values of financial instruments carried on a cost basis were as follows:

| (\$ in millions) | December 31, 2020 | | | |
|--|-------------------|---------|---------|------------------|
| | Carrying value | Level 1 | Level 2 | Total fair value |
| Assets | | | | |
| Cash and equivalents (excluding securities with original maturities up to 3 months): | | | | |
| Cash | 1,765 | 1,765 | | 1,765 |
| Time deposits | 1,513 | | 1,513 | 1,513 |
| Restricted cash | 323 | 323 | | 323 |
| Restricted cash, non-current | 300 | 300 | | 300 |
| Liabilities | | | | |
| Short-term debt and current maturities of long-term debt (excluding finance lease obligations) | 1,266 | 497 | 769 | 1,266 |
| Long-term debt (excluding finance lease obligations) | 4,668 | 4,909 | 89 | 4,998 |

| (\$ in millions) | December 31, 2019 | | | |
|--|-------------------|---------|---------|------------------|
| | Carrying value | Level 1 | Level 2 | Total fair value |
| Assets | | | | |
| Cash and equivalents (excluding securities with original maturities up to 3 months): | | | | |
| Cash | 2,075 | 2,075 | | 2,075 |
| Time deposits | 1,433 | | 1,433 | 1,433 |
| Restricted cash | 36 | 36 | | 36 |
| Liabilities | | | | |
| Short-term debt and current maturities of long-term debt (excluding finance lease obligations) | 2,270 | 1,534 | 736 | 2,270 |
| Long-term debt (excluding finance lease obligations) | 6,618 | 6,267 | 692 | 6,959 |

The Company uses the following methods and assumptions in estimating fair values of financial instruments carried on a cost basis:

- *Cash and equivalents (excluding securities with original maturities up to 3 months), Restricted cash, current and non-current, and Marketable securities and short-term investments (excluding securities):* The carrying amounts approximate the fair values as the items are short-term in nature or, for cash held in banks, are equal to the deposit amount.
- *Short-term debt and current maturities of long-term debt (excluding finance lease obligations):* Short-term debt includes commercial paper, bank borrowings and overdrafts. The carrying amounts of short-term debt and current maturities of long-term debt, excluding finance lease obligations, approximate their fair values.
- *Long-term debt (excluding finance lease obligations):* Fair values of bonds are determined using quoted market prices (Level 1 inputs), if available. For bonds without available quoted market prices and other long-term debt, the fair values are determined using a discounted cash flow methodology based upon borrowing rates of similar debt instruments and reflecting appropriate adjustments for non-performance risk (Level 2 inputs).

Note 8—Receivables, net and Contract assets and liabilities

“Receivables, net” consisted of the following:

| (\$ in millions) | December 31, | |
|-------------------|--------------|--------------|
| | 2020 | 2019 |
| Trade receivables | 6,417 | 5,967 |
| Other receivables | 760 | 695 |
| Allowance | (357) | (228) |
| Total | 6,820 | 6,434 |

“Trade receivables” in the table above includes contractual retention amounts billed to customers of \$146 million and \$151 million at December 31, 2020 and 2019, respectively. Management expects that the substantial majority of related contracts will be completed and the substantial majority of the billed amounts retained by the customer will be collected. Of the retention amounts outstanding at December 31, 2020, 70 percent and 18 percent are expected to be collected in 2021 and 2022, respectively.

“Other receivables” in the table above consists of value added tax, claims, rental deposits and other non-trade receivables.

The reconciliation of changes in the allowance for doubtful accounts is as follows:

| (\$ in millions) | 2020 | 2019 | 2018 |
|---|------------|------------|------------|
| Balance at January 1, | 228 | 219 | 202 |
| Transition adjustment | 56 | — | — |
| Current-period provision for expected credit losses | 115 | 31 | 50 |
| Write-offs charged against the allowance | (42) | (19) | (17) |
| Exchange rate differences | — | (3) | (16) |
| Balance at December 31, | 357 | 228 | 219 |

The following table provides information about Contract assets and Contract liabilities:

| (\$ in millions) | 2020 | 2019 | 2018 |
|----------------------|-------|-------|-------|
| Contract assets | 985 | 1,025 | 1,082 |
| Contract liabilities | 1,903 | 1,719 | 1,707 |

Contract assets primarily relate to the Company’s right to receive consideration for work completed but for which no invoice has been issued at the reporting date. Contract assets are transferred to receivables when rights to receive payment become unconditional. Management expects that the majority of the amounts will be collected within one year of the respective balance sheet date.

Contract liabilities primarily relate to up-front advances received on orders from customers as well as amounts invoiced to customers in excess of revenues recognized predominantly on long-term projects. Contract liabilities are reduced as work is performed and as revenues are recognized.

The significant changes in the Contract assets and Contract liabilities balances were as follows:

| (\$ in millions) | 2020 | | 2019 | |
|--|-----------------|----------------------|-----------------|----------------------|
| | Contract assets | Contract liabilities | Contract assets | Contract liabilities |
| Revenue recognized, which was included in the Contract liabilities balance at January 1, 2020/2019 | | (1,011) | | (1,158) |
| Additions to Contract liabilities - excluding amounts recognized as revenue during the period | | 1,129 | | 1,255 |
| Receivables recognized that were included in the Contract assets balance at January 1, 2020/2019 | (680) | | (786) | |

The Company considers its order backlog to represent its unsatisfied performance obligations. At December 31, 2020, the Company had unsatisfied performance obligations totaling \$14,303 million and, of this amount, the Company expects to fulfill approximately 73 percent of the obligations in 2021, approximately 15 percent of the obligations in 2022 and the balance thereafter.

Note 9—Inventories, net

“Inventories, net” consisted of the following:

| (\$ in millions) | December 31, | |
|-----------------------|--------------|--------------|
| | 2020 | 2019 |
| Raw materials | 1,785 | 1,760 |
| Work in process | 1,020 | 819 |
| Finished goods | 1,499 | 1,499 |
| Advances to suppliers | 165 | 106 |
| Total | 4,469 | 4,184 |

Note 10—Property, plant and equipment, net

“Property, plant and equipment, net” consisted of the following:

| (\$ in millions) | December 31, | |
|--------------------------|---------------|--------------|
| | 2020 | 2019 |
| Land and buildings | 3,889 | 3,568 |
| Machinery and equipment | 6,144 | 5,620 |
| Construction in progress | 505 | 500 |
| | 10,538 | 9,688 |
| Accumulated depreciation | (6,364) | (5,716) |
| Total | 4,174 | 3,972 |

Assets under finance leases included in “Property, plant and equipment, net” were as follows:

| (\$ in millions) | December 31, | |
|--------------------------|--------------|------------|
| | 2020 | 2019 |
| Land and buildings | 169 | 142 |
| Machinery and equipment | 79 | 62 |
| | 248 | 204 |
| Accumulated depreciation | (111) | (99) |
| Total | 137 | 105 |

In 2020, 2019 and 2018 depreciation, including depreciation of assets under finance leases, was \$586 million, \$616 million and \$578 million, respectively. In 2020, 2019 and 2018 there were no significant impairments of property, plant or equipment.

Note 11—Goodwill and intangible assets

The changes in “Goodwill” were as follows:

| (\$ in millions) | Industrial | | | Robotics & Discrete | Corporate | Total |
|---|-----------------|--------------|--------------|------------------------|-----------|---------------|
| | Electrification | Automation | Motion | Automation | and Other | |
| Balance at January 1, 2019 | 4,276 | 1,616 | 2,441 | 2,410 | 21 | 10,764 |
| Goodwill acquired during the year ⁽¹⁾ | 92 | — | — | — | — | 92 |
| Goodwill allocated to disposals | (18) | — | — | — | — | (18) |
| Exchange rate differences and other | 22 | (1) | (5) | (29) | — | (13) |
| Balance at December 31, 2019 | 4,372 | 1,615 | 2,436 | 2,381 | 21 | 10,825 |
| Goodwill acquired during the year | 71 | — | — | 21 | — | 92 |
| Impairment of Goodwill | — | — | — | (290) | (21) | (311) |
| Exchange rate differences and other | 84 | 24 | 20 | 116 | — | 244 |
| Balance at December 31, 2020⁽²⁾ | 4,527 | 1,639 | 2,456 | 2,228 | — | 10,850 |

(1) Amount consists of adjustments arising during the twelve-month measurement period subsequent to the respective acquisition date (see Note 4).

(2) As of December 31, 2020, the gross goodwill amounted to \$11,152 million. The accumulated impairment charges amounted to \$302 million and related to the Robotics & Discrete Automation segment.

The Company adopted a new operating model on July 1, 2020, which resulted in a change to the identification of the goodwill reporting units. Previously, the reporting units were the same as the operating segments for Electrification, Motion and Robotics & Discrete Automation, while for the Industrial Automation operating segment the reporting units were determined to be at the Division level, which is one level below the operating segment. The new operating model provides the Divisions with full ownership and accountability for their respective strategies, performance and resources and based on these changes, the Company concluded that the reporting units would change and be the respective Divisions within each operating segment. This change resulted only in an allocation of goodwill within the operating segments and thus there is no change to segment level goodwill in the table above.

As a result of the new allocation of goodwill, an interim quantitative impairment test was conducted both before and after the changes which were effective July 1, 2020. In the “before” test, it was concluded that the fair value of the Company’s reporting units exceeded the carrying value under the historical reporting unit structure.

The impairment test was performed for the new reporting units and the fair value of each was determined using a discounted cash flow fair value estimate based on objective information available at the measurement date. The significant assumptions used to develop the estimates of fair value for each reporting unit included management’s best estimates of the expected future results and discount rates specific to the reporting unit. The fair value estimates were based on assumptions that the Company believed to be reasonable, but which are inherently uncertain and thus, actual results may differ from those estimates. The fair values for each of the individual reporting units and their associated goodwill were determined using Level 3 measurements.

The interim quantitative impairment test indicated that the estimated fair values of the reporting units were substantially in excess of their carrying value for all reporting units except for the Machine Automation reporting unit within the Robotics & Discrete Automation operating segment. The contraction of the global economy in 2020, particularly in end-customer industries related to this reporting unit and considerable uncertainty around the continued pace of macroeconomic recovery generally led to a reduction in the fair values of the reporting units, thus affecting this reporting unit. Also, at the division level, this reporting unit does not benefit from shared cash flows generated within an entire operating segment. In addition, the book value of the Machine Automation Division includes a significant amount of intangible assets recognized in past acquisitions, resulting in a proportionately higher book value than the other reporting unit within the Robotics & Discrete Automation Business Area. With the fair value of the reporting unit lower due to the economic conditions, the existing book value of the intangible assets combined with the newly allocated reporting unit goodwill led to the carrying value of the Machine Automation reporting unit exceeding its fair value. During 2020, a goodwill impairment charge of \$290 million was recorded to reduce the carrying value of this reporting unit to its implied fair value. The remaining goodwill for the Machine Automation reporting unit was \$554 million as of December 31, 2020.

The Company performed its annual impairment test as of October 1, 2020, using a qualitative assessment method for each reporting unit and determined it was not more likely than not that any reporting unit's fair value is less than its carrying value.

Intangible assets consisted of the following:

| (\$ in millions) | December 31, | | | | | |
|---|-----------------------|--------------------------|---------------------|-----------------------|--------------------------|---------------------|
| | 2020 | | | 2019 | | |
| | Gross carrying amount | Accumulated amortization | Net carrying amount | Gross carrying amount | Accumulated amortization | Net carrying amount |
| Capitalized software for internal use | 828 | (694) | 134 | 790 | (628) | 162 |
| Capitalized software for sale | 33 | (32) | 1 | 29 | (29) | — |
| <i>Intangibles other than software:</i> | | | | | | |
| Customer-related | 2,557 | (1,104) | 1,453 | 2,513 | (1,005) | 1,508 |
| Technology-related | 1,170 | (898) | 272 | 1,056 | (722) | 334 |
| Marketing-related | 492 | (304) | 188 | 501 | (286) | 215 |
| Other | 63 | (33) | 30 | 59 | (26) | 33 |
| Total | 5,143 | (3,065) | 2,078 | 4,948 | (2,696) | 2,252 |

In 2020 and 2019, additions to intangible assets were \$78 million and \$42 million, respectively.

There were no significant intangible assets acquired in business combinations during 2020 and 2019.

Amortization expense of intangible assets consisted of the following:

| (\$ in millions) | 2020 | 2019 | 2018 |
|---------------------------------------|------------|------------|------------|
| Capitalized software for internal use | 61 | 74 | 59 |
| Intangibles other than software | 268 | 271 | 279 |
| Total | 329 | 345 | 338 |

In 2020, 2019 and 2018, impairment charges on intangible assets were not significant.

At December 31, 2020, future amortization expense of intangible assets is estimated to be:

| | (\$ in millions) |
|--------------|------------------|
| 2021 | 323 |
| 2022 | 288 |
| 2023 | 261 |
| 2024 | 215 |
| 2025 | 181 |
| Thereafter | 810 |
| Total | 2,078 |

Note 12—Debt

The Company's total debt at December 31, 2020 and 2019, amounted to \$6,121 million and \$9,059 million, respectively.

Short-term debt and current maturities of long-term debt

The Company's "Short-term debt and current maturities of long-term debt" consisted of the following:

| (\$ in millions) | December 31, | |
|--|--------------|--------------|
| | 2020 | 2019 |
| Short-term debt (weighted-average interest rate of 2.8% and 2.8%, respectively) | 153 | 838 |
| Current maturities of long-term debt (weighted-average nominal interest rate of 3.2% and 0.7%, respectively) | 1,140 | 1,449 |
| Total | 1,293 | 2,287 |

Short-term debt primarily represents short-term loans from various banks and issued commercial paper.

At December 31, 2020, the Company had in place two commercial paper programs: a \$2 billion Euro-commercial paper program for the issuance of commercial paper in a variety of currencies, and a \$2 billion commercial paper program for the private placement of U.S. dollar denominated commercial paper in the United States. At December 31, 2020 and 2019, no amount was outstanding under the \$2 billion Euro-commercial paper program. At December 31, 2020 and 2019, \$32 million and \$708 million, respectively, was outstanding under the \$2 billion program in the United States.

In March 2020, the Company entered into a bank-funded short-term EUR 2 billion Revolving Credit Agreement (the "Agreement"). This Agreement was in addition to the Company's existing \$2 billion multicurrency revolving credit facility (see below). Under this Agreement, outstanding amounts were subject to interest at the rate of EURIBOR plus a margin of 0.25 percent. The Company requested the full amount to be borrowed and the proceeds were received on March 31, 2020, amounting to \$2,183 million, net of issuance costs. The Agreement required that all outstanding amounts be repaid within 15 days after the completion of the sale of the Power Grids business. The Agreement was terminated after the final repayment on July 8, 2020.

In addition, during 2019, the Company replaced its previous \$2 billion multicurrency revolving credit facility, maturing in 2021, with a new \$2 billion 5-year multicurrency credit facility maturing in 2024. The new credit facility provides an option in 2020 and 2021 to extend the maturity to 2025 and 2026, respectively. The Company exercised the option in 2020 to extend the maturity of the facility to 2025. The facility is for general corporate purposes. Interest costs on drawings under the facility are LIBOR or EURIBOR (depending on the currency of the drawings) plus a margin of 0.175 percent, while commitment fees (payable on the unused portion of the facility) amount to 35 percent of the margin, which represents commitment fees of 0.06125 percent per annum. Utilization fees, payable on drawings, amount to 0.075 percent per annum on drawings up to one-third of the facility, 0.15 percent per annum on drawings in excess of one-third but less than or equal to two-thirds of the facility, or 0.30 percent per annum on drawings over two-thirds of the facility. The facility contains cross-default clauses whereby an event of default would occur if the Company were to default on indebtedness as defined in the facility, at or above a specified threshold. No amount was drawn at December 31, 2020 and 2019, under this facility.

Long-term debt

The Company raises long-term debt in various currencies, maturities and on various interest rate terms. For certain of its debt obligations, the Company utilizes derivative instruments to modify its interest rate exposure. In particular, the Company uses interest rate swaps to effectively convert certain fixed-rate long-term debt into floating rate obligations. The carrying value of debt, designated as being hedged by fair value hedges, is adjusted for changes in the fair value of the risk component of the debt being hedged.

The following table summarizes the Company's long-term debt considering the effect of interest rate swaps. Consequently, a fixed-rate debt subject to a fixed-to-floating interest rate swap is included as a floating rate debt in the table below:

| (\$ in millions, except % data) | December 31, | | | | | |
|-----------------------------------|--------------|--------------|----------------|--------------|--------------|----------------|
| | 2020 | | | 2019 | | |
| | Balance | Nominal rate | Effective rate | Balance | Nominal rate | Effective rate |
| Floating rate | 3,330 | 1.6% | 0.2% | 2,221 | 1.5% | 1.1% |
| Fixed rate | 2,638 | 3.2% | 3.3% | 6,000 | 2.8% | 2.4% |
| | 5,968 | | | 8,221 | | |
| Current portion of long-term debt | (1,140) | 3.2% | 2.6% | (1,449) | 0.7% | 0.6% |
| Total | 4,828 | | | 6,772 | | |

At December 31, 2020, the principal amounts of long-term debt repayable (excluding finance lease obligations) at maturity were as follows:

| | (\$ in millions) |
|--------------|------------------|
| 2021 | 1,108 |
| 2022 | 1,255 |
| 2023 | 860 |
| 2024 | 1,238 |
| 2025 | 83 |
| Thereafter | 1,186 |
| Total | 5,730 |

Details of the Company's outstanding bonds were as follows:

| December 31, | | | | | | |
|----------------------------------|-----|----------------------------------|----------|------------------------|-------|----------------------------------|
| 2020 | | | | 2019 | | |
| Nominal outstanding | | Carrying value ⁽¹⁾ | | Nominal outstanding | | Carrying value ⁽¹⁾ |
| (in millions) | | | | (in millions) | | |
| <i>Bonds:</i> | | | | | | |
| 2.8% USD Notes, due 2020 | | — | | USD | 300 | \$ 300 |
| Floating EUR Notes, due 2020 | | — | | EUR | 1,000 | \$ 1,122 |
| 4.0% USD Notes, due 2021 | USD | 650 | \$ 649 | USD | 650 | \$ 648 |
| 2.25% CHF Bonds, due 2021 | CHF | 350 | \$ 403 | CHF | 350 | \$ 373 |
| 5.625% USD Notes, due 2021 | | — | | USD | 250 | \$ 260 |
| 2.875% USD Notes, due 2022 | USD | 1,250 | \$ 1,280 | USD | 1,250 | \$ 1,267 |
| 3.375% USD Notes, due 2023 | | — | | USD | 450 | \$ 448 |
| 0.625% EUR Instruments, due 2023 | EUR | 700 | \$ 875 | EUR | 700 | \$ 799 |
| 0.75% EUR Instruments, due 2024 | EUR | 750 | \$ 946 | EUR | 750 | \$ 859 |
| 0.3% CHF Notes, due 2024 | CHF | 280 | \$ 317 | CHF | 280 | \$ 288 |
| 3.8% USD Notes, due 2028 | USD | 383 | \$ 381 | USD | 750 | \$ 746 |
| 1.0% CHF Notes, due 2029 | CHF | 170 | \$ 192 | CHF | 170 | \$ 175 |
| 4.375% USD Notes, due 2042 | USD | 609 | \$ 589 | USD | 750 | \$ 724 |
| Total | | \$ 5,632 | | \$ 8,009 | | |

(1) USD carrying values include unamortized debt issuance costs, bond discounts or premiums, as well as adjustments for fair value hedge accounting, where appropriate.

During 2020, the Company repaid at maturity its 2.8% USD Notes and its floating EUR Notes. The 2.8% USD Notes paid interest semi-annually in arrears, while the floating EUR Notes paid interest quarterly in arrears at a variable interest rate of 35 basis points above the 3-month EURIBOR, with a floor rate of zero.

In November 2020, the Company completed a cash tender offer on its 3.8% USD Notes due 2028 and 4.375% USD Notes due 2042. As a result of this tender offer the Company redeemed principal amounts of \$367 million of the 3.8% USD Notes due 2028 and \$141 million of the 4.375% USD Notes due 2042 for a total cash payment of \$629 million. The Company recognized losses from extinguishment of debt of \$123 million for these two transactions, representing the premium associated with the early redemption, as well as the recognition of remaining unamortized issuance discounts and costs.

In December 2020, the Company exercised its early redemption option on its 5.625% USD Notes due 2021 and its 3.375% USD Notes due 2023. Both USD Notes paid interest semi-annually in arrears. In connection with the redemption, the Company recognized losses from extinguishment of debt of \$39 million representing the premium associated with the early redemption, as well as the recognition of the relevant remaining unamortized premium or discount and issuance costs.

The 4.0% USD Notes, due 2021, pay interest semi-annually in arrears, at a fixed annual rate of 4.0 percent. The Company may redeem these notes prior to maturity, in whole or in part, at the greater of (i) 100 percent of the principal amount of the notes to be redeemed and (ii) the sum of the present values of remaining scheduled payments of principal and interest (excluding interest accrued to the redemption date) discounted to the redemption date at a rate defined in the note terms, plus interest accrued at the redemption date.

The 2.25% CHF Bonds, due 2021, pay interest annually in arrears, at a fixed annual rate of 2.25 percent. The Company has the option to redeem the bonds prior to maturity, in whole, at par plus accrued interest, if 85 percent of the aggregate principal amount of the bonds has been redeemed or purchased and cancelled. The Company entered into interest rate swaps to hedge its interest obligations on these bonds. After considering the impact of such swaps, these bonds effectively became floating rate Swiss franc obligations and consequently have been shown as floating rate debt in the table of long-term debt above.

The 2.875% USD Notes, due 2022, pay interest semi-annually in arrears at a fixed annual rate of 2.875 percent. The 4.375% USD Notes, due 2042, pay interest semi-annually in arrears at a fixed annual rate of 4.375 percent. The Company may redeem both of these notes (which were issued together in May 2012) prior to maturity, in whole or in part, at the greater of (i) 100 percent of the principal amount of the notes to be redeemed and (ii) the sum of the present values of remaining scheduled payments of principal and interest (excluding interest accrued to the redemption date) discounted to the redemption date at a rate defined in the note terms, plus interest accrued at the redemption date. These notes, registered with the U.S. Securities and Exchange Commission, were issued by ABB Finance (USA) Inc., a 100 percent owned finance subsidiary, and were fully and unconditionally guaranteed by ABB Ltd. There are no significant restrictions on the ability of the parent company to obtain funds from its subsidiaries by dividend or loan. In reliance on Rule 3-10 of Regulation S-X, the separate financial statements of ABB Finance (USA) Inc. are not provided. The Company has entered into interest rate swaps for an aggregate nominal amount of \$1,050 million to partially hedge its interest obligations on the 2.875% USD Notes, due 2022. After considering the impact of such swaps, \$1,050 million of the outstanding principal is shown as floating rate debt in the table of long-term debt above.

The 0.625% EUR Instruments, due 2023, were issued in May 2016, with total net issuance proceeds of EUR 697 million (equivalent to approximately \$807 million on date of issuance). These Instruments pay interest annually in arrears at a fixed rate of 0.625 percent per annum. The Company may redeem these notes three months prior to maturity (Par call date), in whole or in part, at the greater of (i) 100 percent of the principal amount of the notes to be redeemed and (ii) the sum of the present values of remaining scheduled payments of principal and interest (excluding interest accrued to the redemption date) discounted to the redemption date at a rate defined in the note terms, plus interest accrued at the redemption date. The Company may redeem these instruments in whole or in part, after the Par call date at 100 percent of the principal amount of the notes to be redeemed. The Company entered into interest rate swaps to hedge its interest on these bonds. After considering the impact of such swaps, these notes effectively became floating rate euro obligations and consequently have been shown as floating rate debt, in the table of long-term debt above.

The 0.75% EUR Instruments, due 2024, were issued in May 2017, with total net issuance proceeds of EUR 745 million (equivalent to approximately \$824 million on date of issuance). These Instruments pay interest annually in arrears at a fixed rate of 0.75 percent per annum and have the same early redemption terms as the 0.625% EUR Instruments above. The Company entered into interest rate swaps to hedge its interest on these bonds. After considering the impact of such swaps, these bonds effectively became floating rate euro obligations and consequently have been shown as floating rate debt in the table of long-term debt above.

In April 2018, the Company issued the following notes (i) \$300 million of 2.8% USD Notes, due 2020, (ii) \$450 million of 3.375% USD Notes, due 2023, and (iii) \$750 million of 3.8% USD Notes, due 2028. Each of the respective notes pays interest semi-annually in arrears. The aggregate net proceeds of these bond issues, after underwriting discount and other fees, amounted to \$1,494 million. The 2020 Notes were repaid at maturity in October 2020 and the 2023 Notes were redeemed in full in December 2020. The Company may redeem the remaining principal outstanding on the 2028 Notes up to three months prior to their maturity date, in whole or in part, at the greater of (i) 100 percent of the principal amount of the notes to be redeemed and (ii) the sum of the present values of remaining scheduled payments of principal and interest (excluding interest accrued to the redemption date) discounted to the redemption date at a rate defined in the Notes terms, plus interest accrued at the redemption date. On or after January 3, 2028 (three months prior to their maturity date), the Company may also redeem the 2028 Notes, in whole or in part, at any time at a redemption price equal to 100 percent of the principal amount of the notes to be redeemed plus unpaid accrued interest to, but excluding, the redemption date. These notes, registered with the U.S. Securities and Exchange Commission, were issued by ABB Finance (USA) Inc., a 100 percent owned finance subsidiary, and were fully and unconditionally guaranteed by ABB Ltd. There are no significant restrictions on the ability of the parent company to obtain funds from its subsidiaries by dividend or loan. In reliance on Rule 3-10 of Regulation S-X, the separate financial statements of ABB Finance (USA) Inc. are not provided.

In February 2019, the Company issued the following notes: (i) CHF 280 million of 0.3% CHF Notes, due 2024 and (ii) CHF 170 million of 1.0% CHF Notes, due 2029. Each of the respective notes pays interests annually in arrears. The Company recorded aggregate net proceeds, after underwriting discount and other fees, of CHF 449 million (equivalent to approximately \$449 million on date of issuance).

The Company's various debt instruments contain cross-default clauses which would allow the bondholders to demand repayment if the Company were to default on any borrowing at or above a specified threshold. Furthermore, all such bonds constitute unsecured obligations of the Company and rank pari passu with other debt obligations.

In addition to the bonds described above, included in long-term debt at December 31, 2020 and 2019, are finance lease obligations, bank borrowings of subsidiaries and other long-term debt, none of which is individually significant.

Subsequent events

In January 2021, the Company issued zero interest notes having a principal amount of EUR 800 million and due in 2030. The Company recorded net proceeds (after underwriting fees) of EUR 791 million (equivalent to \$960 million on the date of issuance).

Note 13—Other provisions, other current liabilities and other non-current liabilities

“Other provisions” consisted of the following:

| (\$ in millions) | December 31, | |
|--|--------------|--------------|
| | 2020 | 2019 |
| Contract-related provisions | 754 | 607 |
| Restructuring and restructuring-related provisions | 292 | 234 |
| Provisions for contractual penalties and compliance and litigation matters | 113 | 209 |
| Provision for insurance-related reserves | 176 | 168 |
| Other | 184 | 157 |
| Total | 1,519 | 1,375 |

“Other current liabilities” consisted of the following:

| (\$ in millions) | December 31, | |
|-------------------------------------|--------------|--------------|
| | 2020 | 2019 |
| Employee-related liabilities | 1,467 | 1,396 |
| Accrued expenses | 650 | 592 |
| Non-trade payables | 622 | 442 |
| Income taxes payable | 395 | 355 |
| Accrued customer rebates | 317 | 287 |
| Other tax liabilities | 286 | 282 |
| Derivative liabilities (see Note 6) | 145 | 143 |
| Deferred income | 130 | 25 |
| Pension and other employee benefits | 42 | 36 |
| Accrued interest | 29 | 44 |
| Other | 98 | 159 |
| Total | 4,181 | 3,761 |

“Other non-current liabilities” consisted of the following:

| (\$ in millions) | December 31, | |
|--|--------------|--------------|
| | 2020 | 2019 |
| Income tax related liabilities | 1,423 | 1,218 |
| Deferred income | 138 | 7 |
| Provisions for contractual penalties and compliance and litigation matters | 120 | 112 |
| Employee-related liabilities | 70 | 72 |
| Environmental provisions | 38 | 48 |
| Derivative liabilities (see Note 6) | 46 | 23 |
| Other | 190 | 189 |
| Total | 2,025 | 1,669 |

Note 14—Leases

The Company’s lease obligations primarily relate to real estate, machinery and equipment. Prior to the adoption of the new lease standard in 2019, rent expense was \$364 million in 2018. Sublease income received by the Company on leased assets was \$7 million in 2018.

Under the accounting standard, adopted in January 2019, the components of lease expense were as follows:

| (\$ in millions) | 2020 | | | 2019 | | |
|-------------------------------------|--------------------|-------------------------|------------|--------------------|-------------------------|------------|
| | Land and buildings | Machinery and equipment | Total | Land and buildings | Machinery and equipment | Total |
| Operating lease cost | 287 | 89 | 376 | 268 | 101 | 369 |
| Finance lease cost: | | | | | | |
| Amortization of right-of-use assets | 11 | 13 | 24 | 13 | 20 | 33 |
| Interest on lease liabilities | 2 | 3 | 5 | 1 | 2 | 3 |
| Variable lease cost ⁽¹⁾ | 3 | 3 | 6 | — | 5 | 5 |
| Short-term lease cost | 17 | 31 | 48 | 19 | 29 | 48 |
| Sub-lease income | (20) | (1) | (21) | (2) | — | (2) |
| Total lease expense | 300 | 138 | 438 | 299 | 157 | 456 |

- (1) Primarily relates to variable payments that are tied to the consumer price index and are therefore included in the measurement of the right-of-use asset or lease liability.

The following table presents supplemental cash flow information related to leases:

| (\$ in millions) | 2020 | | | 2019 | | |
|---|--------------------|-------------------------|-------|--------------------|-------------------------|-------|
| | Land and buildings | Machinery and equipment | Total | Land and buildings | Machinery and equipment | Total |
| Cash paid for amounts included in the measurement of lease liabilities: | | | | | | |
| Operating cash flows from | | | | | | |
| - operating leases | 263 | 83 | 346 | 252 | 96 | 348 |
| - finance leases | 2 | 3 | 5 | 1 | 2 | 3 |
| Financing cash flows from | | | | | | |
| - finance leases | 11 | 13 | 24 | 8 | 12 | 20 |
| Right-of-use assets obtained in exchange for new liabilities: | | | | | | |
| Under operating leases | 266 | 57 | 323 | 153 | 52 | 205 |
| Under finance leases | 32 | 14 | 46 | 23 | 18 | 41 |

At December 31, 2020, the future net minimum lease payments for operating and finance leases and the related present value of the net minimum lease payments consisted of the following:

| (\$ in millions) | Operating Leases | | Finance Leases | |
|--|--------------------|-------------------------|--------------------|-------------------------|
| | Land and buildings | Machinery and equipment | Land and buildings | Machinery and equipment |
| 2021 | 215 | 67 | 26 | 12 |
| 2022 | 168 | 43 | 25 | 9 |
| 2023 | 138 | 22 | 24 | 5 |
| 2024 | 110 | 9 | 23 | 2 |
| 2025 | 87 | 4 | 23 | 1 |
| Thereafter | 215 | 5 | 80 | — |
| Total minimum lease payments | 933 | 150 | 201 | 29 |
| Difference between undiscounted cash flows and discounted cash flows | (80) | (2) | (43) | — |
| Present value of minimum lease payments | 853 | 148 | 158 | 29 |

The following table presents certain information related to lease terms and discount rates:

| (\$ in millions) | Operating Leases | | | | Finance Leases | | | |
|--|--------------------|------|-------------------------|------|--------------------|------|-------------------------|------|
| | Land and buildings | | Machinery and equipment | | Land and buildings | | Machinery and equipment | |
| | 2020 | 2019 | 2020 | 2019 | 2020 | 2019 | 2020 | 2019 |
| Weighted-average remaining term (months) | 84 | 78 | 29 | 29 | 107 | 110 | 40 | 33 |
| Weighted-average discount rate | 3.0% | 3.0% | 2.0% | 2.2% | 7.7% | 8.2% | 2.3% | 2.8% |

The present value of minimum finance lease payments included in “Short-term debt and current maturities of long-term debt” and “Long-term debt” in the Consolidated Balance Sheets at December 31, 2020, amounts to \$27 million and \$160 million, respectively, and at December 31, 2019, amounts to \$17 million and \$154 million, respectively.

Note 15—Commitments and contingencies

Contingencies—Regulatory, Compliance and Legal

Regulatory

As a result of an internal investigation, the Company self-reported to the Securities and Exchange Commission (SEC) and the Department of Justice (DoJ) in the United States as well as to the Serious Fraud Office (SFO) in the United Kingdom concerning certain of its past dealings with Unaoil and its subsidiaries, including alleged improper payments made by these entities to third parties. In May 2020, the SFO closed its investigation, which it originally announced in February 2017, as the case did not meet the relevant test for prosecution. The Company continues to cooperate with the U.S. authorities as requested. At this time, it is not possible for the Company to make an informed judgment about the outcome of this matter.

Based on findings during an internal investigation, the Company self-reported to the SEC and the DoJ, in the United States, to the Special Investigating Unit (SIU) and the National Prosecuting Authority (NPA) in South Africa as well as to various authorities in other countries potential suspect payments and other compliance concerns in connection with some of the Company's dealings with Eskom and related persons. Many of those parties have expressed an interest in, or commenced an investigation into, these matters and the Company is cooperating fully with them. The Company paid \$104 million to Eskom in December 2020 as part of a full and final settlement with Eskom and the Special Investigating Unit relating to improper payments and other compliance issues associated with the Controls and Instrumentation Contract, and its Variation Orders for Units 1 and 2 at Kusile. The Company continues to cooperate fully with the National Prosecuting Authority in South Africa as well as other authorities in their review of the Kusile project. Although the Company believes that there could be an unfavorable outcome in one or more of these ongoing reviews, at this time it is not possible for the Company to make an informed judgment about the possible financial impact.

General

The Company is aware of proceedings, or the threat of proceedings, against it and others in respect of private claims by customers and other third parties with regard to certain actual or alleged anticompetitive practices. Also, the Company is subject to other claims and legal proceedings, as well as investigations carried out by various law enforcement authorities. With respect to the above-mentioned claims, regulatory matters, and any related proceedings, the Company will bear the related costs, including costs necessary to resolve them.

Liabilities recognized

At December 31, 2020 and 2019, the Company had aggregate liabilities of \$100 million and \$157 million, respectively, included in "Other provisions" and "Other non-current liabilities", for the above regulatory, compliance and legal contingencies, and none of the individual liabilities recognized was significant. As it is not possible to make an informed judgment on, or reasonably predict, the outcome of certain matters and as it is not possible, based on information currently available to management, to estimate the maximum potential liability on other matters, there could be adverse outcomes beyond the amounts accrued.

Guarantees

General

The following table provides quantitative data regarding the Company's third-party guarantees. The maximum potential payments represent a "worst-case scenario", and do not reflect management's expected outcomes.

| | December 31, | |
|---|---|--------------|
| | 2020 | 2019 |
| (\$ in millions) | Maximum potential payments ⁽¹⁾ | |
| Performance guarantees | 6,726 | 1,860 |
| Financial guarantees | 339 | 10 |
| Indemnification guarantees ⁽²⁾ | 177 | 64 |
| Total | 7,242 | 1,934 |

(1) Maximum potential payments include amounts in both continuing and discontinued operations.

(2) Certain indemnifications provided to Hitachi in connection with the divestment of Power Grids are without limit.

The carrying amount of liabilities recorded in the Consolidated Balance Sheets reflects the Company's best estimate of future payments, which it may incur as part of fulfilling its guarantee obligations. In respect of the above guarantees, the carrying amounts of liabilities at December 31, 2020, amounted to \$135 million, which was included in discontinued operations, while at December 31, 2019, balances were not significant.

The Company is party to various guarantees providing financial or performance assurances to certain third parties. These guarantees, which have various maturities up to 2035, mainly consist of performance guarantees whereby (i) the Company guarantees the performance of a third party's product or service according to the terms of a contract and (ii) as member of a consortium/joint venture that includes third parties, the Company guarantees not only its own performance but also the work of third parties. Such guarantees may include guarantees that a project will be completed within a specified time. If the third party does not fulfill the obligation, the Company will compensate the guaranteed party in cash or in kind. The original maturity dates for the majority of these performance guarantees range from one to ten years.

In conjunction with the divestment of the high-voltage cable and cables accessories businesses, the Company has entered into various performance guarantees with other parties with respect to certain liabilities of the divested business. At December 31, 2020 and 2019, the maximum potential payable under these guarantees amounts to \$994 million and \$898 million, respectively, and these guarantees have various maturities ranging from one to ten years.

The Company retained obligations for financial, performance and indemnification guarantees related to the Power Grids business sold on July 1, 2020 (see Note 3 for details). The performance and financial guarantees have been indemnified by Hitachi at the same proportion of its ownership in Hitachi ABB Power Grids (80.1 percent). These guarantees, which have various maturities up to 2035, primarily consist of bank guarantees, standby letters of credit, business performance guarantees and other trade-related guarantees, the majority of which have original maturity dates ranging from one to ten years. The maximum amount payable under the guarantees is approximately \$5.5 billion and the carrying amounts of liabilities (recorded in discontinued operations) at December 31, 2020, amounted to \$135 million.

Commercial commitments

In addition, in the normal course of bidding for and executing certain projects, the Company has entered into standby letters of credit, bid/performance bonds and surety bonds (collectively “performance bonds”) with various financial institutions. Customers can draw on such performance bonds in the event that the Company does not fulfill its contractual obligations. The Company would then have an obligation to reimburse the financial institution for amounts paid under the performance bonds. At December 31, 2020 and 2019, the total outstanding performance bonds aggregated to \$4.3 billion and \$6.8 billion, respectively, of which \$0.3 billion and \$3.7 billion, respectively, relate to discontinued operations. There have been no significant amounts reimbursed to financial institutions under these types of arrangements in 2020, 2019 and 2018.

Product and order-related contingencies

The Company calculates its provision for product warranties based on historical claims experience and specific review of certain contracts.

The reconciliation of the “Provisions for warranties”, including guarantees of product performance, was as follows:

| (\$ in millions) | 2020 | 2019 | 2018 |
|--|--------------|------------|------------|
| Balance at January 1, | 816 | 948 | 909 |
| Net change in warranties due to acquisitions, divestments and liabilities held for sale ⁽¹⁾ | 8 | (88) | 41 |
| Claims paid in cash or in kind | (209) | (310) | (307) |
| Net increase in provision for changes in estimates, warranties issued and warranties expired | 369 | 276 | 341 |
| Exchange rate differences | 51 | (10) | (36) |
| Balance at December 31, | 1,035 | 816 | 948 |

(1) Includes adjustments to the initial purchase price allocation recorded during the measurement period.

During 2018, the Company determined that the provision for a product warranty related to a divested business was no longer sufficient to cover expected warranty costs in the remaining warranty period. Due to an unexpected level of product failure, the previously estimated product warranty provision was increased by a total of \$92 million during 2018 and further increased by \$143 million during 2020. In both years, the corresponding increase was included in “Cost of sales of products”. As these costs relate to a divested business, in accordance with the definition of the Company’s primary measure of segment performance, Operational EBITA (see Note 23), the costs have been excluded from this measure.

The warranty liability has been recorded based on the information currently available and is subject to change in the future.

Related party transactions

The Company conducts business with certain companies where members of the Company’s Board of Directors or Executive Committee act, or in recent years have acted, as directors or senior executives. The Company’s Board of Directors has determined that the Company’s business relationships with those companies do not constitute material business relationships. This determination was made in accordance with the Company’s related party transaction policy which was prepared based on the Swiss Code of Best Practice and the independence criteria set forth in the corporate governance rules of the New York Stock Exchange.

Note 16—Income taxes

“Income tax expense” consisted of the following:

| (\$ in millions) | 2020 | 2019 | 2018 |
|--|------------|------------|------------|
| Current taxes | 776 | 855 | 686 |
| Deferred taxes | (280) | (83) | (142) |
| Income tax expense allocated to continuing operations | 496 | 772 | 544 |
| Income tax expense allocated to discontinued operations | 322 | 167 | 228 |

Income tax expense from continuing operations is reconciled below from the Company’s weighted-average global tax rate (rather than from the Swiss domestic statutory tax rate) as the parent company of the ABB Group, ABB Ltd, is domiciled in Switzerland and income generated in jurisdictions outside of Switzerland (hereafter “foreign jurisdictions”) which has already been subject to corporate income tax in those foreign jurisdictions is, to a large extent, tax exempt in Switzerland. There is no requirement in Switzerland for any parent company of a group to file a tax return of the consolidated group determining domestic and foreign pre-tax income. As the Company’s consolidated income from continuing operations is predominantly earned outside of Switzerland, the weighted-average global tax rate of the Company results from enacted corporate income tax rates in foreign jurisdictions.

The reconciliation of “Income tax expense from continuing operations” at the weighted-average tax rate to the effective tax rate is as follows:

| (\$ in millions, except % data) | 2020 | 2019 | 2018 |
|---|--------------|--------------|--------------|
| Income from continuing operations before income taxes | 841 | 1,862 | 2,119 |
| Weighted-average global tax rate | 22.9% | 18.3% | 22.2% |
| Income taxes at weighted-average tax rate | 193 | 341 | 470 |
| Items taxed at rates other than the weighted-average tax rate | 3 | (7) | (43) |
| Unrecognized tax benefits | (38) | 133 | (22) |
| Changes in valuation allowance, net | 29 | 198 | 41 |
| Effects of changes in tax laws and (enacted) tax rates | 23 | 63 | 1 |
| Non-deductible expenses (including impairment of goodwill) | 232 | 44 | 86 |
| Other, net | 54 | — | 11 |
| Income tax expense from continuing operations | 496 | 772 | 544 |
| Effective tax rate for the year | 59.0% | 41.5% | 25.7% |

The allocation of consolidated income from continued operations, which is predominantly earned outside of Switzerland, impacts the “weighted-average global tax rate”. In 2019, based on the enacted tax rates in the applicable jurisdictions, the loss recorded for the planned sale of the solar inverters business reduced the weighted-average global tax rate by approximately 2 percent.

In 2018, the benefit reported in “Items taxed at rates other than the weighted-average tax rate” included positive impacts of \$17 million, relating to non-taxable amounts for net gains from sale of businesses. In 2020 and 2019, the amount was not significant.

In 2020, “Changes in valuation allowance, net” predominantly reflects increases in the valuation allowance resulting from changes in expectations of future economic conditions due to impacts on the Company’s business from the COVID-19 pandemic.

In 2019, “Changes in valuation allowance, net” included adjustments to the valuation allowance in certain jurisdictions where the Company updated its assessment that it was more likely than not that such deferred tax assets would be realized. In 2019, the Company recorded an increase of \$158 million to the valuation allowance in certain operations in North America, including an amount to provide for certain deferred tax assets arising in 2019.

In 2018, the “Changes in valuation allowance, net” included adjustments in valuation allowance recorded in certain jurisdictions where the Company updated its assessment that it was more likely than not that such deferred tax assets would be realized. The amount included an increase of \$40 million relating to certain operations in Central Europe.

In 2020, “Effects of changes in tax laws and (enacted) tax rates” primarily reflects the impact of changes to tax rates in certain countries in Asia by \$16 million. In 2019, “Effects of changes in tax laws and (enacted) tax rates” primarily reflects a change in tax law applicable to a country in Europe. The benefit in 2019 was mostly offset by a related change in the valuation allowance, resulting in a net benefit of \$17 million.

In 2020, the impact on the income tax expense from “Non-deductible expenses” was \$232 million, and includes an impact of \$82 million for the impairment of non-deductible goodwill. In addition, the amount in 2020 includes \$62 million relating to non-operational pension costs resulting from the settlement of certain defined benefit plans which were principally not deductible. Non-deductible expenses also includes other items that were deducted for financial accounting purposes but are typically not tax deductible, such as interest expense, local taxes on productive activities, disallowed meals and entertainment expenses and other similar items. The amounts in 2019 and 2018 related primarily to these typically non-deductible items.

In 2020 and 2018, “Unrecognized tax benefits” in the table above included a net benefit of \$20 million and \$22 million, respectively, related to the interpretation for tax law and double tax treaty agreements by competent tax authorities while in 2019, “Unrecognized tax benefits” included a net charge of \$91 million.

In 2020, “Other, net” represents income tax expense of \$54 million related to finalization of tax audits in Europe.

Deferred tax assets and liabilities (excluding amounts held for sale and in discontinued operations) consisted of the following:

| (\$ in millions) | December 31, | |
|---|----------------|----------------|
| | 2020 | 2019 |
| <i>Deferred tax assets:</i> | | |
| Unused tax losses and credits | 758 | 507 |
| Provisions and other accrued liabilities | 750 | 650 |
| Other current assets including receivables | 114 | 121 |
| Pension | 413 | 592 |
| Inventories | 370 | 463 |
| Intangible assets | 873 | 972 |
| Other | 76 | 179 |
| Total gross deferred tax asset | 3,354 | 3,484 |
| Valuation allowance | (1,518) | (1,632) |
| Total gross deferred tax asset, net of valuation allowance | 1,836 | 1,852 |
| <i>Deferred tax liabilities:</i> | | |
| Property, plant and equipment | (275) | (244) |
| Intangible assets | (419) | (483) |
| Other assets | (65) | (161) |
| Pension | (223) | (214) |
| Other liabilities | (310) | (359) |
| Inventories | (29) | (39) |
| Unremitted earnings of subsidiaries | (333) | (353) |
| Total gross deferred tax liability | (1,654) | (1,853) |
| Net deferred tax asset (liability) | 182 | (1) |
| <i>Included in:</i> | | |
| “Deferred taxes”—non-current assets | 843 | 910 |
| “Deferred taxes”—non-current liabilities | (661) | (911) |
| Net deferred tax asset (liability) | 182 | (1) |

Certain entities have deferred tax assets related to net operating loss carry-forwards and other items. As recognition of these assets in certain entities did not meet the more likely than not criterion, valuation allowances have been recorded. “Unused tax losses and credits” at December 31, 2020 and 2019, in the table above, included \$170 million and \$126 million, respectively, for which the Company has established a valuation allowance as, due to limitations imposed by the relevant tax law, the Company determined that, more likely than not, such deferred tax assets would not be realized.

The valuation allowance at December 31, 2020, 2019 and 2018, was \$1,518 million, \$1,632 million and \$1,535 million, respectively.

At December 31, 2020 and 2019, deferred tax liabilities totaling \$333 million and \$353 million, respectively, have been provided for withholding taxes, dividend distribution taxes or additional corporate income taxes (hereafter “withholding taxes”) on unremitted earnings which will be payable in foreign jurisdictions in the event of repatriation of the foreign earnings to Switzerland. Income which has been generated outside of Switzerland and has already been subject to corporate income tax in such foreign jurisdictions is, to a large extent, tax exempt in Switzerland and therefore, generally no or only limited Swiss income tax has to be provided for on the repatriated earnings of foreign subsidiaries.

Certain countries levy withholding taxes on dividend distributions and these taxes cannot always be fully reclaimed by the Company's relevant subsidiary receiving the dividend although the taxes have to be withheld and paid by the relevant subsidiary distributing such dividend. In 2020 and 2019, certain taxes arose in certain foreign jurisdictions for which the technical merits do not allow utilization of benefits. At December 31, 2020 and 2019, foreign subsidiary retained earnings subject to withholding taxes upon distribution of approximately \$100 million and \$100 million, respectively, were considered as indefinitely reinvested, as these funds are used for financing current operations as well as business growth through working capital and capital expenditure in those countries and, consequently, no deferred tax liability was recorded.

At December 31, 2020, net operating loss carry-forwards of \$3,033 million and tax credits of \$82 million were available to reduce future income taxes of certain subsidiaries. Of these amounts, \$1,682 million of operating loss carry-forwards and \$57 million of tax credits will expire in varying amounts through 2042, while the remainder are available for carryforward indefinitely. The largest amount of these carry-forwards related to the Company's Europe operations.

Unrecognized tax benefits consisted of the following:

| (\$ in millions) | Unrecognized tax benefits | Penalties and interest related to unrecognized tax benefits | Total |
|--|------------------------------|---|--------------|
| Classification as unrecognized tax items on January 1, 2018 | 1,025 | 242 | 1,267 |
| Net change due to acquisitions and divestments | 8 | — | 8 |
| Increase relating to prior year tax positions | 35 | 37 | 72 |
| Decrease relating to prior year tax positions | (99) | 14 | (85) |
| Increase relating to current year tax positions | 126 | 5 | 131 |
| Decrease due to settlements with tax authorities | (44) | (17) | (61) |
| Decrease as a result of the applicable statute of limitations | (66) | (31) | (97) |
| Exchange rate differences | (24) | (11) | (35) |
| Balance at December 31, 2018, which would, if recognized, affect the effective tax rate | 961 | 239 | 1,200 |
| Net change due to acquisitions and divestments | 11 | 7 | 18 |
| Increase relating to prior year tax positions | 202 | 85 | 287 |
| Decrease relating to prior year tax positions | (82) | (63) | (145) |
| Increase relating to current year tax positions | 163 | 6 | 169 |
| Decrease due to settlements with tax authorities | (57) | (8) | (65) |
| Decrease as a result of the applicable statute of limitations | (83) | (28) | (111) |
| Exchange rate differences | (9) | (5) | (14) |
| Balance at December 31, 2019, which would, if recognized, affect the effective tax rate | 1,106 | 233 | 1,339 |
| Net change due to acquisitions and divestments | 1 | — | 1 |
| Increase relating to prior year tax positions | 298 | 96 | 394 |
| Decrease relating to prior year tax positions | (161) | (57) | (218) |
| Increase relating to current year tax positions | 390 | 5 | 395 |
| Decrease due to settlements with tax authorities | (340) | (75) | (415) |
| Decrease as a result of the applicable statute of limitations | (59) | (16) | (75) |
| Exchange rate differences | 63 | 6 | 69 |
| Balance at December 31, 2020, which would, if recognized, affect the effective tax rate | 1,298 | 192 | 1,490 |

In 2020, the "Increase relating to current year tax positions" included a total of \$381 million, in taxes related to the interpretation of tax law and double tax treaty agreements by competent tax authorities, of which \$301 million is reported as Income tax expense in discontinued operations.

In 2019 and 2018, the “Increase relating to current year tax positions” included a total of \$163 million and \$111 million, respectively, in taxes related to the interpretation of tax law and double tax treaty agreements by competent tax authorities.

In 2020, the “Increase relating to prior year tax positions” is predominantly related to the interpretation of tax law and double tax treaty agreements by competent tax authorities in Europe, of which \$73 million is reported as Income tax expense in discontinued operations.

In 2020, the “Decrease relating to prior year tax positions” included a total of \$85 million related to a change of interpretation of tax law in Asia and changed tax risk assessments in Europe of \$59 million.

In 2020, the “Decrease due to settlements with tax authorities” is predominantly related to closed tax audits in Europe.

At December 31, 2020, the Company expected the resolution, within the next twelve months, of unrecognized tax benefits related to pending court cases amounting to \$32 million for income taxes, penalties and interest. Otherwise, the Company had not identified any other significant changes which were considered reasonably possible to occur within the next twelve months.

At December 31, 2020, the earliest significant open tax years that remained subject to examination were the following:

| Region | Year |
|--------------------------------------|------|
| Europe | 2015 |
| United States | 2017 |
| Rest of Americas | 2015 |
| China | 2011 |
| Rest of Asia, Middle East and Africa | 2011 |

Note 17—Employee benefits

The Company operates defined benefit pension plans, defined contribution pension plans, and termination indemnity plans, in accordance with local regulations and practices. At December 31, 2020, the Company’s most significant defined benefit pension plans are in Switzerland as well as in Germany, the United Kingdom, and the United States. These plans cover a large portion of the Company’s employees and provide benefits to employees in the event of death, disability, retirement, or termination of employment. Certain of these plans are multi-employer plans. The Company also operates other postretirement benefit plans including postretirement health care benefits and other employee-related benefits for active employees including long-service award plans. The measurement date used for the Company’s employee benefit plans is December 31. The funding policies of the Company’s plans are consistent with the local government and tax requirements.

During 2020, the Company took steps to transfer the defined benefit pension risks in three International countries to external financial institutions. Two of these plans were settled entirely for accounting purposes while the third plan involved the settlement of specific obligations for certain former employees. In connection with these transactions, the Company made net payments of \$309 million and recorded non-operational pension charges of \$520 million which are included in net periodic benefit cost as curtailments, settlements and special termination benefits. The Company also made cash payments of \$143 million and recorded non-operational pension charges of \$101 million in 2020 for the settlement of pension obligations in discontinued operations.

The Company recognizes in its Consolidated Balance Sheets the funded status of its defined benefit pension plans, postretirement plans, and other employee-related benefits measured as the difference between the fair value of the plan assets and the benefit obligation.

Unless otherwise indicated, the following tables include amounts relating to both continuing and discontinued operations.

Obligations and funded status of the plans

The change in benefit obligation, change in fair value of plan assets, and funded status recognized in the Consolidated Balance Sheets were as follows:

| (\$ in millions) | Defined pension benefits | | | | Other postretirement benefits | |
|---|--------------------------|--------------|---------------|----------------|-------------------------------|--------------|
| | Switzerland | | International | | International | |
| | 2020 | 2019 | 2020 | 2019 | 2020 | 2019 |
| Benefit obligations at January 1, | 4,308 | 3,993 | 7,878 | 7,429 | 110 | 120 |
| Service cost | 74 | 76 | 92 | 113 | 1 | 1 |
| Interest cost | 6 | 15 | 111 | 174 | 3 | 4 |
| Contributions by plan participants | 72 | 75 | 12 | 19 | — | — |
| Benefit payments | (160) | (133) | (295) | (302) | (12) | (10) |
| Settlements | (101) | (111) | (2,542) | (102) | — | — |
| Benefit obligations of businesses acquired (divested) | (765) | — | (165) | (21) | (5) | — |
| Actuarial (gain) loss | 71 | 323 | 214 | 617 | 4 | (1) |
| Plan amendments and other | — | — | (64) | 9 | (3) | (5) |
| Exchange rate differences | 365 | 70 | 286 | (58) | — | 1 |
| Benefit obligation at December 31, | 3,870 | 4,308 | 5,527 | 7,878 | 98 | 110 |
| Fair value of plan assets at January 1, | 4,189 | 3,879 | 6,246 | 5,866 | — | — |
| Actual return on plan assets | 191 | 320 | 375 | 689 | — | — |
| Contributions by employer | 228 | 91 | 611 | 115 | 12 | 10 |
| Contributions by plan participants | 72 | 75 | 12 | 19 | — | — |
| Benefit payments | (160) | (133) | (295) | (302) | (12) | (10) |
| Settlements | (101) | (111) | (2,542) | (102) | — | — |
| Plan assets of businesses acquired (divested) | (664) | — | (82) | (12) | — | — |
| Plan amendments and other | — | — | 62 | — | — | — |
| Exchange rate differences | 378 | 68 | 221 | (27) | — | — |
| Fair value of plan assets at December 31, | 4,133 | 4,189 | 4,608 | 6,246 | — | — |
| Funded status — overfunded (underfunded) | 263 | (119) | (919) | (1,632) | (98) | (110) |

The amounts recognized in "Accumulated other comprehensive loss" and "Noncontrolling interests" were:

| (\$ in millions) | December 31, | | | | | |
|---|--------------------------|----------------|----------------|-------------------------------|-----------|-----------|
| | 2020 | 2019 | 2018 | 2020 | 2019 | 2018 |
| | Defined pension benefits | | | Other postretirement benefits | | |
| Net actuarial (loss) gain | (2,038) | (2,782) | (2,628) | 21 | 28 | 30 |
| Prior service credit | 75 | 59 | 74 | 11 | 13 | 23 |
| Amount recognized in OCI⁽¹⁾ and NCI⁽²⁾ | (1,963) | (2,723) | (2,554) | 32 | 41 | 53 |
| Taxes associated with amount recognized in OCI and NCI | 374 | 536 | 535 | — | — | — |
| Amount recognized in OCI and NCI, net of tax⁽³⁾ | (1,589) | (2,187) | (2,019) | 32 | 41 | 53 |

(1) OCI represents "Accumulated other comprehensive loss".

(2) NCI represents "Noncontrolling interests".

(3) NCI, net of tax, amounted to \$(1) million, \$(1) million, and \$(1) million at December 31, 2020, 2019 and 2018.

In addition, the following amounts were recognized in the Company's Consolidated Balance Sheets:

| | December 31, | | | | | |
|---|-----------------|--------------|---------------|----------------|----------------------|--------------|
| | 2020 | 2019 | 2020 | 2019 | 2020 | 2019 |
| | Defined pension | | | | Other postretirement | |
| | benefits | | | | benefits | |
| (\$ in millions) | Switzerland | | International | | International | |
| Overfunded plans | 267 | 62 | 92 | 71 | — | — |
| Underfunded plans — current | — | (78) | (22) | (295) | (9) | (14) |
| Underfunded plans — non-current | (4) | (103) | (989) | (1,408) | (89) | (96) |
| Funded status - underfunded | 263 | (119) | (919) | (1,632) | (98) | (110) |
| <i>Amounts reported as assets and liabilities held for sale</i> | — | (78) | — | (277) | — | (5) |

| | December 31, | |
|--|--------------|------------|
| | 2020 | 2019 |
| (\$ in millions) | | |
| Non-current assets | | |
| Overfunded pension plans | 359 | 132 |
| Other employee-related benefits | 1 | 1 |
| Pension and other employee benefits | 360 | 133 |

| | December 31, | |
|--|--------------|--------------|
| | 2020 | 2019 |
| (\$ in millions) | | |
| Current liabilities | | |
| Underfunded pension plans | (22) | (374) |
| Underfunded other postretirement benefit plans | (9) | (14) |
| Other employee-related benefits | (11) | (72) |
| Pension and other employee benefits | (42) | (460) |
| <i>Amounts reported as Current liabilities held for sale</i> | — | (424) |

| | December 31, | |
|--|----------------|----------------|
| | 2020 | 2019 |
| (\$ in millions) | | |
| Non-current liabilities | | |
| Underfunded pension plans | (993) | (1,510) |
| Underfunded other postretirement benefit plans | (89) | (96) |
| Other employee-related benefits | (149) | (186) |
| Pension and other employee benefits | (1,231) | (1,792) |

The accumulated benefit obligation (ABO) for all defined benefit pension plans was \$9,310 million and \$11,981 million at December 31, 2020 and 2019, respectively. The projected benefit obligation (PBO), ABO and fair value of plan assets, for pension plans with a PBO in excess of fair value of plan assets or ABO in excess of fair value of plan assets, was:

| (\$ in millions) | PBO exceeds fair value of plan assets | | | | ABO exceeds fair value of plan assets | | | |
|---------------------------|---------------------------------------|-------|---------------|-------|---------------------------------------|-------|---------------|-------|
| | Switzerland | | International | | Switzerland | | International | |
| | 2020 | 2019 | 2020 | 2019 | 2020 | 2019 | 2020 | 2019 |
| December 31, | | | | | | | | |
| PBO | 13 | 3,769 | 5,131 | 7,346 | 13 | 3,769 | 5,008 | 7,228 |
| ABO | 13 | 3,769 | 5,056 | 7,156 | 13 | 3,769 | 4,942 | 7,054 |
| Fair value of plan assets | 9 | 3,588 | 4,120 | 5,643 | 9 | 3,588 | 4,004 | 5,537 |

All of the Company's other postretirement benefit plans are unfunded.

Components of net periodic benefit cost

Net periodic benefit cost consisted of the following:

| (\$ in millions) | Defined pension benefits | | | | | | Other postretirement benefits | | |
|--|--------------------------|--------------|--------------|---------------|------------|------------|-------------------------------|-------------|------------|
| | Switzerland | | | International | | | International | | |
| | 2020 | 2019 | 2018 | 2020 | 2019 | 2018 | 2020 | 2019 | 2018 |
| Operational pension cost: | | | | | | | | | |
| Service cost | 74 | 76 | 92 | 92 | 113 | 122 | 1 | 1 | 1 |
| Operational pension cost | 74 | 76 | 92 | 92 | 113 | 122 | 1 | 1 | 1 |
| Non-operational pension cost (credit): | | | | | | | | | |
| Interest cost | 6 | 15 | 30 | 111 | 174 | 198 | 3 | 4 | 4 |
| Expected return on plan assets | (123) | (112) | (117) | (253) | (276) | (305) | — | — | — |
| Amortization of prior service cost (credit) | (11) | (14) | (15) | 2 | 2 | 1 | (2) | (5) | (5) |
| Amortization of net actuarial loss | 7 | — | — | 109 | 108 | 92 | (3) | (3) | (1) |
| Curtailments, settlements and special termination benefits | 6 | 11 | — | 644 | 27 | 23 | — | (10) | — |
| Non-operational pension cost (credit) | (115) | (100) | (102) | 613 | 35 | 9 | (2) | (14) | (2) |
| Net periodic benefit cost | (41) | (24) | (10) | 705 | 148 | 131 | (1) | (13) | (1) |

The components of net periodic benefit cost other than the service cost component are included in the line Non-operational pension (cost) credit in the income statement. Net periodic benefit cost includes \$121 million, \$47 million and \$45 million in 2020, 2019 and 2018, respectively, related to discontinued operations.

Assumptions

The following weighted-average assumptions were used to determine benefit obligations:

| (in %) | December 31, | | | | | |
|-----------------------------------|--------------------------|------|---------------|------|-------------------------------|------|
| | 2020 | 2019 | 2020 | 2019 | 2020 | 2019 |
| | Defined pension benefits | | | | Other postretirement benefits | |
| | Switzerland | | International | | International | |
| Discount rate | — | 0.2 | 1.6 | 2.0 | 2.1 | 2.8 |
| Rate of compensation increase | — | — | 1.0 | 2.2 | 0.2 | 0.2 |
| Rate of pension increase | — | — | 1.4 | 1.3 | — | — |
| Cash balance interest credit rate | 1.0 | 1.0 | 2.1 | 1.6 | — | — |

For the Company's significant benefit plans, the discount rate used at each measurement date is set based on a high-quality corporate bond yield curve (derived based on bond universe information sourced from reputable third-party index and data providers and rating agencies) reflecting the timing, amount and currency of the future expected benefit payments for the respective plan. Consistent discount rates are used across all plans in each currency zone, based on the duration of the applicable plan(s) in that zone. For plans in the other countries, the discount rate is based on high quality corporate or government bond yields applicable in the respective currency, as appropriate at each measurement date with a duration broadly consistent with the respective plan's obligations.

At the end of 2018, the Company changed the approach used to calculate the service and interest components of net periodic benefit cost for its significant benefit plans to provide a more precise measurement of service and interest costs. This change compared to the previous approach resulted in a net decrease in the service and interest components for benefit cost in 2019. Previously, the Company calculated the service and interest cost components utilizing a single weighted-average discount rate derived from the yield curve used to measure the benefit obligation at the beginning of the period. The Company has elected to utilize an approach that discounts the individual expected cash flows using the applicable spot rates derived from the yield curve over the projected cash flow period. This change does not affect the measurement of our total benefit obligations.

The following weighted-average assumptions were used to determine the "Net periodic benefit cost":

| (in %) | Defined pension benefits | | | | | | Other postretirement benefits | | |
|--|--------------------------|------|------|---------------|------|------|-------------------------------|------|------|
| | Switzerland | | | International | | | International | | |
| | 2020 | 2019 | 2018 | 2020 | 2019 | 2018 | 2020 | 2019 | 2018 |
| | 2020 | 2019 | 2018 | 2020 | 2019 | 2018 | 2020 | 2019 | 2018 |
| Discount rate | 0.3 | 0.8 | 0.8 | 1.9 | 2.8 | 2.6 | 2.8 | 3.9 | 3.2 |
| Expected long-term rate of return on plan assets | 3.0 | 3.0 | 3.0 | 4.3 | 4.9 | 4.9 | — | — | — |
| Rate of compensation increase | — | — | — | 2.2 | 2.4 | 2.5 | 0.2 | 0.2 | — |
| Cash balance interest credit rate | 1.0 | 1.0 | 1.0 | 1.6 | 1.6 | 1.7 | — | — | — |

The "Expected long-term rate of return on plan assets" is derived for each benefit plan by considering the expected future long-term return assumption for each individual asset class. A single long-term return assumption is then derived for each plan based upon the plan's target asset allocation.

The Company maintains other postretirement benefit plans, which are generally contributory with participants' contributions adjusted annually. The assumptions used were:

| | December 31, | |
|--|--------------|------|
| | 2020 | 2019 |
| Health care cost trend rate assumed for next year | 5.9% | 6.3% |
| Rate to which the trend rate is assumed to decline (the ultimate trend rate) | 4.9% | 5.0% |
| Year that the rate reaches the ultimate trend rate | 2028 | 2028 |

Plan assets

The Company has pension plans in various countries with the majority of the Company's pension liabilities deriving from a limited number of these countries.

The pension plans are typically funded by regular contributions from employees and the Company. These plans are typically administered by boards of trustees (which include Company representatives) whose primary responsibilities include ensuring that the plans meet their liabilities through contributions and investment returns. The boards of trustees have the responsibility for making key investment strategy decisions within a risk-controlled framework.

The pension plan assets are invested in diversified portfolios that are managed by third-party asset managers, in accordance with local statutory regulations, pension plan rules and the respective plans' investment guidelines, as approved by the boards of trustees.

Plan assets are generally segregated from those of the Company and invested with the aim of meeting the respective plans' projected future pension liabilities. Plan assets are measured at fair value at the balance sheet date.

The boards of trustees manage the assets of the pension plans in a risk-controlled manner and assess the risks embedded in the pension plans through asset/liability management studies. Asset/liability management studies typically take place every three years. However, the risks of the plans are monitored on an ongoing basis.

The board of trustees' investment goal is to maximize the long-term returns of plan assets within specified risk parameters, while considering the future liabilities and liquidity needs of the individual plans. Risk measures taken into account include the funding ratio of the plan, the likelihood of extraordinary cash contributions being required, the risk embedded in each individual asset class, and the plan asset portfolio as a whole.

The Company's global pension asset allocation is the result of the asset allocations of the individual plans, which are set by the respective boards of trustees. The target asset allocation of the Company's plans on a weighted-average basis is as follows:

| (in %) | Target | |
|--------------------|-------------|---------------|
| | Switzerland | International |
| Asset class | | |
| Equity | 19 | 16 |
| Fixed income | 54 | 68 |
| Real estate | 22 | 6 |
| Other | 5 | 10 |
| Total | 100 | 100 |

The actual asset allocations of the plans are in line with the target asset allocations.

Equity securities primarily includes investments in large-cap and mid-cap publicly traded companies. Fixed income assets primarily include corporate bonds of companies from diverse industries and government bonds. Both fixed income and equity assets are invested either via funds or directly in segregated investment mandates, and include an allocation to emerging markets. Real estate consists primarily of investments in real estate in Switzerland held in the Swiss plans. The “Other” asset class includes investments in private equity, hedge funds, commodities, and cash, and reflects a variety of investment strategies.

Based on the above global asset allocation and the fair values of the plan assets, the expected long-term return on assets at December 31, 2020, is 3.5 percent. The Company and the local boards of trustees regularly review the investment performance of the asset classes and individual asset managers. Due to the diversified nature of the investments, the Company is of the opinion that no significant concentration of risks exists in its pension fund assets.

At December 31, 2020 and 2019, plan assets include ABB Ltd’s shares (as well as an insignificant amount of the Company’s debt instruments) with a total value of \$8 million and \$10 million, respectively.

The fair values of the Company’s pension plan assets by asset class are presented below. For further information on the fair value hierarchy and an overview of the Company’s valuation techniques applied, see the “Fair value measures” section of Note 2.

| (\$ in millions) | December 31, 2020 | | |
|--|-------------------|--------------|--|
| | Level 1 | Level 2 | Not subject to leveling ⁽¹⁾ |
| Asset class | | | Total fair value |
| Equity | | | |
| Equity securities | 180 | 5 | 185 |
| Mutual funds/commingled funds | | 1,298 | 1,298 |
| Emerging market mutual funds/commingled funds | | 243 | 243 |
| Fixed income | | | |
| Government and corporate securities | 389 | 1,415 | 1,804 |
| Government and corporate—mutual funds/commingled funds | | 2,876 | 2,876 |
| Emerging market bonds—mutual funds/commingled funds | | 547 | 547 |
| Real estate | | | 1,289 |
| Insurance contracts | | 50 | 50 |
| Cash and short-term investments | 103 | 190 | 293 |
| Private equity | | | 156 |
| Hedge funds | | | 1 |
| Total | 672 | 6,624 | 1,446 |
| | | | 8,742 |

| (\$ in millions) | December 31, 2019 | | | |
|--|-------------------|--------------|--|------------------|
| | Level 1 | Level 2 | Not subject to leveling ⁽¹⁾ | Total fair value |
| Asset class | | | | |
| Equity | | | | |
| Equity securities | 224 | 7 | | 231 |
| Mutual funds/commingled funds | | 1,687 | 23 | 1,710 |
| Emerging market mutual funds/commingled funds | | 339 | | 339 |
| Fixed income | | | | |
| Government and corporate securities | 521 | 1,013 | | 1,534 |
| Government and corporate—mutual funds/commingled funds | | 3,738 | 31 | 3,769 |
| Emerging market bonds—mutual funds/commingled funds | | 805 | | 805 |
| Real estate | | | 1,433 | 1,433 |
| Insurance contracts | | 123 | | 123 |
| Cash and short-term investments | 101 | 152 | | 253 |
| Private equity | | | 211 | 211 |
| Hedge funds | | | 1 | 1 |
| Commodities | | 26 | | 26 |
| Total | 846 | 7,890 | 1,699 | 10,435 |

(1) Amounts relate to assets measured using the NAV practical expedient which are not subject to leveling.

The Company applies accounting guidance related to the presentation of certain investments using the net asset value (NAV) practical expedient. This accounting guidance exempts investments using this practical expedient from categorization within the fair value hierarchy. Investments measured at NAV are primarily non exchange-traded commingled or collective funds in private equity and real estate where the fair value of the underlying assets is determined by the investment manager. Investments in private equity can never be redeemed, but instead the funds will make distributions through liquidation of the underlying assets. Total unfunded commitments for the private equity funds were approximately \$115 million at December 31, 2020. The real estate funds are typically subject to a lock-in period of up to three years after subscribing. After this period, the real estate funds typically offer a redemption notice of three to twelve months.

Contributions

Employer contributions were as follows:

| (\$ in millions) | Defined pension benefits | | | | Other postretirement benefits | |
|---|--------------------------|------|---------------|------|-------------------------------|------|
| | Switzerland | | International | | International | |
| | 2020 | 2019 | 2020 | 2019 | 2020 | 2019 |
| Total contributions to defined benefit pension and other postretirement benefit plans | 228 | 91 | 611 | 115 | 12 | 10 |
| Of which, discretionary contributions to defined benefit pension plans | 152 | 2 | 520 | 8 | — | — |

In 2020, total contributions included non-cash contributions totaling \$224 million of available-for-sale debt securities to certain of the Company's pension plans in Switzerland and the United Kingdom. The contributions in 2019 and 2018 were not significant.

The Company expects to contribute approximately \$156 million, including \$35 million in discretionary contributions, to its defined benefit pension plans in 2021. Of these discretionary contributions, \$14 million are expected to be non-cash contributions. The Company expects to contribute approximately \$9 million to its other postretirement benefit plans in 2021.

The Company also contributes to a number of defined contribution plans. The aggregate expense for these plans in continuing operations was \$205 million, \$190 million and \$186 million in 2020, 2019 and 2018, respectively. Contributions to multi-employer plans were not significant in 2020, 2019 and 2018.

Estimated future benefit payments

The expected future cash flows to be paid by the Company's plans in respect of pension and other postretirement benefit plans at December 31, 2020, are as follows:

| (\$ in millions) | Defined pension benefits | | Other postretirement benefits |
|-------------------|--------------------------|---------------|-------------------------------|
| | Switzerland | International | International |
| 2021 | 347 | 314 | 9 |
| 2022 | 235 | 264 | 9 |
| 2023 | 219 | 257 | 8 |
| 2024 | 209 | 261 | 8 |
| 2025 | 200 | 264 | 7 |
| Years 2026 - 2030 | 877 | 1,308 | 29 |

Note 18—Share-based payment arrangements

The Company has granted share-based instruments to its employees under three principal share-based payment plans, as more fully described in the respective sections below. Compensation cost for equity-settled awards is recorded in Total cost of sales and in Selling, general and administrative expenses and totaled \$44 million, \$46 million and \$50 million in 2020, 2019 and 2018, respectively, while compensation cost for cash-settled awards, recorded in Selling, general and administrative expenses, was not significant, as mentioned in the WARs, LTIP and Other share-based payments sections of this note. The total tax benefit recognized in 2020, 2019 and 2018 was not significant.

At December 31, 2020, the Company had the ability to issue up to 94 million new shares out of contingent capital in connection with share-based payment arrangements. In addition, 28 million of the 137 million shares held by the Company as treasury stock at December 31, 2020, could be used to settle share-based payment arrangements.

As the primary trading market for the shares of ABB Ltd is the SIX Swiss Exchange (on which the shares are traded in Swiss francs) and substantially all the share-based payment arrangements with employees are based on the Swiss franc share or have strike prices set in Swiss francs, certain data disclosed below related to the instruments granted under share-based payment arrangements are presented in Swiss francs.

Management Incentive Plan

Up to 2019, the Company offered, under the MIP, options and cash-settled WARs to key employees for no consideration. Starting in 2020, the employee group previously eligible to receive grants under the MIP were granted shares under the LTIP (see LTIP section below) and consequently no grants were made in 2020 under the MIP.

The options granted under the MIP allow participants to purchase shares of ABB Ltd at predetermined prices. Participants may sell the options rather than exercise the right to purchase shares. Equivalent warrants are listed by a third-party bank on the SIX Swiss Exchange, which facilitates pricing and transferability of options granted under this plan. The options entitle the holder to request that the third-party bank purchase such options at the market price of equivalent listed warrants related to that MIP launch. If the participant elects to sell the options, the options will thereafter be held by a third party and, consequently, the Company's obligation to deliver shares will be toward this third party.

Each WAR gives the participant the right to receive, in cash, the market price of an equivalent listed warrant on the date of exercise of the WAR. Participants may exercise or sell options and exercise WARs after the vesting period, which is three years from the date of grant. All options and WARs expire six years from the date of grant.

Options

The fair value of each option was estimated on the date of grant using a lattice model that used the assumptions noted in the table below. Expected volatilities were based on implied volatilities from equivalent listed warrants on ABB Ltd shares. The expected term of the options granted is the contractual six-year life of each option, based on the fact that after the vesting period, a participant can elect to sell the option rather than exercise the right to purchase shares, thereby also realizing the time value of the options. The risk-free rate was based on a six-year Swiss franc interest rate, reflecting the six-year contractual life of the options. In estimating forfeitures, the Company used data from previous comparable MIP launches.

| | 2019 | 2018 |
|-------------------------|---------|---------|
| Expected volatility | 19% | 17% |
| Dividend yield | 4.7% | 3.1% |
| Expected term | 6 years | 6 years |
| Risk-free interest rate | -0.9% | -0.1% |

Presented below is a summary of the activity related to options under the MIP:

| | Number of options (in millions) | Number of shares (in millions) ⁽¹⁾ | Weighted- average exercise price (in Swiss francs) ⁽²⁾ | Weighted- average remaining contractual term (in years) | Aggregate intrinsic value (in millions of Swiss francs) ⁽³⁾ |
|---|---------------------------------------|---|--|--|---|
| Outstanding at January 1, 2020 | 417.6 | 83.5 | 21.13 | | |
| Exercised ⁽⁴⁾ | (72.5) | (14.5) | 21.00 | | |
| Forfeited | (8.9) | (1.8) | 21.16 | | |
| Expired | (0.1) | — | 21.00 | | |
| Outstanding at December 31, 2020 | 336.1 | 67.2 | 21.16 | 2.5 | 239 |
| Vested and expected to vest at December 31, 2020 | 336.1 | 67.2 | 21.16 | 2.5 | 239 |
| Exercisable at December 31, 2020 | 261.0 | 52.2 | 21.15 | 2.0 | 186 |

- (1) Information presented reflects the number of ABB Ltd shares that can be received upon exercise, as options have a conversion ratio of 5:1.
- (2) Information presented reflects the exercise price per ABB Ltd share.
- (3) Computed using the closing price, in Swiss francs, of ABB Ltd shares on the SIX Swiss Exchange and the exercise price of each option in Swiss francs.
- (4) The cash received upon exercise amounted to approximately \$334 million. The shares were delivered out of treasury stock.

At December 31, 2020, there was \$12 million of total unrecognized compensation cost related to non-vested options granted under the MIP. That cost is expected to be recognized over a weighted-average period of 1.3 years. The weighted-average grant-date fair value (per option) of options granted during 2019 and 2018 was 0.34 Swiss francs and 0.46 Swiss francs, respectively. As mentioned previously, no options were granted in 2020. In 2020 and 2018, the aggregate intrinsic value (on the date of exercise) of options exercised was \$38 million and \$13 million, respectively, while the amount in 2019 was not significant.

Presented below is a summary, by launch, related to options outstanding at December 31, 2020:

| | Number of options (in millions) | Number of shares (in millions) ⁽²⁾ | Weighted- average remaining contractual term (in years) |
|---|---------------------------------------|---|---|
| Exercise price (in Swiss francs) ⁽¹⁾ | | | |
| 19.50 | 77.9 | 15.6 | 0.6 |
| 21.50 | 72.7 | 14.5 | 1.7 |
| 22.50 | 63.9 | 12.8 | 2.6 |
| 23.50 | 62.4 | 12.5 | 3.7 |
| 19.00 | 59.2 | 11.8 | 4.7 |
| Total number of options and shares | 336.1 | 67.2 | 2.5 |

(1) Information presented reflects the exercise price per share of ABB Ltd.

(2) Information presented reflects the number of shares of ABB Ltd that can be received upon exercise.

WARs

As each WAR gives the holder the right to receive cash equal to the market price of the equivalent listed warrant on date of exercise, the Company records a liability based upon the fair value of outstanding WARs at each period end, accreted on a straight-line basis over the three-year vesting period. In Selling, general and administrative expenses, the Company records the changes in both the fair value and vested portion of the outstanding WARs. To hedge its exposure to fluctuations in the fair value of outstanding WARs, the Company purchased cash-settled call options, which entitle the Company to receive amounts equivalent to its obligations under the outstanding WARs. The cash-settled call options are recorded as derivatives measured at fair value (see Note 6), with subsequent changes in fair value recorded in Selling, general and administrative expenses to the extent that they offset the change in fair value of the liability for the WARs. The total impact in Selling, general and administrative expenses in 2020, 2019 and 2018 was not significant.

The aggregate fair value of outstanding WARs was \$21 million and \$26 million at December 31, 2020 and 2019, respectively. The fair value of WARs was determined based upon the trading price of equivalent warrants listed on the SIX Swiss Exchange.

Presented below is a summary of the activity related to WARs:

| | Number of WARs (in millions) |
|---|---------------------------------|
| Outstanding at January 1, 2020 | 39.9 |
| Exercised | (17.1) |
| Forfeited | (0.7) |
| Outstanding at December 31, 2020 | 22.1 |
| Exercisable at December 31, 2020 | 9.0 |

The aggregate fair value at date of grant of WARs granted in 2019 and 2018 was not significant. As mentioned previously, no grants were made in 2020 under the MIP. In 2020, share-based liabilities of \$13 million were paid upon exercise of WARs by participants. The amounts in 2019 and 2018 were not significant.

Employee Share Acquisition Plan

The employee share acquisition plan (ESAP) is an employee stock-option plan with a savings feature. Employees save over a twelve-month period, by way of regular payroll deductions. At the end of the savings period, employees choose whether to exercise their stock options using their savings plus interest, if any, to buy ABB Ltd shares (American Depositary Shares (ADS) in the case of employees in the United States and Canada—each ADS representing one registered share of the Company) at the exercise price set at the grant date, or have their savings returned with any interest. The savings are accumulated in bank accounts held by a third-party trustee on behalf of the participants and earn interest, where applicable. Employees can withdraw from the ESAP at any time during the savings period and will be entitled to a refund of their accumulated savings.

The fair value of each option is estimated on the date of grant using the same option valuation model as described under the MIP, using the assumptions noted in the table below. The expected term of the option granted has been determined to be the contractual one-year life of each option, at the end of which the options vest and the participants are required to decide whether to exercise their options or have their savings returned with interest. The risk-free rate is based on one-year Swiss franc interest rates, reflecting the one-year contractual life of the options. In estimating forfeitures, the Company has used the data from previous ESAP launches.

| | 2020 | 2019 | 2018 |
|-------------------------|--------|--------|--------|
| Expected volatility | 24% | 18% | 19% |
| Dividend yield | 3.8% | 4.1% | 4.1% |
| Expected term | 1 year | 1 year | 1 year |
| Risk-free interest rate | -0.7% | -0.7% | -0.6% |

Presented below is a summary of activity under the ESAP:

| | Number of shares (in millions) ⁽¹⁾ | Weighted- average exercise price (in Swiss francs) ⁽²⁾ | Weighted- average remaining contractual term (in years) | Aggregate intrinsic value (in millions of Swiss francs) ⁽²⁾⁽³⁾ |
|---|---|--|--|--|
| Outstanding at January 1, 2020 | 2.3 | 20.78 | | |
| Granted | 2.1 | 22.87 | | |
| Forfeited | (0.1) | 20.79 | | |
| Exercised ⁽⁴⁾ | (1.4) | 20.78 | | |
| Not exercised (savings returned plus interest) | (0.8) | 20.78 | | |
| Outstanding at December 31, 2020 | 2.1 | 22.87 | 0.8 | 3.9 |
| Vested and expected to vest at December 31, 2020 | 2.0 | 22.87 | 0.8 | 3.8 |
| Exercisable at December 31, 2020 | — | — | — | — |

(1) Includes shares represented by ADS.

(2) Information presented for ADS is based on equivalent Swiss franc denominated awards.

(3) Computed using the closing price, in Swiss francs, of ABB Ltd shares on the SIX Swiss Exchange and the exercise price of each option in Swiss francs.

(4) The cash received in 2020 upon exercise was approximately \$28 million. The shares were delivered out of treasury stock.

The exercise prices per ABB Ltd share and per ADS of 22.87 Swiss francs and \$24.93, respectively, for the 2020 grant, 20.78 Swiss francs and \$20.17, respectively, for the 2019 grant, and 20.38 Swiss francs and \$20.37, respectively, for the 2018 grant were determined using the closing price of the ABB Ltd share on the SIX Swiss Exchange and ADS on the New York Stock Exchange on the respective grant dates.

At December 31, 2020, the total unrecognized compensation cost related to non-vested options granted under the ESAP was not significant. The weighted-average grant-date fair value (per option) of options granted during 2020, 2019 and 2018 was 1.67 Swiss francs, 1.05 Swiss francs and 1.10 Swiss francs, respectively. The total intrinsic value (on the date of exercise) of options exercised in 2020, 2019 and 2018 was not significant.

Long-Term Incentive Plan

The long-term incentive plan (LTIP) involves annual grants of the Company's stock subject to certain conditions (Performance Shares) to members of the Company's Executive Committee and selected other senior executives, as defined in the terms of the LTIP. In 2020, certain of the employee group previously eligible to receive grants under the MIP are now included in the LTIP. The ultimate amount delivered under the LTIP's Performance Shares grant is based on achieving certain results against targets, as set out below, over a three-year period from grant and the final amount is delivered to the participants at the end of this period. In addition, for certain awards to vest, the participant has to fulfill a three-year service condition as defined in the terms and conditions of the LTIP.

The Performance Shares under the 2020, 2019 and 2018 LTIP launches include a performance component, based on the Company's earnings per share performance, and a market component, based on the Company's relative total shareholder return.

For the relative total shareholder return component of the Performance Shares, the actual number of shares that will be delivered at a future date is based on the Company's total shareholder return performance relative to a peer group of companies over a three-year period starting with the year of grant. The actual number of shares that will ultimately be delivered will vary depending on the relative total shareholder return outcome achieved between a lower threshold (no shares delivered) and an upper threshold (the number of shares delivered is capped at 200 percent of the conditional grant).

For the earnings per share performance component of the Performance Shares, the actual number of shares that will be delivered at a future date is based on the Company's average earnings per share over three financial years, beginning with the year of launch. The actual number of shares that will ultimately be delivered will vary depending on the earnings per share outcome as computed under each LTIP launch, interpolated between a lower threshold (no shares delivered) and an upper threshold (the number of shares delivered is capped at 200 percent of the conditional grant).

Under the 2019 and 2018 LTIP launches, participants receive 65 percent of the shares that have vested in the form of shares and 35 percent of the value of the shares that have vested in cash, with the possibility to elect to also receive the 35 percent portion in shares rather than in cash. Under the 2020 LTIP launches, participants generally do not have the ability to receive any of the award in cash, subject to legal restrictions in certain jurisdictions.

Presented below is a summary of activity under the Performance Shares of the LTIP:

| | Number of Performance Shares (in millions) | Weighted-average grant-date fair value per share (Swiss francs) |
|---------------------------------------|--|--|
| Nonvested at January 1, 2020 | 1.0 | 19.26 |
| Granted | 1.4 | 10.50 |
| Vested | (0.7) | 15.72 |
| Forfeited | (0.4) | 16.41 |
| Nonvested at December 31, 2020 | 1.3 | 12.76 |

The aggregate fair value, at the dates of grant, of Performance Shares granted in 2019 and 2018 was \$18 million and \$19 million, respectively, while in 2020 it was not significant. The total grant-date fair value of shares that vested during 2019 and 2018 was \$21 million and \$17 million, respectively. The amount in 2020 was not significant. The weighted-average grant-date fair value (per share) of shares granted during 2020, 2019 and 2018 was 10.50 Swiss francs, 15.94 Swiss francs and 21.97 Swiss francs, respectively.

Starting in 2020, key employees which were previously eligible to participate in the MIP and which were not included in the employee group granted the Performance Shares described above, were granted Restricted Shares of the Company under the LTIP. The Restricted Shares do not have performance conditions and vest over a three-year period from the grant date.

Presented below is a summary of activity under the Restricted Shares of the LTIP:

| | Number of Restricted Shares (in millions) | Weighted-average grant-date fair value per share (Swiss francs) |
|---------------------------------------|---|--|
| Nonvested at January 1, 2020 | — | — |
| Granted | 1.3 | 15.76 |
| Forfeited | (0.1) | 15.20 |
| Nonvested at December 31, 2020 | 1.2 | 15.80 |

The aggregate fair value, at the dates of grant, of Restricted Shares granted in 2020 was \$22 million. The weighted-average grant-date fair value (per share) of shares granted during 2020 was 15.76 Swiss francs.

Equity-settled awards are recorded in the Additional paid-in capital component of Stockholders' equity, with compensation cost recorded in Selling, general and administrative expenses over the vesting period (which is from grant date to the end of the vesting period) based on the grant-date fair value of the shares. Cash-settled awards are recorded as a liability, remeasured at fair value at each reporting date for the percentage vested, with changes in the liability recorded in Selling, general and administrative expenses.

At December 31, 2020, total unrecognized compensation cost related to equity-settled awards under the LTIP was \$34 million and is expected to be recognized over a weighted-average period of 2.3 years. The compensation cost recorded in 2020, 2019 and 2018 for cash-settled awards was not significant.

For the relative total shareholder return component of the LTIP launches, the fair value of granted shares at grant date, for equity-settled awards, and at each reporting date, for cash-settled awards, is determined using a Monte Carlo simulation model. The main inputs to this model are the Company's share price and dividend yield, the volatility of the Company's and the peer group's share price as well as the correlation between the peer companies. For the earnings per share component of the LTIP launches, the fair value of granted shares is based on the market price of the ABB Ltd share at grant date for equity-settled awards and at each reporting date for cash-settled awards, as well as the probable outcome of the earnings per share achievement, as computed using a Monte Carlo simulation model. The main inputs to this model are the Company's and external financial analysts' revenue growth rates and Operational EBITA margin expectations.

Other share-based payments

The Company has other minor share-based payment arrangements with certain employees. The compensation cost related to these arrangements in 2020, 2019 and 2018 was not significant.

Note 19—Stockholders' equity

At both December 31, 2020 and 2019, the Company had 2,672 million authorized shares, of which 2,168 million were registered and issued.

At the Annual General Meeting of Shareholders (AGM) in March 2020, the shareholders approved the proposal of the Board of Directors to distribute a total of 0.80 Swiss francs per share. The approved dividend distribution amounted to \$1,758 million and was paid in April 2020. At the AGM in March 2019, the shareholders approved the proposal of the Board of Directors to distribute a total of 0.80 Swiss francs per share. The approved dividend distribution amounted to \$1,675 million and was paid in May 2019. At the AGM in March 2018, the shareholders approved the proposal of the Board of Directors to distribute a total of 0.78 Swiss francs per share. The approved dividend distribution amounted to \$1,736 million and was paid in April 2018.

In July 2020, the Company announced it initially intends to buy 10 percent of its share capital (which at the time represented a maximum of 180 million shares, in addition to those already held in treasury) through the share buyback program that started in July 2020. The share buyback program is executed on a second trading line on the SIX Swiss Exchange and is planned to run until the Company's AGM in March 2021. At the AGM the Company intends to request shareholder approval to cancel the shares purchased through this program. In 2020, under this program, the Company purchased 109 million shares for cancellation, resulting in an increase in Treasury Stock of \$2,835 million.

In addition to the ongoing share buyback program, in the fourth quarter of 2020, the Company purchased 13 million of its own shares on the open market mainly for use in connection with its employee share plans. These transactions resulted in an increase in Treasury stock of \$346 million. In the first quarter of 2018, the Company purchased on the open market an aggregate of 10 million of its own shares to be available for delivery under its employee share programs. These transactions resulted in an increase in Treasury stock of \$249 million.

Upon and in connection with each launch of the Company's MIP, the Company sold call options to a bank at fair value, giving the bank the right to acquire shares equivalent to the number of shares represented by the MIP WAR awards to participants. Under the terms of the agreement with the bank, the call options can only be exercised by the bank to the extent that MIP participants have exercised their WARs. At December 31, 2020, such call options representing 9.7 million shares and with strike prices ranging from 19.00 to 23.50 Swiss francs (weighted-average strike price of 21.15 Swiss francs) were held by the bank. The call options expire in periods ranging from August 2021 to August 2025. However, only 5.3 million of these instruments, with strike prices ranging from 19.00 to 23.50 Swiss francs (weighted-average strike price of 20.99 Swiss francs), could be exercised at December 31, 2020, under the terms of the agreement with the bank.

In addition to the above, at December 31, 2020, the Company had further outstanding obligations to deliver:

- up to 15.6 million shares relating to the options granted under the 2015 launch of the MIP, with a strike price of 19.50 Swiss francs, vested in August 2018 and expiring in August 2021,
- up to 14.5 million shares relating to the options granted under the 2016 launch of the MIP, with a strike price of 21.50 Swiss francs, vested in August 2019 and expiring in August 2022,
- up to 12.8 million shares relating to the options granted under the 2017 launch of the MIP, with a strike price of 22.50 Swiss francs, vested in August 2020 and expiring in August 2023,
- up to 12.5 million shares relating to the options granted under the 2018 launch of the MIP, with a strike price of 23.50 Swiss francs, vesting in August 2021 and expiring in August 2024,
- up to 11.8 million shares relating to the options granted under the 2019 launch of the MIP, with a strike price of 19.00 Swiss francs, vesting in August 2022 and expiring in August 2025,
- up to 2.1 million shares relating to the ESAP, vesting and expiring in October 2021,
- up to 6.7 million shares to Eligible Participants under the 2020, 2019 and 2018 launches of the LTIP, vesting and expiring in April 2023, May 2022 and April 2021, respectively, and
- approximately 1 million shares in connection with certain other share-based payment arrangements with employees.

See Note 18 for a description of the above share-based payment arrangements.

In 2020 and 2018, the Company delivered 16.5 million and 2.4 million shares, respectively, out of treasury stock, for options exercised in relation to the MIP, while in 2019 the amount was not significant. In addition, in 2020 and 2019 the Company delivered 1.4 million and 0.5 million shares from treasury stock under the ESAP. No shares were delivered in 2018 under the ESAP.

Amounts available to be distributed as dividends to the stockholders of ABB Ltd are based on the requirements of Swiss law and ABB Ltd's Articles of Incorporation, and are determined based on amounts presented in the unconsolidated financial statements of ABB Ltd, prepared in accordance with Swiss law. At December 31, 2020, the total unconsolidated stockholders' equity of ABB Ltd was 9,063 million Swiss francs (\$10,287 million), including 260 million Swiss francs (\$295 million) representing share capital, 12,032 million Swiss francs (\$13,657 million) representing reserves and 3,229 million Swiss francs (\$3,665 million) representing a reduction of equity for own shares (treasury stock). Of the reserves, 3,229 million Swiss francs (\$3,665 million) relating to own shares and 52 million Swiss francs (\$59 million) representing 20 percent of share capital, are restricted and not available for distribution.

In February 2021, the Company announced that a proposal will be put to the 2021 AGM for approval by the shareholders to distribute 0.80 Swiss francs per share to shareholders.

Subsequent events

Subsequent to December 31, 2020, and up to February 24, 2021, the Company purchased, under the share buyback program, an additional 14 million shares, for approximately \$400 million, and, on the open market, an additional 13 million shares, for approximately \$378 million.

Note 20—Earnings per share

Basic earnings per share is calculated by dividing income by the weighted-average number of shares outstanding during the year. Diluted earnings per share is calculated by dividing income by the weighted-average number of shares outstanding during the year, assuming that all potentially dilutive securities were exercised, if dilutive. Potentially dilutive securities comprise outstanding written call options and outstanding options and shares granted subject to certain conditions under the Company's share-based payment arrangements. In 2020, 2019 and 2018, outstanding securities representing a maximum of 65 million, 81 million and 88 million shares, respectively, were excluded from the calculation of diluted earnings per share as their inclusion would have been antidilutive.

Basic earnings per share:

(\$ in millions, except per share data in \$)

| | 2020 | 2019 | 2018 |
|--|--------------|--------------|--------------|
| <i>Amounts attributable to ABB shareholders:</i> | | | |
| Income from continuing operations, net of tax | 294 | 1,043 | 1,514 |
| Income from discontinued operations, net of tax | 4,852 | 396 | 659 |
| Net income | 5,146 | 1,439 | 2,173 |
| Weighted-average number of shares outstanding (in millions) | 2,111 | 2,133 | 2,132 |
| <i>Basic earnings per share attributable to ABB shareholders:</i> | | | |
| Income from continuing operations, net of tax | 0.14 | 0.49 | 0.71 |
| Income from discontinued operations, net of tax | 2.30 | 0.19 | 0.31 |
| Net income | 2.44 | 0.67 | 1.02 |

Diluted earnings per share:

(\$ in millions, except per share data in \$)

| | 2020 | 2019 | 2018 |
|---|--------------|--------------|--------------|
| <i>Amounts attributable to ABB shareholders:</i> | | | |
| Income from continuing operations, net of tax | 294 | 1,043 | 1,514 |
| Income from discontinued operations, net of tax | 4,852 | 396 | 659 |
| Net income | 5,146 | 1,439 | 2,173 |
| Weighted-average number of shares outstanding (in millions) | 2,111 | 2,133 | 2,132 |
| <i>Effect of dilutive securities:</i> | | | |
| Call options and shares | 8 | 2 | 7 |
| Adjusted weighted-average number of shares outstanding (in millions) | 2,119 | 2,135 | 2,139 |
| <i>Diluted earnings per share attributable to ABB shareholders:</i> | | | |
| Income from continuing operations, net of tax | 0.14 | 0.49 | 0.71 |
| Income from discontinued operations, net of tax | 2.29 | 0.19 | 0.31 |
| Net income | 2.43 | 0.67 | 1.02 |

Note 21—Other comprehensive income

The following table includes amounts recorded within “Total other comprehensive income (loss)” including the related income tax effects:

| (\$ in millions) | 2020 | | | 2019 | | | 2018 | | |
|--|--------------|--------------|--------------|--------------|------------|--------------|----------------|------------|--------------|
| | Before tax | Tax effect | Net of tax | Before tax | Tax effect | Net of tax | Before tax | Tax effect | Net of tax |
| Foreign currency translation adjustments: | | | | | | | | | |
| Foreign currency translation adjustments | 500 | (2) | 498 | (130) | — | (130) | (641) | 14 | (627) |
| Gain on liquidation of foreign subsidiary | — | — | — | — | — | — | (31) | — | (31) |
| Changes attributable to divestments | 519 | — | 519 | (2) | — | (2) | 12 | — | 12 |
| Net change during the year | 1,019 | (2) | 1,017 | (132) | — | (132) | (660) | 14 | (646) |
| Available-for-sale securities: | | | | | | | | | |
| Net unrealized gains (losses) arising during the year | 31 | (7) | 24 | 16 | (2) | 14 | (5) | 1 | (4) |
| Reclassification adjustments for net (gains) losses included in net income | (18) | 4 | (14) | 1 | (1) | — | 1 | — | 1 |
| Changes attributable to divestments | (3) | — | (3) | — | — | — | — | — | — |
| Net change during the year | 10 | (3) | 7 | 17 | (3) | 14 | (4) | 1 | (3) |
| Pension and other postretirement plans: | | | | | | | | | |
| Prior service (costs) credits arising during the year | 55 | (12) | 43 | 3 | 3 | 6 | (11) | 4 | (7) |
| Net actuarial gains (losses) arising during the year | (243) | 43 | (200) | (293) | 73 | (220) | (411) | 59 | (352) |
| Amortization of prior service cost (credit) included in net income | (11) | — | (11) | (25) | (3) | (28) | (19) | (5) | (24) |
| Amortization of net actuarial loss included in net income | 113 | (25) | 88 | 99 | (31) | 68 | 91 | (22) | 69 |
| Net losses from pension settlements included in net income | 650 | (132) | 518 | 38 | (6) | 32 | 23 | (4) | 19 |
| Changes attributable to divestments | 186 | (35) | 151 | — | — | — | — | — | — |
| Net change during the year | 750 | (161) | 589 | (178) | 36 | (142) | (327) | 32 | (295) |
| Cash flow hedge derivatives: | | | | | | | | | |
| Net gains (losses) arising during the year | 2 | — | 2 | 20 | — | 20 | (51) | 2 | (49) |
| Reclassification adjustments for net (gains) losses included in net income | (2) | 2 | — | (9) | — | (9) | 20 | 1 | 21 |
| Net change during the year | — | 2 | 2 | 11 | — | 11 | (31) | 3 | (28) |
| Total other comprehensive income (loss) | 1,779 | (164) | 1,615 | (282) | 33 | (249) | (1,022) | 50 | (972) |

The following table shows changes in “Accumulated other comprehensive loss” (OCI) attributable to ABB, by component, net of tax:

| (\$ in millions) | Foreign currency translation adjustments | Unrealized gains (losses) on available- for-sale securities | Pension and other post- retirement plan adjustments | Unrealized gains (losses) of cash flow hedge derivatives | Accumulated other comprehensive loss |
|---|---|---|---|--|---|
| Balance at January 1, 2018 | (2,693) | 8 | (1,672) | 12 | (4,345) |
| Cumulative effect of changes in accounting principles ⁽¹⁾ | — | (9) | — | — | (9) |
| Other comprehensive (loss) income before reclassifications | (627) | (4) | (359) | (49) | (1,039) |
| Amounts reclassified from OCI | (19) | 1 | 64 | 21 | 67 |
| Total other comprehensive (loss) income | (646) | (3) | (295) | (28) | (972) |
| Less: | | | | | |
| Amounts attributable to noncontrolling interests | (15) | — | — | — | (15) |
| Balance at December 31, 2018 | (3,324) | (4) | (1,967) | (16) | (5,311) |
| Adoption of an accounting standard update ⁽²⁾ | — | — | (36) | — | (36) |
| Other comprehensive (loss) income before reclassifications | (130) | 14 | (214) | 20 | (310) |
| Amounts reclassified from OCI | (2) | — | 72 | (9) | 61 |
| Total other comprehensive (loss) income | (132) | 14 | (142) | 11 | (249) |
| Less: | | | | | |
| Amounts attributable to noncontrolling interests | (6) | — | — | — | (6) |
| Balance at December 31, 2019 | (3,450) | 10 | (2,145) | (5) | (5,590) |
| Other comprehensive (loss) income before reclassifications | 498 | 24 | (157) | 2 | 367 |
| Amounts reclassified from OCI | 519 | (17) | 746 | — | 1,248 |
| Total other comprehensive (loss) income | 1,017 | 7 | 589 | 2 | 1,615 |
| Less: | | | | | |
| Amounts attributable to noncontrolling interests | 27 | — | — | — | 27 |
| Balance at December 31, 2020 | (2,460) | 17 | (1,556) | (3) | (4,002) |

(1) Amounts relate to the adoption of two accounting standard updates in 2018 regarding the Recognition and measurement of financial assets and financial liabilities and Revenue from contracts with customers.

(2) Amounts relate to the adoption of an accounting standard update in 2019 regarding the Tax Cuts and Jobs Act of 2017.

The following table reflects amounts reclassified out of OCI in respect of Foreign currency translation adjustments and Pension and other postretirement plan adjustments:

| (\$ in millions) | Location of (gains) losses | 2020 | 2019 | 2018 |
|---|--|------------|------------|-------------|
| Details about OCI components | reclassified from OCI | | | |
| <i>Foreign currency translation adjustments:</i> | | | | |
| Gain on liquidation of foreign subsidiary | Other income (expense), net | — | — | (31) |
| Changes attributable to divestments: | | | | |
| - Loss on solar inverters business (see Note 4) | Other income (expense), net | 99 | — | — |
| - Losses (gains) on other divestments, net | Other income (expense), net | — | (2) | 12 |
| - Loss on Power Grids business (see Note 3) | Income from discontinued operations, net of tax | 420 | — | — |
| Amounts reclassified from OCI | | 519 | (2) | (19) |
| <i>Pension and other postretirement plan adjustments:</i> | | | | |
| Amortization of prior service cost (credit) | Non-operational pension (cost) credit ⁽¹⁾ | (11) | (25) | (19) |
| Amortization of net actuarial loss | Non-operational pension (cost) credit ⁽¹⁾ | 113 | 99 | 91 |
| Net losses from pension settlements and curtailments | Non-operational pension (cost) credit ⁽¹⁾ | 650 | 38 | 23 |
| Changes attributable to divestments | Income from discontinued operations, net of tax ⁽²⁾ | 186 | — | — |
| Total before tax | | 938 | 112 | 95 |
| Tax | Income tax expense | (157) | (40) | (31) |
| Changes in tax attributable to divestments | Income from discontinued operations, net of tax ⁽²⁾ | (35) | — | — |
| Amounts reclassified from OCI | | 746 | 72 | 64 |

(1) Amounts include a total of \$94 million, \$6 million and \$12 million in 2020, 2019 and 2018, respectively, reclassified from OCI to Income from discontinued operations (see Note 3).

(2) Amounts represent the reclassification of OCI relating to pensions, including tax, on divestment of the Power Grids business.

The amounts reclassified out of OCI in respect of Unrealized gains (losses) on available-for-sale securities and Unrealized gains (losses) of cash flow hedge derivatives were not significant in 2020, 2019 and 2018.

Note 22—Restructuring and related expenses

OS program

In December 2018, the Company announced a two-year restructuring program with the objective of simplifying its business model and structure through the implementation of a new organizational structure driven by its businesses. The program resulted in the elimination of the country and regional structures within the previous matrix organization, including the elimination of the three regional Executive Committee roles. The operating businesses are now responsible for both their customer-facing activities and business support functions, while the remaining Group-level corporate activities primarily focus on Group strategy, portfolio and performance management and capital allocation. During the year ended December 2020, the total program costs, originally estimated to be \$350 million, were reduced by \$41 million to \$309 million, mainly due to reductions in both estimated costs and number of projects planned. As of December 31, 2020, the Company has incurred substantially all costs related to the OS program.

The following table outlines the costs incurred in 2020, 2019, 2018 and the cumulative costs incurred under the program per operating segment as well as Corporate and Other:

| (\$ in millions) | Costs incurred in | | | Cumulative costs |
|--------------------------------|-------------------|-----------|-----------|-------------------------------------|
| | 2020 | 2019 | 2018 | incurred up to December 31, 2020 |
| Electrification | 35 | 18 | 32 | 85 |
| Industrial Automation | 37 | 3 | 21 | 61 |
| Motion | 18 | 6 | 1 | 25 |
| Robotics & Discrete Automation | 10 | 8 | — | 18 |
| Corporate and Other | 49 | 54 | 11 | 114 |
| Total | 149 | 89 | 65 | 303 |

The Company recorded the following expenses, net of change in estimates, under this program:

| (\$ in millions) | Costs incurred in | | | Cumulative costs |
|---|-------------------|-----------|-----------|-------------------------------------|
| | 2020 | 2019 | 2018 | incurred up to December 31, 2020 |
| Employee severance costs | 109 | 81 | 65 | 255 |
| Estimated contract settlement, loss order and other costs | 17 | 1 | — | 18 |
| Inventory and long-lived asset impairments | 23 | 7 | — | 30 |
| Total | 149 | 89 | 65 | 303 |

Restructuring expenses recorded for this program are included in the following line items in the Consolidated Income Statements:

| (\$ in millions) | 2020 | 2019 | 2018 |
|---|------------|-----------|-----------|
| Total cost of sales | 38 | 8 | 35 |
| Selling, general and administrative expenses | 37 | 46 | 23 |
| Non-order related research and development expenses | 4 | 1 | 3 |
| Other income (expense), net | 70 | 34 | 4 |
| Total | 149 | 89 | 65 |

Liabilities associated with the OS program are included primarily in Other provisions. The following table shows the activity from the beginning of the program to December 31, 2020:

| (\$ in millions) | Employee | Contract settlement, | Total |
|---------------------------------------|-----------------|-------------------------------|------------|
| | severance costs | loss order and other costs | |
| Liability at January 1, 2018 | — | — | — |
| Expenses | 65 | — | 65 |
| Liability at December 31, 2018 | 65 | — | 65 |
| Expenses | 111 | 1 | 112 |
| Cash payments | (44) | (1) | (45) |
| Change in estimates | (30) | — | (30) |
| Exchange rate differences | (3) | — | (3) |
| Liability at December 31, 2019 | 99 | — | 99 |
| Expenses | 119 | 17 | 136 |
| Cash payments | (91) | (15) | (106) |
| Change in estimates | (10) | — | (10) |
| Exchange rate differences | 4 | — | 4 |
| Liability at December 31, 2020 | 121 | 2 | 123 |

Other restructuring-related activities

In addition, during 2020, 2019 and 2018, the Company executed various other restructuring-related activities and incurred the following charges, net of changes in estimates:

| (\$ in millions) | 2020 | 2019 | 2018 |
|---|------------|------------|------------|
| Employee severance costs | 164 | 55 | 74 |
| Estimated contract settlement, loss order and other costs | 18 | 37 | 29 |
| Inventory and long-lived asset impairments | 12 | 22 | 13 |
| Total | 194 | 114 | 116 |

Expenses associated with these activities are recorded in the following line items in the Consolidated Income Statements:

| (\$ in millions) | 2020 | 2019 | 2018 |
|---|------------|------------|------------|
| Total cost of sales | 95 | 46 | 24 |
| Selling, general and administrative expenses | 50 | 4 | 52 |
| Non-order related research and development expenses | 10 | — | 2 |
| Other income (expense), net | 39 | 64 | 38 |
| Total | 194 | 114 | 116 |

At December 31, 2020 and 2019, \$233 million and \$189 million, respectively, was recorded for other restructuring-related liabilities and is primarily included in “Other provisions”.

Note 23—Operating segment and geographic data

The Chief Operating Decision Maker (CODM) is the Chief Executive Officer. The CODM allocates resources to and assesses the performance of each operating segment using the information outlined below. The Company is organized into the following segments, based on products and services: Electrification, Industrial Automation, Motion, and Robotics & Discrete Automation. The remaining operations of the Company are included in Corporate and Other.

A description of the types of products and services provided by each reportable segment is as follows:

- *Electrification:* manufactures and sells electrical products and solutions which are designed to provide safe, smart and sustainable electrical flow from the substation to the socket. The portfolio of increasingly digital and connected solutions includes electric vehicle charging infrastructure, renewable power solutions, modular substation packages, distribution automation products, switchboard and panelboards, switchgear, UPS solutions, circuit breakers, measuring and sensing devices, control products, wiring accessories, enclosures and cabling systems and intelligent home and building solutions, designed to integrate and automate lighting, heating, ventilation, security and data communication networks. The products and services are delivered through five operating Divisions: Distribution Solutions, Smart Power, Smart Buildings, Installation Products and Power Conversion.
- *Industrial Automation:* develops and sells a broad range of industry-specific, integrated automation and electrification systems and solutions, as well as digital solutions, lifecycle services and artificial intelligence applications for the process and hybrid industries. Products and solutions include process and discrete control technologies, advanced process control software and manufacturing execution systems, sensing, measurement and analytical instrumentation, electric ship propulsion systems and large turbochargers. In addition, the Business Area offers a comprehensive range of services ranging from repair to advanced services such as remote monitoring, preventive maintenance, asset performance management and cybersecurity services. The products and services are delivered through five operating Divisions: Energy Industries, Process Industries, Marine & Ports, Turbocharging, and Measurement & Analytics.

- *Motion*: manufactures and sells drives, motors, generators, traction converters and mechanical power transmission products that are driving the low-carbon future for industries, cities, infrastructure and transportation. These products, digital technology and related services enable industrial customers to increase energy efficiency, improve safety and reliability, and achieve precise control of their processes. Building on over 130 years of cumulative experience in electric powertrains, the Business Area combines domain expertise and technology to deliver the optimum solution for a wide range of applications in all industrial segments. In addition, the Business Area, along with partners, has an unmatched global service presence. These products and services are delivered through six operating Divisions: Motors & Generators, Drive Products, System Drives, Service, Traction and Mechanical Power Transmission.
- *Robotics & Discrete Automation*: delivers its products, solutions and services through two operating Divisions: Robotics and Machine Automation. Robotics includes: industrial robots, software, robotic solutions and systems, field services, spare parts, and digital services. Machine Automation specializes in solutions based on its programmable logic controllers (PLC), industrial PCs (IPC), servo motion, transport systems and machine vision. Both Divisions offer engineering and simulation software as well as a comprehensive range of digital solutions.

Corporate and Other: includes headquarters, central research and development, the Company's real estate activities, Corporate Treasury Operations, historical operating activities of certain divested businesses and other non-core operating activities.

The primary measure of profitability on which the operating segments are evaluated is Operational EBITA, which represents income from operations excluding:

- amortization expense on intangibles arising upon acquisitions (acquisition-related amortization),
- restructuring, related and implementation costs,
- changes in the amount recorded for obligations related to divested businesses occurring after the divestment date (changes in obligations related to divested businesses),
- changes in estimates relating to opening balance sheets of acquired businesses (changes in pre-acquisition estimates),
- gains and losses from sale of businesses (including fair value adjustment on assets and liabilities held for sale),
- acquisition- and divestment-related expenses and integration costs,
- other income/expense relating to the Power Grids joint venture,
- certain other non-operational items, as well as
- foreign exchange/commodity timing differences in income from operations consisting of: (a) unrealized gains and losses on derivatives (foreign exchange, commodities, embedded derivatives), (b) realized gains and losses on derivatives where the underlying hedged transaction has not yet been realized, and (c) unrealized foreign exchange movements on receivables/payables (and related assets/liabilities).

Certain other non-operational items generally includes: certain regulatory, compliance and legal costs, certain asset write downs/impairments (including impairment of goodwill) and certain other fair value changes, as well as other items which are determined by management on a case-by-case basis.

The CODM primarily reviews the results of each segment on a basis that is before the elimination of profits made on inventory sales between segments. Segment results below are presented before these eliminations, with a total deduction for intersegment profits to arrive at the Company's consolidated Operational EBITA. Intersegment sales and transfers are accounted for as if the sales and transfers were to third parties, at current market prices.

The following tables present disaggregated segment revenues from contracts with customers for 2020, 2019 and 2018:

| 2020 | | | | | | |
|--------------------------------------|-----------------|-----------------------|--------------|--------------------------------|---------------------|---------------------|
| (\$ in millions) | Electrification | Industrial Automation | Motion | Robotics & Discrete Automation | Corporate and Other | Total |
| Geographical markets | | | | | | |
| Europe | 4,008 | 2,322 | 1,934 | 1,429 | 15 | 9,708 |
| The Americas | 4,050 | 1,321 | 2,173 | 385 | 7 | 7,936 |
| <i>of which: United States</i> | <i>3,093</i> | <i>805</i> | <i>1,846</i> | <i>270</i> | <i>5</i> | <i>6,019</i> |
| Asia, Middle East and Africa | 3,506 | 2,038 | 1,807 | 1,024 | 7 | 8,382 |
| <i>of which: China</i> | <i>1,820</i> | <i>628</i> | <i>926</i> | <i>714</i> | <i>3</i> | <i>4,091</i> |
| | 11,564 | 5,681 | 5,914 | 2,838 | 29 | 26,026 |
| Product type | | | | | | |
| Products | 9,951 | 1,263 | 5,040 | 1,635 | 53 | 17,942 |
| Systems | 743 | 1,665 | — | 780 | (24) | 3,164 |
| Services and software | 870 | 2,753 | 874 | 423 | — | 4,920 |
| | 11,564 | 5,681 | 5,914 | 2,838 | 29 | 26,026 |
| Third-party revenues | 11,564 | 5,681 | 5,914 | 2,838 | 29 | 26,026 |
| Intersegment revenues ⁽¹⁾ | 360 | 111 | 495 | 69 | (927) | 108 |
| Total revenues | 11,924 | 5,792 | 6,409 | 2,907 | (898) | 26,134 |
| 2019 | | | | | | |
| (\$ in millions) | Electrification | Industrial Automation | Motion | Robotics & Discrete Automation | Corporate and Other | Total |
| Geographical markets | | | | | | |
| Europe | 4,039 | 2,416 | 1,879 | 1,634 | 36 | 10,004 |
| The Americas | 4,568 | 1,582 | 2,315 | 453 | 1 | 8,919 |
| <i>of which: United States</i> | <i>3,522</i> | <i>948</i> | <i>1,972</i> | <i>290</i> | <i>3</i> | <i>6,735</i> |
| Asia, Middle East and Africa | 3,665 | 2,153 | 1,827 | 1,157 | 40 | 8,842 |
| <i>of which: China</i> | <i>1,729</i> | <i>608</i> | <i>876</i> | <i>825</i> | <i>1</i> | <i>4,039</i> |
| | 12,272 | 6,151 | 6,021 | 3,244 | 77 | 27,765 |
| Product type | | | | | | |
| Products | 10,315 | 1,439 | 5,152 | 1,785 | 65 | 18,756 |
| Systems | 958 | 1,648 | — | 968 | 12 | 3,586 |
| Services and software | 999 | 3,064 | 869 | 491 | — | 5,423 |
| | 12,272 | 6,151 | 6,021 | 3,244 | 77 | 27,765 |
| Third-party revenues | 12,272 | 6,151 | 6,021 | 3,244 | 77 | 27,765 |
| Intersegment revenues ⁽¹⁾ | 456 | 122 | 512 | 70 | (947) | 213 |
| Total revenues | 12,728 | 6,273 | 6,533 | 3,314 | (870) | 27,978 |

| | 2018 | | | | | |
|--------------------------------------|-----------------|-----------------------|--------------|--------------------------------|---------------------|---------------|
| (\$ in millions) | Electrification | Industrial Automation | Motion | Robotics & Discrete Automation | Corporate and Other | Total |
| Geographical markets | | | | | | |
| Europe | 3,881 | 2,475 | 1,862 | 1,737 | 58 | 10,013 |
| The Americas | 3,650 | 1,467 | 2,389 | 476 | 21 | 8,003 |
| <i>of which: United States</i> | 2,686 | 941 | 2,018 | 310 | 25 | 5,980 |
| Asia, Middle East and Africa | 3,680 | 2,449 | 1,699 | 1,339 | 236 | 9,403 |
| <i>of which: China</i> | 1,724 | 609 | 858 | 987 | 2 | 4,180 |
| | 11,211 | 6,391 | 5,950 | 3,552 | 315 | 27,419 |
| Product type | | | | | | |
| Products | 9,679 | 1,528 | 5,111 | 2,019 | 118 | 18,455 |
| Systems | 617 | 1,853 | — | 1,001 | 197 | 3,668 |
| Services and software | 915 | 3,010 | 839 | 532 | — | 5,296 |
| | 11,211 | 6,391 | 5,950 | 3,552 | 315 | 27,419 |
| Third-party revenues | 11,211 | 6,391 | 5,950 | 3,552 | 315 | 27,419 |
| Intersegment revenues ⁽¹⁾ | 475 | 109 | 513 | 59 | (913) | 243 |
| Total revenues | 11,686 | 6,500 | 6,463 | 3,611 | (598) | 27,662 |

(1) Intersegment revenues until June 30, 2020, include sales to the Power Grids business, which is presented as discontinued operations, and are not eliminated from Total revenues (see Note 3).

Revenues by geography reflect the location of the customer. In 2020, 2019 and 2018 the United States and China are the only countries where revenue exceeded 10 percent of Total revenues. In each of 2020, 2019 and 2018 more than 98 percent of the Company's total revenues were generated from customers outside Switzerland.

The following tables present Operational EBITA, the reconciliations of consolidated Operational EBITA to Income from continuing operations before taxes, as well as Depreciation and amortization, and Capital expenditure for 2020, 2019 and 2018, as well as Total assets at December 31, 2020, 2019 and 2018:

| (\$ in millions) | 2020 | 2019 | 2018 |
|--|--------------|--------------|--------------|
| Operational EBITA: | | | |
| Electrification | 1,681 | 1,688 | 1,626 |
| Industrial Automation | 451 | 732 | 914 |
| Motion | 1,075 | 1,082 | 1,023 |
| Robotics & Discrete Automation | 237 | 393 | 528 |
| Corporate and Other: | | | |
| — Non-core and divested businesses | (133) | (145) | (291) |
| — Stranded corporate costs | (40) | (225) | (297) |
| — Corporate costs and Other intersegment elimination | (372) | (418) | (498) |
| Total | 2,899 | 3,107 | 3,005 |
| Acquisition-related amortization | (263) | (265) | (273) |
| Restructuring, related and implementation costs ⁽¹⁾ | (410) | (300) | (172) |
| Changes in obligations related to divested businesses | (218) | (36) | (106) |
| Changes in pre-acquisition estimates | (11) | (22) | (8) |
| Gains and losses from sale of businesses | (2) | 55 | 57 |
| Fair value adjustment on assets and liabilities held for sale | (33) | (421) | — |
| Acquisition- and divestment-related expenses and integration costs | (74) | (121) | (204) |
| Other income/expenses relating to the Power Grids joint venture | (20) | — | — |
| Foreign exchange/commodity timing differences in income from operations: | | | |
| Unrealized gains and losses on derivatives (foreign exchange, commodities, embedded derivatives) | 67 | 20 | (1) |
| Realized gains and losses on derivatives where the underlying hedged transaction has not yet been realized | 26 | 8 | (23) |
| Unrealized foreign exchange movements on receivables/payables (and related assets/liabilities) | (33) | (7) | (9) |
| Certain other non-operational items: | | | |
| Costs for planned divestment of Power Grids | (86) | (141) | — |
| Regulatory, compliance and legal costs | (7) | (7) | (34) |
| Business transformation costs | (31) | (19) | (17) |
| Executive Committee transition costs | (1) | (14) | — |
| Favorable resolution of an uncertain purchase price adjustment | 36 | 92 | — |
| Gain on sale of investments | — | 15 | — |
| Gain on liquidation of a foreign subsidiary | — | — | 31 |
| Asset write downs/impairments & certain other fair value changes ⁽²⁾ | (239) | (4) | (25) |
| Other non-operational items | (7) | (2) | 5 |
| Income from operations | 1,593 | 1,938 | 2,226 |
| Interest and dividend income | 51 | 67 | 72 |
| Interest and other finance expense | (240) | (215) | (262) |
| Losses from extinguishment of debt | (162) | — | — |
| Non-operational pension (cost) credit | (401) | 72 | 83 |
| Income from continuing operations before taxes | 841 | 1,862 | 2,119 |

(1) Amounts in 2020 and 2019 include \$67 million and \$97 million, respectively, of implementation costs in relation to the OS program.

(2) Amount in 2020 includes goodwill impairment charges of \$311 million.

| (\$ in millions) | Depreciation and amortization | | | Capital expenditures ⁽¹⁾ | | | Total assets ^{(1), (2)} at December 31, | | |
|-----------------------------------|----------------------------------|------------|------------|-------------------------------------|------------|------------|---|---------------|---------------|
| | 2020 | 2019 | 2018 | 2020 | 2019 | 2018 | 2020 | 2019 | 2018 |
| Electrification | 381 | 414 | 355 | 276 | 279 | 244 | 12,098 | 11,671 | 12,052 |
| Industrial Automation | 63 | 55 | 57 | 56 | 64 | 58 | 4,624 | 4,559 | 4,287 |
| Motion | 168 | 169 | 184 | 93 | 110 | 93 | 6,248 | 6,149 | 6,016 |
| Robotics & Discrete Automation | 126 | 124 | 127 | 64 | 59 | 74 | 4,660 | 4,661 | 4,760 |
| Corporate and Other | 177 | 199 | 193 | 205 | 250 | 303 | 13,458 | 19,068 | 17,326 |
| Consolidated | 915 | 961 | 916 | 694 | 762 | 772 | 41,088 | 46,108 | 44,441 |

(1) Capital expenditures and Total assets are after intersegment eliminations and therefore reflect third-party activities only.

(2) At December 31, 2020, 2019 and 2018, Corporate and Other includes \$282 million, \$9,840 million and \$8,591 million, respectively, of assets in the Power Grids business which is reported as discontinued operations (see Note 3). In addition, at December 31, 2020, Corporate and Other includes \$1,710 million related to the equity investment in Hitachi ABB Power Grids Ltd (see Note 4).

Other geographic information

Geographic information for long-lived assets was as follows:

| (\$ in millions) | Long-lived assets at December 31, | |
|------------------------------|--------------------------------------|--------------|
| | 2020 | 2019 |
| Europe | 2,822 | 2,565 |
| The Americas | 1,382 | 1,469 |
| Asia, Middle East and Africa | 940 | 932 |
| Total | 5,144 | 4,966 |

Long-lived assets represent “Property, plant and equipment, net” and “Operating lease right-of-use assets” and are shown by location of the assets. At December 31, 2020, approximately 21 percent, 10 percent and 11 percent of the Company’s long-lived assets were located in the United States, China and Switzerland, respectively. At December 31, 2019, approximately 23 percent, 10 percent and 10 percent of the Company’s long-lived assets were located in the United States, China and Switzerland, respectively.