SHOWA DENKO

Act!

ACHIEVING SUSTAINABLE GROWTH THROUGH INNOVATION

ANNUAL REPORT 2020

Our Mission

We will satisfy all stakeholders

We at the Showa Denko Group will provide products and services that are useful and safe and exceed our customers' expectations, thereby enhancing the value of the Group, giving satisfaction to our shareholders, and contributing to the sound growth of international society as a responsible corporate citizen.

Forward-Looking Statements:

This annual report contains statements relating to management's projections of future profits, the possible achievement of the Company's financial goals and objectives, and management's expectations for the Company's product development program. The Company cannot guarantee that these expectations and projections will be realized or correct. Actual results may differ materially from the results anticipated in the statements included herein due to a variety of factors, including, but not limited to, the effect of the pandemic of COVID-19 on the world economy, the economic conditions, costs of naphtha and other raw materials, demand for our products such as graphite electrodes and other commodities, market conditions, and foreign exchange rates. The timely commercialization of products under development by the Company may be disrupted or delayed by a variety of factors, including market acceptance, the introduction of new products by competitors, and changes in regulations or laws. The foregoing list of factors is not inclusive. We undertake no obligation to update the forward-looking statements unless required by law.

Profile

Showa Denko K.K. (SDK) was founded in 1939. Ranked as one of Japan's leading chemical companies, SDK operates in seven major segments: petrochemicals, chemicals, electronics, inorganics, aluminum, Showa Denko Materials, and others.

The Showa Denko Group noticed high potential for abundant hydro power, a major resource in Japan. The Group began by focusing on the promising future of the electrochemical industry, which can make the most of hydroelectric power, and expanded business domains to cover inorganic chemicals, organic chemicals, and metallic materials. Today, the Group is a unique chemical manufacturer that supplies petrochemicals, chemicals, electronics, inorganics, and aluminum.

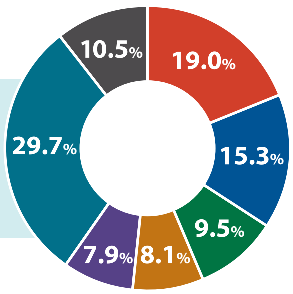
The Group will strengthen earning power and reduce fluctuations in income by promoting The TOP 2021 medium-term business plan, which was launched in January 2019, by enhancing the value of the Group, and by establishing a stable foundation that will always support the Group's growth. In 2020, we brought Hitachi Chemical Company, Ltd. (currently Showa Denko Materials Co., Ltd.) into our Group. As a unified group of companies, we intend to contribute to a sustainable society by realizing breakthroughs brought about by the integration of midstream and downstream technologies.

The Group is also committed to the principles of Responsible Care and is vigorously carrying out an action plan to protect the environment as well as health and safety.

Showa Denko at a Glance

Net sales 2020 **¥973.7 billion**

Note: The ratios of respective segments have been calculated after adding the amount of adjustments to net sales.



Petrochemicals
Olefins (ethylene and propylene), organic chemicals (vinyl acetate monomer, ethyl acetate, and allyl alcohol), and polymer (polypropylene)

Chemicals
Functional chemicals (polymer emulsion and unsaturated polyester resin), industrial gases (liquefied carbon dioxide, dry ice, oxygen, nitrogen, and hydrogen), basic chemicals (liquefied ammonia, acrylonitrile, and chloroprene rubber), electronic chemicals (high-purity gases for electronics), and coating materials

Electronics
Hard disks (HDs), SiC epitaxial wafers for power devices, compound semiconductors (LED chips), and lithium-ion battery (LIB) materials

Inorganics
Graphite electrodes and ceramics (alumina and abrasives)

Aluminum
Rolled products (high-purity foils for capacitors), specialty components (cylinders for laser beam printers [LBPs], extrusions, forged products, and heat exchangers), and beverage cans

Showa Denko Materials
Electronics materials (epoxy molding compounds, die bonding materials, CMP slurries, anisotropic conductive films), printed wiring board materials (copper-clad laminates, photosensitive dry films), mobility components (plastic molded products, friction materials, powder metal products, carbon anode materials for LIBs), energy storage devices and systems (automotive and industrial batteries), and life sciences (diagnostics, contracted manufacturing of regenerative medicine products)

Others
Building materials and general trading

See pages 12-13 for Business Segments.

About Annual Report 2020

This report mainly covers the Showa Denko Group's financial information such as business strategies, outline of businesses, and financial results.
PDF and online versions of this report are available on the Web.
https://www.sdk.co.jp/english/ir/library/annual.html
In addition, various materials which help you understand the Group are available on our website. The latest information is also available.

IR Information **https://www.sdk.co.jp/english/ir.html**
Financial statements (annual, quarterly), corporate performance (performance forecasts and performance trends), and stock price information are available at this site. Taking advantage of the latest technology, we offer interactive charts enabling you to see charts of indicators that you choose.

ESG Information **https://www.sdk.co.jp/english/csr.html**
At this site, you can see our measures and performance data for environment (E), social (S), and governance (G).
We issue the integrated report *SHOWA DENKO REPORT* covering the general outline of the Showa Denko Group and annual major topics. PDF and HTML versions of the above are available on the Web.

Our Strengths

Showa Denko has many products maintaining high world market shares.
Some of our high-priority products in our business segments are shown here.

Chemicals

High-purity gases for electronics

The world's largest manufacturer of specialty gases such as C_4F_6, HBr, Cl_2, NH_3

High-purity gases for electronics are used as etching and cleaning gases as well as materials for making the membranes necessary for producing electronic devices, including semiconductors, LCD panels, and solar batteries.

We have taken the initiative to expand our high-purity gas business in China, where demand for semiconductors has been growing rapidly due to the government's policy to nurture the electronics industry. In 2020, we decided to build up operations to produce high-purity nitrous oxide (N_2O) and high-purity octafluorocyclobutane (C_4F_8) in Shanghai, set up a joint corporation in Sichuan, and also established a business base in Xi'an to sell and distribute high-purity gases.

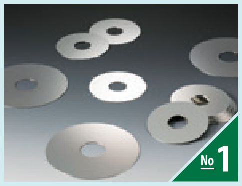
In addition, we built a new production line in Taiwan to produce high-purity C_4F_8 with annual production capacity of 150 metric tons and began operations in May 2020.

Aluminum laminated film for LIB packaging: *SPALF*™

The second largest manufacturer in the world

We provide packaging materials for pouch lithium-ion batteries (LIBs) used in smartphones and tablet PCs. Demand for pouch LIBs is growing due to their advantages, such as high levels of heat dissipation and flexibility in molding. In 2020, Showa Denko Packaging Co., Ltd. developed a new, specialized product for large LIBs that are mainly used for cars and will be added to the *SPALF*™ lineup. We also decided to install equipment to mass-produce the new product, and started operations in March 2021.

Electronics



HD media

The world's largest independent manufacturer

HD media, one of the major parts of HD drives (HDDs), are used in notebook PCs and consumer electronics. Demand is expected to continue growing for use in largescale data centers. We are developing next-generation recording technologies for HDDs, including microwave-assisted magnetic recording (MAMR) technology and heat-assisted magnetic recording (HAMR) technology. We started shipments of 3.5-inch MAMR HD media in 2019 and developed technology to manufacture HAMR HD media in 2020. HD media have a significant effect on HDD storage capacity. We will continue contributing to the expansion of storage capacities of HDDs using our motto "Best in Class."

SiC epitaxial wafers for power devices

The second largest independent manufacturer in the world

We have been contributing to the commercialization and market expansion of "full SiC" power modules through production of high-grade SiC epi-wafers for power transistors since 2015, in addition to those for diodes. SiC-based power devices are attracting attention due to their features that enable production of smaller, lighter, and more energy-efficient next-generation power control modules. In 2020, our SiC epitaxial wafers with a diameter of six inches were adopted by DENSO Corporation as parts for next-generation boosting power modules for fuel cell electric vehicles.

Inorganics

Graphite electrodes

The world's largest manufacturer

Graphite electrodes are used in electric arc furnaces for steel production. We have production bases in Japan, Asia, the United States, as well as Europe and have the leading market share for global ultrahigh power (UHP) graphite electrodes.

We will continue taking the initiative to achieve *No. 1 Value in Use* for customers, to improve their experience, as well as to further increase our competitiveness and profitability.

Showa Denko Materials

Chemical mechanical polishing (CMP) slurries

The second largest manufacturer

CMP slurries are polishing materials used to polish and smooth out interlayer dielectrics, and are used in metal lines formed in the characterization process. In addition to ceria slurry that minimizes polishing damage for shallow trench isolation, we also offer a lineup of slurries for forming copper wiring.

Copper-clad laminates

The second largest manufacturer of semiconductor package substrates

These materials are made by impregnating glass cloth with epoxy resin and then laminating copper foil on both sides. They have high heat resistance, high elasticity, as well as a low coefficient for expansion, and are used for printed wiring boards and semiconductor package substrates.

In 2020, Showa Denko Materials Co., Ltd. chose to boost production capacity for CMP slurries, laminate materials for printed wiring boards (prepreg), and photosensitive solder resists in Taiwan, and to build a new factory for CMP slurries in South Korea.

The new factory in South Korea is scheduled to start operating in October 2021, while in Taiwan, we will begin expanding our production capacity for CMP slurries in January 2022 and mass-producing prepregs and photosensitive solder resists in January 2023. With these actions, we will be able to respond to the ever-increasing demand for these materials in the future.

Note: The worldwide or global market positions shown on this page are SDK's estimates.

Contents

Consolidated 11-Year Summary

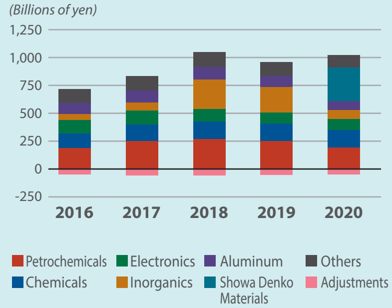
Financial Highlights

Showa Denko K.K. and Consolidated Subsidiaries — Millions of yen

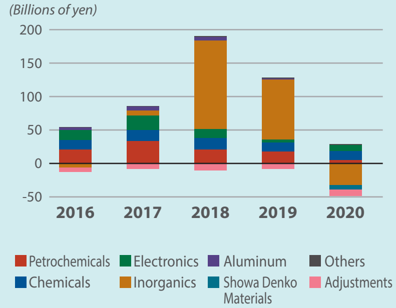
December 31	2010 (Note 2)	2011 (Note 2)	2012	2013	2014	2015
For the year						
Net sales	¥797,189	¥854,158	¥739,675	¥847,803	¥ 872,785	¥775,732
Petrochemicals	199,590	250,396	190,939	286,732	281,400	231,288
Chemicals	133,578	130,203	127,252	130,402	138,695	142,292
Electronics	147,988	165,011	163,306	136,548	138,537	131,492
Inorganics	77,958	77,564	65,573	65,919	67,557	63,476
Aluminum	130,084	124,280	92,194	90,369	97,946	100,756
Showa Denko Materials (Note 4)	—	—	—	—	—	—
Others	154,084	150,583	135,280	176,516	191,610	147,233
Adjustments	(46,093)	(43,879)	(34,870)	(38,684)	(42,959)	(40,805)
Operating income (loss)	38,723	47,357	28,108	25,953	20,551	33,508
Petrochemicals	2,278	3,484	(977)	4,398	(4,930)	10,543
Chemicals	5,618	2,035	(875)	2,559	5,460	10,707
Electronics	14,909	30,242	32,311	21,940	25,770	17,472
Inorganics	10,085	9,640	2,954	(838)	(300)	(1,249)
Aluminum	8,543	6,212	1,581	5,845	2,999	2,563
Showa Denko Materials (Note 4)	—	—	—	—	—	—
Others	2,041	1,860	89	(626)	(1,041)	1,329
Adjustments	(4,752)	(6,116)	(6,975)	(7,324)	(7,406)	(7,857)
Net income (loss) attributable to owners of the parent	12,706	16,980	9,368	9,065	2,929	921
Net cash provided by operating activities	66,293	69,437	53,310	63,565	66,996	61,170
Net cash provided by (used in) investing activities	(49,074)	(38,671)	(41,741)	(55,203)	(46,876)	(42,497)
Free cash flow	17,218	30,766	11,569	8,362	20,120	18,674
R&D expenditures	20,670	21,597	20,633	20,435	20,362	20,289
Capital expenditures	58,035	38,794	42,503	44,370	47,318	44,059
Depreciation and amortization	50,678	49,413	46,232	39,779	40,673	42,137
At year-end						
Total assets	924,484	941,303	933,162	985,771	1,009,843	940,494
Total net assets	284,965	295,745	314,966	345,811	319,087	308,142
Interest-bearing debt	351,034	347,308	342,262	353,686	383,124	368,835
D/E ratio (to FY2018, gross; from FY2019, net) (times) (Note 5)	1.23	1.17	1.09	1.02	1.20	1.20
	Yen					
Per share (Note 6)						
Net income (loss)—primary (Note 7)	¥ 8.49	¥ 11.35	¥ 6.26	¥ 6.06	¥ 1.99	¥ 6.45
Net income—fully diluted (Note 7)	—	11.20	—	—	—	—
Net assets	161.47	168.33	182.24	201.27	209.76	2,076.05
Cash dividends (applicable to the period) (Note 8)	3.00	3.00	3.00	3.00	3.00	3.00
Number of employees at year-end	11,597	11,542	9,890	10,234	10,577	10,561

Notes: 1. Yen amounts have been translated into U.S. dollars, for convenience only, at the rate of ¥103.50 to US$1.00, the approximate rate of exchange at December 31, 2020.
2. Changing the segmentation
Effective from the year ended December 31, 2011, the Companies have applied “Accounting Standard for Disclosures about Segments of an Enterprise and Related Information” (Accounting Standards Board of Japan (ASBJ) Statement No.17, issued on June 30, 2010) and “Guidance on the Accounting Standard for Disclosures about Segments of an Enterprise and Related Information” (ASBJ Guidance No. 20, issued on March 21, 2008). The segment information for the year ended December 31, 2010, which is restated under the accounting standard, is disclosed for comparison purposes.
LIB materials was transferred from “Others” to “Electronics” from the year ended December 31, 2017. The segment information for the year ended December 2016 in the above table is based on the new segmentation. SiC epitaxial wafers for power devices was also transferred from “Others” to “ “Electronics” from the year ended December 31, 2019. The segment information for the year ended December 2018 in the above table is based on the new segmentation.
3. The tentative accounting policy applied to calculation of 2017 financial results due to consolidation of former SGL GE Holding GmbH was finalized when the Company settled accounts for the third quarter of 2018. Accordingly, the amounts for depreciation and amortization and some other costs for the year ended December 2017 were changed. The amount in the above table includes those retroactively changed numbers for the year ended December 2017.
4. Showa Denko K.K. started on July 1, 2020 to incorporate Showa Denko Materials’ sales figures and incomes/losses into its financial statements as the “Showa Denko Materials segment.”

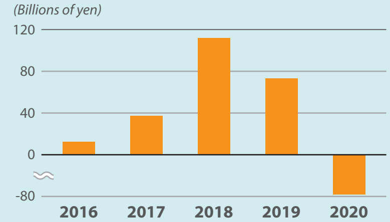
Net Sales by Segment



Operating Income by Segment



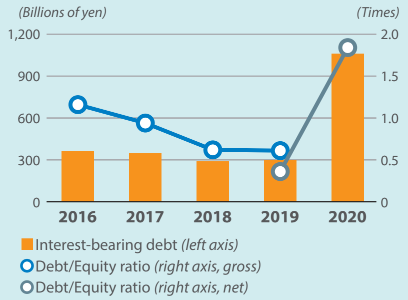
Net Income Attributable to Owners of the Parent



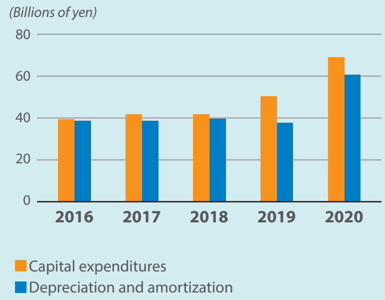
Showa Denko K.K. and Consolidated Subsidiaries			Millions of yen			Thousands of U.S. dollars (Note 1)
December 31	2016 (Note 2)	2017 (Note 3)	2018 (Note 2)	2019	2020	
For the year						
Net sales	¥671,159	¥ 780,387	¥ 992,136	¥ 906,454	**¥ 973,700**	**$ 9,407,728**
Petrochemicals	185,783	251,128	268,879	250,678	**193,385**	**1,868,456**
Chemicals	134,529	148,758	156,541	157,480	**155,769**	**1,505,012**
Electronics	120,461	123,064	111,912	96,445	**97,415**	**941,208**
Inorganics	50,870	73,442	266,149	230,135	**82,899**	**800,953**
Aluminum	98,575	105,439	108,254	97,542	**80,185**	**774,737**
Showa Denko Materials (Note 4)	—	—	—	—	**302,742**	**2,925,043**
Others	128,740	133,624	137,324	126,163	**107,301**	**1,036,725**
Adjustments	(47,800)	(55,067)	(56,922)	(51,989)	**(45,996)**	**(444,405)**
Operating income (loss)	42,053	77,708	180,003	120,798	**(19,449)**	**(187,914)**
Petrochemicals	20,690	33,357	20,333	17,201	**4,927**	**47,603**
Chemicals	13,824	16,474	17,393	13,656	**13,481**	**130,249**
Electronics	15,015	21,925	13,557	4,880	**9,133**	**88,239**
Inorganics	(5,758)	6,979	132,445	89,256	**(32,300)**	**(312,080)**
Aluminum	4,416	6,697	4,942	1,746	**421**	**4,065**
Showa Denko Materials (Note 4)	—	—	—	—	**(6,303)**	**(60,897)**
Others	623	633	1,734	1,819	**1,199**	**11,587**
Adjustments	(6,758)	(8,357)	(10,400)	(7,759)	**(10,006)**	**(96,680)**
Net income (loss) attributable to owners of the parent	12,305	37,404	111,503	73,088	**(76,304)**	**(737,237)**
Net cash provided by operating activities	68,949	67,235	149,785	78,554	**109,286**	**1,055,905**
Net cash provided by (used in) investing activities	(53,754)	(29,866)	(49,338)	(48,156)	**(930,047)**	**(8,985,966)**
Free cash flow	15,195	37,369	100,447	30,397	**(820,761)**	**(7,930,060)**
R&D expenditures	17,313	18,539	19,735	20,605	**34,379**	**332,161**
Capital expenditures	39,276	41,787	41,727	50,216	**69,052**	**667,172**
Depreciation and amortization	38,761	38,565	39,459	37,704	**60,592**	**585,430**
At year-end						
Total assets	932,698	1,026,999	1,074,983	1,076,381	**2,203,606**	**21,290,877**
Total net assets	311,231	368,994	465,340	519,433	**718,080**	**6,937,973**
Interest-bearing debt	359,929	346,726	287,968	298,524	**1,060,146**	**10,242,956**
D/E ratio (to FY2018, gross; from FY2019, net) (times) (Note 5)	1.16	0.94	0.62	0.36	**1.84**	
			Yen			U.S. dollars (Note 1)
Per share (Note 6)						
Net income (loss)—primary (Note 7)	¥ 86.27	¥ 262.44	¥ 758.15	¥ 501.03	**¥ (523.06)**	**$ (5.05)**
Net income—fully diluted (Note 7)	—	—	—	—	**—**	
Net assets	2,080.85	2,473.06	3,057.16	3,423.25	**2,782.79**	**26.89**
Cash dividends (applicable to the period) (Note 8)	—	80.00	120.00	130.00	**65.00**	**0.63**
Number of employees at year-end	10,146	10,864	10,476	10,813	**33,684**	

5. In accordance with the consolidation of Showa Denko Materials Co., Ltd., SDK calculated the D/E ratio with an assumption as follows, starting from the third quarter of the fiscal year ended December 31, 2020. Regarding preferred shares issued by HC Holdings K.K., which is a subsidiary of SDK, we added the amount equivalent to 50% of the value of issued preferred shares to interest-bearing debts and the remaining 50% of it to the equity capital of SDK. SDK also added lease liability to the equity capital of SDK, and use net interest-bearing debt (interest-bearing debt minus cash and deposits) in calculation of D/E ratio. The assumption that we consider 50% of the total value of issued preferred stocks as equity capital is based on the credit rating given by Japan Credit Rating Agency, Ltd. on April 21, 2020. Futhermore, D/E ratio for 2019 was adjusted in the same way.
6. SDK consolidated every ten shares of common stock into one share on July 1, 2016. "Per share" indicators for 2015 and 2016 (except for cash dividends) are calculated on the basis of the number of outstanding shares after this consolidation.
7. Net income (loss) per share has been computed based on the average number of shares of common stock outstanding during the respective fiscal year. Fully diluted net income per share additionally assumes the conversion of the convertible bonds. Diluted net income per share for 2015 and 2014 was not disclosed because there were no dilutive shares. Diluted net income per share for 2013 was not disclosed because the Company had no securities with dilutive effects.
8. SDK resolved payment of dividends of ¥30.00 per share based on the record date of May 11, 2017 at the extraordinary general meeting of shareholders held in June 2017. Cash dividends applicable to 2017 includes this amount.

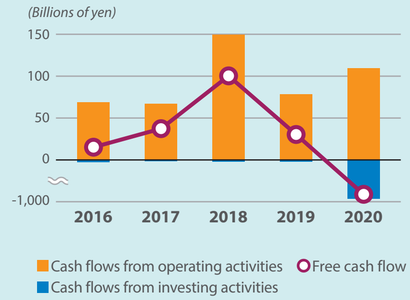
Interest-Bearing Debt
Debt/Equity Ratio



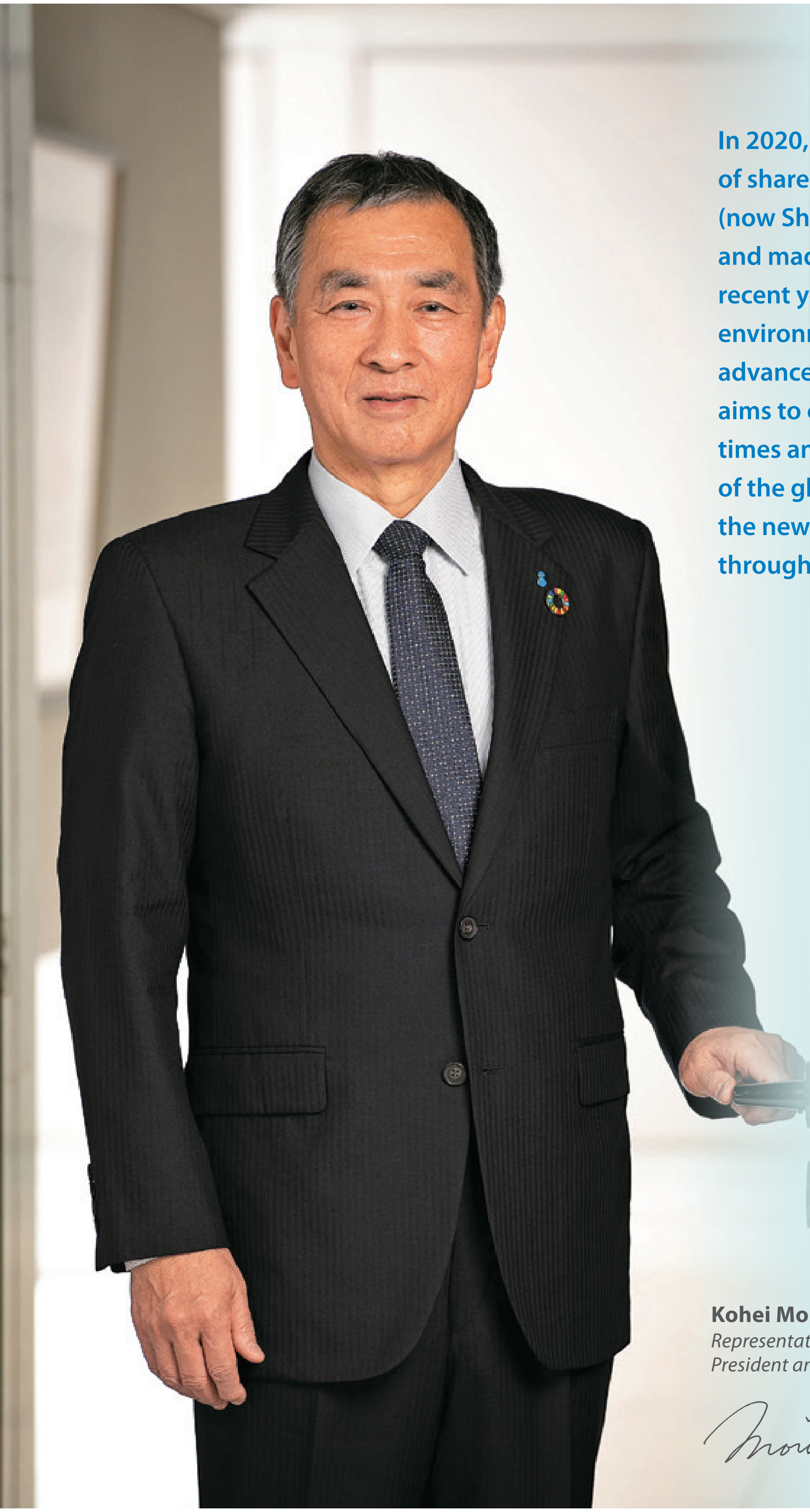
Capital Expenditures
Depreciation and Amortization



Cash Flows



Message from the Management



In 2020, the Showa Denko Group completed acquisition of shares in the former Hitachi Chemical Company, Ltd. (now Showa Denko Materials Co., Ltd.) through TOB, and made the company a consolidated subsidiary. In recent years, the industrial structure and competitive environment have been changing greatly. As an advanced material partner, the Showa Denko Group aims to create functions responding to the needs of the times and contribute to the sustainable development of the global society. We have defined the purpose of the newly integrated company as "change society through the power of chemistry."

Kohei Morikawa
Representative Director,
President and CEO

About Showa Denko Materials

Showa Denko Materials has a long and celebrated history, mainly in the information and communication business sectors, mostly providing semiconductor-related products. Showa Denko Materials' products include CMP slurries and copper-clad laminates, which have high global market shares; resin molded products for mobility applications that contribute to weight reduction in cars; carbon anode materials for lithium-ion batteries used in EVs and HVs; and, in our life sciences business domain, regenerative medicines and diagnostic agents, a market expected to show remarkable growth over the medium to long term.

2020 Performance

In 2020, there was a business slowdown in many industries, including the automotive industry, due to the spread of the coronavirus, COVID-19. Under this difficult business environment, the Showa Denko Group recorded consolidated net sales of ¥973,700 million (US$9,435 million), up ¥67,246 million from the previous year, due mainly to the recent consolidation of Showa Denko Materials. However, our operating income decreased ¥140,247 million, to an operating loss of ¥19,449 million (US$188 million). We also recorded net loss attributable to owners of the parent of ¥76,304 million (US$737 million), a decline of ¥149,392 million from the previous year.

The Group's shipment volumes for a range of products fell significantly in 2020 from the previous year due to the weak markets resulting from the spread of COVID-19.

Most of all, shipment volumes for graphite electrodes dropped sharply and their profitability fell significantly. To cope with this situation, we took action to improve our profitability, including closing our graphite electrode plant in Meitingen, Germany, and reducing the book value of graphite electrode inventories.

On the other hand, our electronics-related operations recorded steady growth, despite the spread of COVID-19, due mainly to higher demand for electronic devices resulting from the wide adoption of teleworking.

The net debt-equity ratio (D/E ratio), a financial indicator, increased from 0.36 times at the end of 2019 to 1.84 times at the end of 2020 due mainly to an increase in interest bearing debt resulting from the acquisition of shares in the former Hitachi Chemical Company, Ltd. Total dividends per share for fiscal 2020 fell to ¥65, down ¥65 from the previous year.

(Since the third quarter of 2020, preferred shares issued by HC Holdings K.K., a subsidiary of SDK, have been added to an amount equivalent to 50% of the value of issued preferred shares to interest-bearing debt and the remaining 50% has been added to the equity capital of SDK. We have also calculated our net D/E ratio excluding cash and deposits since the third quarter of 2020. We applied these changes retrospectively to our financial results for 2019.)

Long-Term Vision for Newly Integrated Company

In December 2020, the Showa Denko Group announced the Long-Term Vision (2021–2030) for the Newly Integrated Company, establishing the basis for business growth far into the future through the integration of Showa Denko and Showa Denko Materials.

The purpose of the new company is to "change society through the power of chemistry." In addition, we will strive to become "a company that can win the global competition" and "a company that contributes to a sustainable global society," the two goals that the Company aims to achieve for an ideal state to fulfill our purpose.

In recent years, society has been requiring private enterprises to contribute to resolving environmental as well as social issues and to achieve the UN's sustainable development goals (SDGs). To respond to the needs of society, private enterprises are required to contribute to the renewal of a wide array of social infrastructure developments, including those related to digital platforms, mobility equipment, and energy. For these reasons, society has growing expectations for innovations to be made by materials manufacturers.

As we stated in the Long-Term Vision for the Newly Integrated Company, we will accelerate the growth of the Group through portfolio management that creates sustainable growth. We will realize a high growth rate and improve our corporate value through business portfolio management with a high degree of complementarity that includes specific business domains: *core growth* to invest growth for the entire Group; *life sciences* for developments in the next generation; *fundamental technologies/materials* to support *core growth* and *life sciences* innovations; and *stable earnings* to generate the cash flows for companywide investment from stable profits. (For the details of the Long-Term Vision, please see pages 8 to 11.)

Business Structure Reforms

The Showa Denko Group has implemented a range of initiatives to restructure business operations:

- For graphite electrode operations, we decided to close the Meitingen Plant in Germany; production had fallen

Message from the Management

significantly due to a business recession in Europe. On the other hand, to improve operating efficiencies, we acquired 50% of the shares of AMI Automation, a provider of fully integrated automation and control solutions to a wide range of industries, including electrode regulation systems and electric arc furnace (EAF) optimization services. We can now provide customers with a broad spectrum of solution services that improve graphite electrode performance, and we can provide more solution-based services that boost EAF steelmaking efficiency, energy conservation, and lower greenhouse gas (GHG) emissions.

- For functional chemicals, we ended the operation of production lines to synthesize unsaturated polyester (UP) and vinyl ester (VE) resins at the Isesaki Plant in Gunma Prefecture, and decided to concentrate domestic production of UP and VE at the Tatsuno Plant in Hyogo Prefecture. The goal is to improve profitability of UP and VE operations in the shrinking domestic market.

- To achieve more growth in our rolled aluminum and aluminum cans operations, we decided to execute a master agreement to transfer these businesses to Apollo Global Management Inc., one of the world's leading alternative investment managers with a wealth of experience supporting aluminum-related industries for more than 20 years.

- SDK has decided to apply for a tender offer made by iSigma Capital Corporation, which is a subsidiary of Marubeni Corporation, against SHOKO CO., LTD., which is a consolidated subsidiary of SDK listed in the First Section of the Tokyo Stock Exchange, with a part of shares in SHOKO held by SDK. The reason for our application to the tender offer is that we reached the conclusion that SHOKO could further accelerate growth and increase corporate value by enabling the development of customers and sales channels, as well as expand our product lineup, improve profitability by taking advantage of economies of scale, and boost management efficiency, among other benefits. These goals will be reached by capitalizing on the domestic and overseas networks plus the management know-how of iSigma Capital and its parent company, Marubeni Corporation, as well as others in their group of companies.

For the complete integration of Showa Denko and Showa Denko Materials (SDMC), the Showa Denko Group will continue implementing bold business structure reforms, including the sale of some businesses. Regarding the post-merger integration of SDK and SDMC, the two companies have been accelerating unification, aiming to achieve substantial integration by July 2021 and full integration of the legal entities by January 2023.

To satisfy all stakeholders—including shareholders, customer industries, business associates, and employees—the Showa Denko Group will operate with an eye on the medium to long term. The overall goals are to contribute to achieving the UN's SDGs by making the most of the newly integrated company's technologies and business operations and to strengthen ESG-oriented operations. By working toward these goals, we are becoming a social contribution company that helps create a society where prosperity and sustainability are in harmony.

Going forward, the Showa Denko Group will change significantly in pursuit of this evolution. Our management team and employees will work as one to realize these revolutionary internal changes. As we push ahead, we ask for your continuing support of the Showa Denko Group.

Finally, we sincerely appreciate and look forward to the continued understanding, support, and encouragement of all our shareholders.

March 30, 2021

Research and Development

With The TOP 2021, our medium-term business plan, the Showa Denko Group aims to become a top-level global functional chemical manufacturer. Based on the key concepts of *deepening*, *fusion*, and *introduction*, the R&D strategy focuses on creating "pipelines" for products that will contribute to the next generation, while continuing to strengthen existing operations with the aim of creating *Koseiha* businesses.

Our intent is to maximize the customer experience (CX) by providing our customers with first-class engineering, products, and services.

To strengthen the creation of these "pipelines," we will fundamentally reinforce our marketing programs to get a firmer grasp on market and technology trends when identifying targets for R&D, and to invest our R&D resources intensively in 10 technical fields, including those that are multi-material or that promote bonding of different materials and for processes that produce next-generation semiconductors. These 10 targets correspond to our seven business domains: Transportation, Energy, Lifestyle, Electronics, Construction/Infrastructure, Industrial Equipment, and Life Science & Healthcare.

R&D Topics

1 SDK's *Karenz*™ isocyanate monomer development team received the Technical Award at the 42nd Conference of the Adhesion Society of Japan

In June 2020, the R&D team that developed the *Karenz*™ isocyanate monomer received the Technical Award at the 42nd Conference of the Adhesion Society of Japan. This award was given to the team in recognition of their development of the *Karenz*™ isocyanate monomer, which is applicable to adhesives and paints, because this material contributes to improvements in design and functionality of the resins used in the adhesives and paints industry. The *Karenz*™ isocyanate monomer molecule contains not only an isocyanato group, which easily binds to other materials, but also an acrylic group that promotes copolymerization and photo/thermo-curing. The *Karenz*™ isocyanate monomer is a proprietary SDK product, and when it is added to or reacts with polymers, it can make photo curing more efficient in a short time. When it is used as a monomer to be incorporated into an acrylic copolymer, it can perform isocyanate curing at relatively low temperatures.

2 Four institutions prove AI speeds up development of flexible transparent film

SDK, the National Institute of Advanced Industrial Science and Technology (AIST), the New Energy and Industrial Technology Development Organization (NEDO), and the Research Association of High-Throughput Design and Development for Advanced Functional Materials (ADMAT) have cooperatively introduced artificial intelligence (AI) into the process of developing flexible transparent film. This AI-based process reduces the numbers of times required for an experiment to produce film that satisfies the required properties to one-twenty-fifth (1/25) or less compared with conventional development methods.

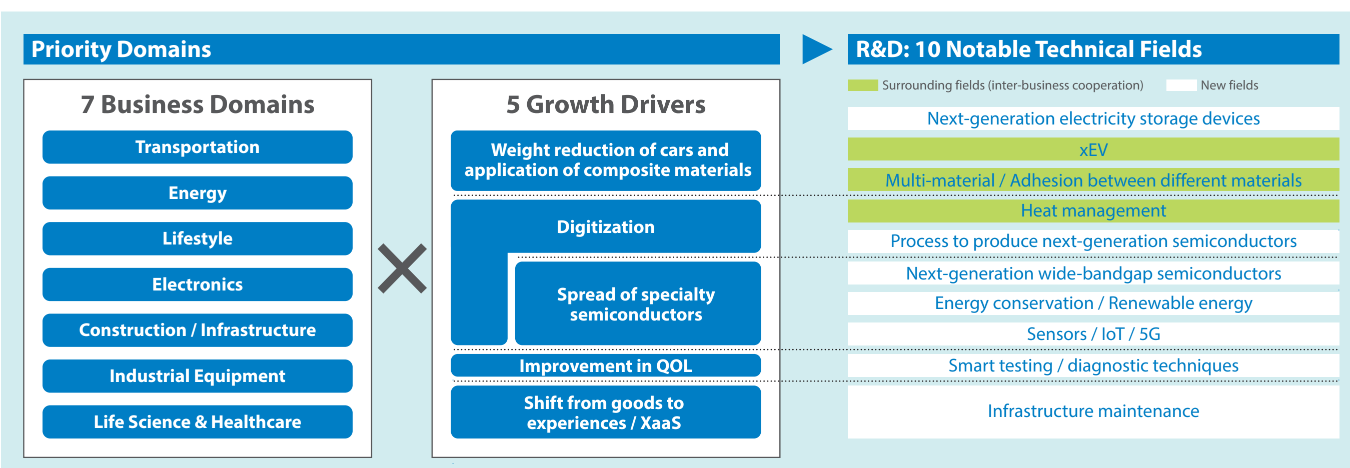
3 SDK develops wet-resistant heat-conductive aluminum nitride filler

SDK has developed a wet-resistant, heat-conductive aluminum nitride filler to be used as a heat radiation filler for semiconductor devices. We have started to offer samples of the aluminum nitride filler to prospective customers. SDK successfully developed a technology to treat the surface of aluminum nitride with ultra-thin film that drastically reduces the amount of corrosive ammonia produced as hydrolysate of the material to ten-thousandth that of aluminum nitride without a surface treatment. This new surface treatment does not reduce the thermal conductivity of the aluminum nitride filler injected into resins. With this innovative surface treatment technology, SDK has successfully developed a filler with outstanding wet resistance and high thermal conductivity. By offering samples to potential customers, we will develop a new market for this aluminum nitride filler, and we plan to start mass production in 2023.

Creating synergies for our R&D will enable us to work together with companies in many industries when we combine our material and application technologies. This drive to develop synergies is taking place in many fields, including reaction control, precision polishing, lithium-ion batteries, and resin materials.

We will also accelerate the pace and improve the quality of our R&D by using our computational science and structure analysis technologies within Showa Denko Materials. As well, we will use Showa Denko Materials' evaluation and simulation technologies within our entire group of companies. In addition, we are integrating the two company's online systems to manage intellectual property (IR) to merge the advantages of IR for both Showa Denko and Showa Denko Materials.

Through these R&D activities, the Showa Denko Group will provide products and services that touch people's hearts, and offer solutions that change society.



R&D Expenditures *(Millions of yen)*	Petrochemicals	Chemicals	Electronics	Inorganics	Aluminum	Showa Denko Materials	Others	**Total**
	1,193	2,916	5,530	617	1,587	15,101	7,434	**34,379**

Long-Term Vision for Newly Integrated Company (2021-2030)

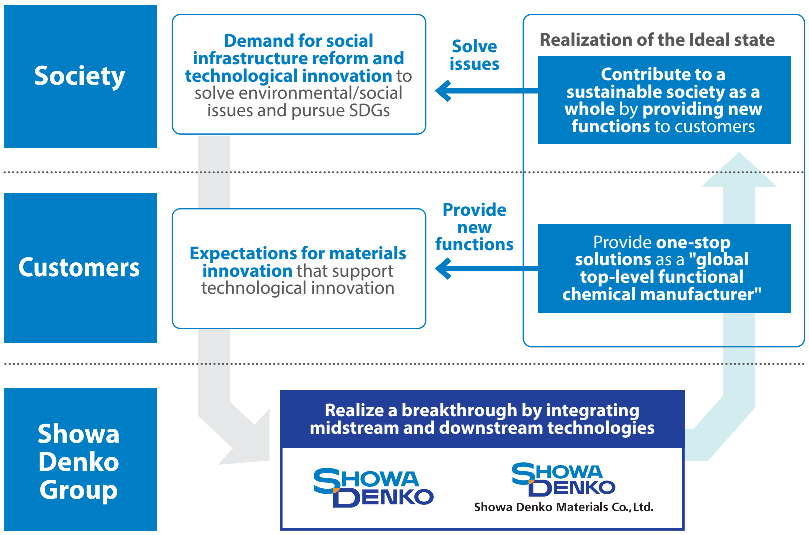
With the integration of Showa Denko and Showa Denko Materials, we intend to create a hybrid advanced material company that has both midstream materials technologies and downstream application technologies. With this goal in mind, we announced our long-term vision for the newly integrated company on December 10, 2020.

Understanding of external environment and significance of integration

Here we would like to discuss the significance of this integration for the realization of our long-term vision. In recent years, there has been an increasing need to resolve environmental and social issues, as well as to pursue SDGs. To help resolve these issues, there has been growing demand for various kinds of social infrastructure improvements, such as improvements in digital platforms, mobility, and energy. As well, there are increasing expectations for innovations from materials manufacturers.

We aim to make technological breakthroughs by combining Showa Denko's midstream materials technologies, Showa Denko Materials' downstream application technologies, and evaluation/analysis technologies from both companies, and we will meet customers' expectations for innovative materials. Further, as a top-level functional chemical manufacturer, we will contribute to a sustainable global society as a whole company by providing new functions that meet the needs of our customers.

Amid demand for materials innovation, contribute to a sustainable society by integrating midstream and downstream technologies



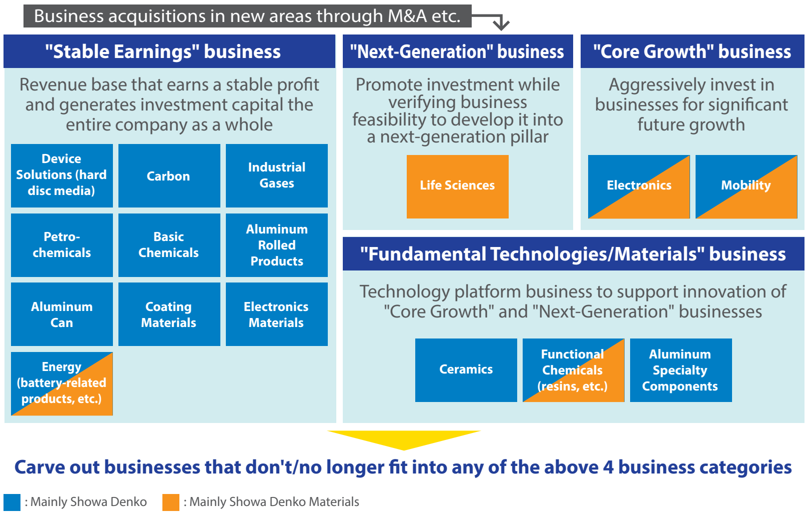
Portfolio management to realize sustainable growth

The key to realizing our goals is our unique and robust business portfolio that we have built by integrating the two companies.

Our four business categories—each with different roles—will contribute with strong competitiveness, in this way enabling us to continue to provide our markets with new functionality and to achieve sustainable growth.

Specifically, these are our *core growth* businesses, which will underpin most of our growth; our *next-generation* businesses, which will sustain the Company's future growth; our *stable earnings* businesses, which will generate stable profits; and finally, our *fundamental technologies/materials* businesses, which will provide technological platforms to the three other business categories.

Achieve high growth with a highly complementary business portfolio of "Core Growth", "Next-Generation", "Stable Earnings" and "Fundamental Technologies/Materials" businesses



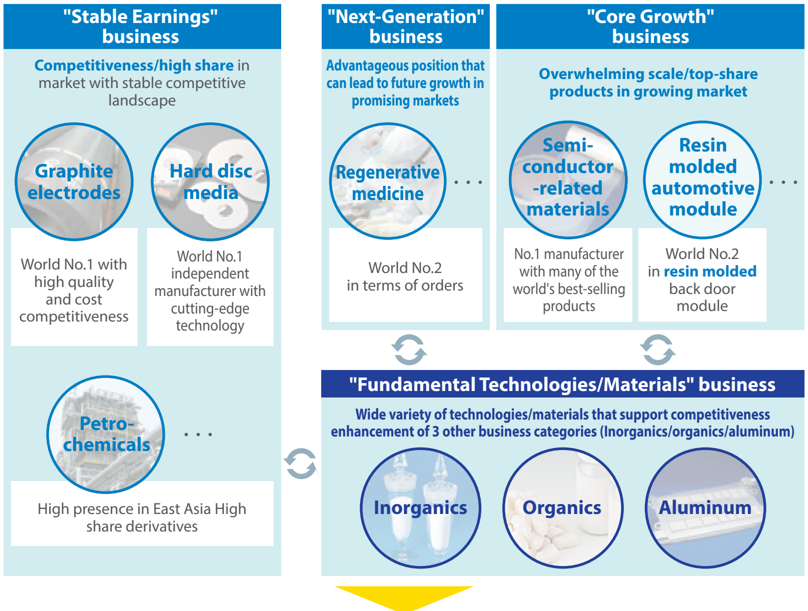
Post-integration business portfolio

It is important that both business groups include top-class business categories with strong competitive advantages.

Our *core growth* business category includes businesses in the number one and number two global positions,* such as semiconductor materials and mobility resin molded automotive modules. Our regenerative medicine segment, which represents our *next-generation* business category, also has the second highest number of orders in the world*. In the *stable earnings* category, we also have businesses, such as graphite electrodes and HD media, that have a high global share in a market where the competitive environment is now settling down. As well, our *fundamental technologies/materials* business category provides a technology platform to support innovations in the other business categories. This category works with three materials and technologies: inorganic chemicals, organic chemicals, and aluminum.

In particular, technologies and materials provided by our *fundamental technologies/materials* business category will strengthen the competitiveness of the other business categories. Moreover, technology and materials from our *fundamental technologies/materials* business category will be used in a wide range of our businesses. The unique feature of this portfolio is a virtuous cycle that strengthens businesses and technologies, and that enables the highly competitive business categories to reinforce one another.

Each of the 4 business categories possesses a competitive advantage commensurate with their respective roles and generates synergies mainly using technologies and materials from the "Fundamental Technologies/Materials" business to provide functions to the market



Highly universal business portfolio that can be deployed in promising markets in the future by continuously refining technologies and materials of "Fundamental Technologies/Materials" business in a wide range of businesses

*Source: Researched by Showa Denko

Market assessment and strategy for *core growth* and *next-generation* businesses

Among our business portfolio, the *core growth* and *next-generation* business categories will drive the growth of the Company.

Although the electronics business will continue to meet intense competition in a growing market, as the players and the direction of technological development are solidifying, the Showa Denko Group will win in growth markets by leveraging our top position and enhanced technological strengths.

In the mobility segment, we will expand into both uncertain and highly certain areas with our business portfolio. Finally, in the life sciences segment, with the market expected to expand in the future, we will drive growth by leveraging our first-mover advantage.

Compete with good understanding of differences in market stages and our position in each growth business

	Electronics	Mobility	Life Sciences (Regenerative medicine)
Market outlook	Within a certain technological development direction, probability of **continued technological innovation** and **market growth** is high	**Both areas of high certainty and areas of uncertainty** co-exist in changing market situation	Market expansion is **certain**, but there is **range of market views** in terms of expansion timelines and growing segments
Competitive environment	As player's positions are solidified, **rapid structure changes and new entries in the industry are unlikely** to occur, although future industry **restructuring** is still possible	Several materials manufacturers exist and **competition for the top position just beginning**	**There are first movers including us**, but **more** new players **are likely to enter the market**
Our position and strategy	Win in growing market by leveraging our **top position** and **enhanced technological capabilities** ● Continue to develop cutting-edge products and provide one-stop solutions	**Manage certainty and uncertainty** with portfolio ● Develop businesses that cater to trends of weight reduction and electrification ● As for trend of electrification, prepare for uncertainty in market share by powertrain type	Drive growth by leveraging **first mover advantages** ● Quickly recoup investment by leveraging current competitive advantage ● Grasp changes and identify segments where competitive advantage can be established

Long-Term Vision for Newly Integrated Company (2021-2030) *(cont.)*

Projected impact of innovation

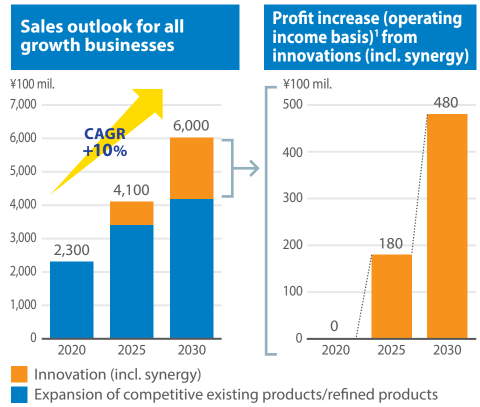
Among the *core growth* and *next-generation* business categories, we will focus on five specific businesses as pillars for medium- to long-term growth: for electronics, the focus will be on semiconductor wafer and packaging processes; in mobility, our multi-materials/ resin molded automotive module and our thermal management segments will be centered around power modules; and the life sciences will focus on regenerative medicine.

The cumulative sales for these five growth business categories in 2020 totaled approximately ¥230 billion, and we will expand this to a scale of ¥600 billion by 2030, while achieving CAGR of 10% through innovations, including synergy among technologies. Through innovations in these five pillar businesses, including the earlier mentioned technological synergy, we expect to generate additional operating income of ¥18 billion and ¥48 billion, in 2025 and 2030, respectively, which will ensure that we achieve a return on our investment through this integration.

Expand growth businesses to a scale of ¥600 billion by 2030 through innovations including technological synergies resulting from integration of the two companies

Growth businesses	
Electronics	● Semiconductor Wafer process ● Semiconductor Packaging process
Mobility	● Multi materials/ resin molded automotive module ● Heat management (Power module)
Life Sciences	● Regenerative medicine

Projected sales and operating income in growth businesses (estimated)



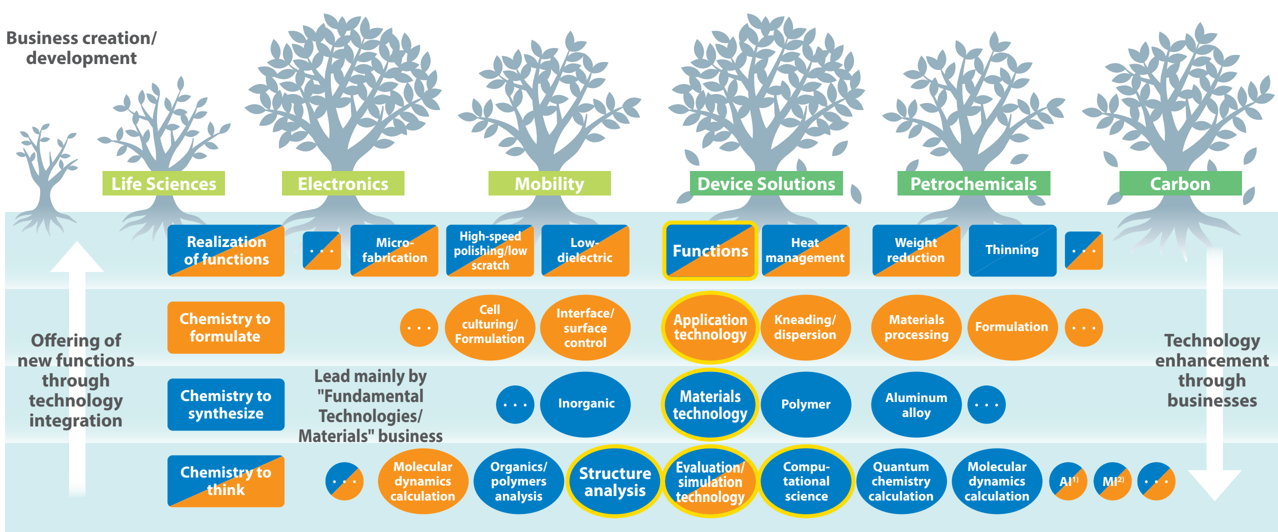
1. Does not include operating income based on sales of non-innovations

Integration of technologies of the two companies

Our vision of a hybrid advanced materials company that combines midstream materials technologies with downstream application technologies is illustrated by comparing ourselves to "soil" and the "trees" that grow from it.

Our chemical materials technology includes Showa Denko's midstream materials; application technology includes Showa Denko Materials' downstream applications; and analytics technology includes both companies' evaluation/simulation technologies, structure analysis, and computational science. These three technologies and the *fundamental technologies/materials* business category are the nutrients in the rich soil. In other words, fundamental technologies/materials make it possible to produce and nurture quality "trees": the *core growth*, *next-generation* and *stable earnings* business categories. Of course, we can also bring in "saplings" from other sources and grow them in the rich soil. In the process, the "soil" of technologies will also be continually refined through business operations and this will lead to the development of businesses with new functions. This cycle of business strengthening and technological improvement will allow us to achieve a self-directed portfolio transformation and sustained high growth.

Continuously provide the market with a wide range of functions by integrating and enhancing technologies, and enable the creation and development of new businesses through "self-directed portfolio reform"



1. AI = Artificial Intelligence 2. MI = Materials Informatics

Examples of contributions to SDGs through diverse technologies and businesses

First, for specific numerical targets over the medium to long term we intend to rank among the top 25% of companies in the chemicals industry for TSR (total shareholder return). In addition, in 2025 we are aiming for ¥1.6 trillion in sales, an EBITDA margin on sales of 20%, an ROE of 15%, and a net D/E ratio of close to 1.0 times. When it comes to sales and EBITDA, these targets will likely change as a result of future portfolio restructuring. However, we have set the EBITDA margin, ROE, and net D/E ratio as targets to achieve regardless of how our portfolio is restructured.

As long-term numerical targets for 2025, set EBITDA margin of 20%, ROE of 15%, and net D/E ratio close to 1.0 times

Long-term numerical targets

	2020 results (Annualized basis)*	2021 forecast	2025	2030
TSR (%)**	Aim to be among Top 25% in chemicals industry over the Medium- to long-term			
Sales (Trillion yen)	1.25	1.28	1.6	1.8~1.9
EBITDA (Billion yen)	89.7	165.1	320.0	—
EBITDA margin (%)	7.2%	12.9%	20%	—
ROE (%)	-20.3%	- 3.7%	15%	—
Net D/E ratio (Times)	1.84	1.96	Close to 1.0	—

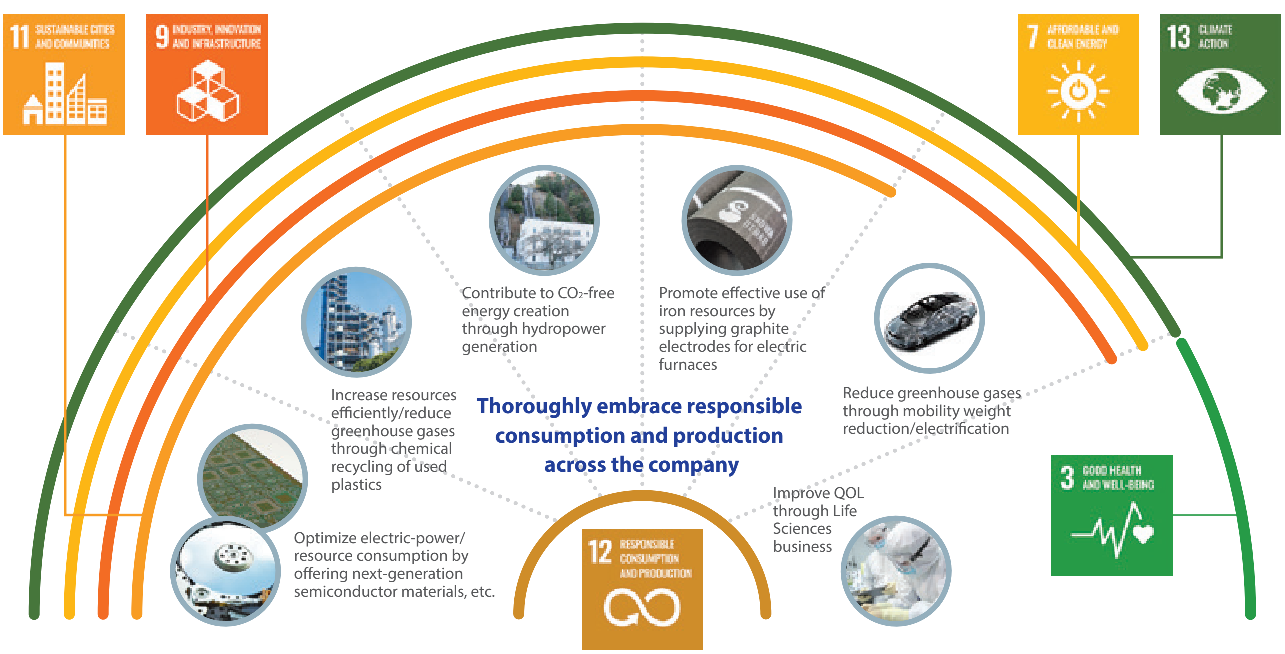
* Annualized figures are the combined figures of actual results and Showa Denko Materials' institutional accounting figures for Jan. 2020-Jun. 2020, including amortization of goodwill and other assets equivalent to that in the second half of 2020.
** TSR: Total Shareholders Return

Long-term numerical targets

We aim to be "a company that can win the global competition" and "a company that contributes to a sustainable global society."

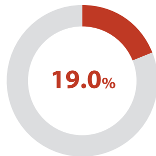
To achieve these goals, we will meet the expectations of our customers through innovations that combine technologies, and we will contribute to a sustainable society as a whole through business operations. When operating our businesses, we will go after business activities that address the UN's 17 Sustainable Development Goals (SDGs). As a newly integrated company, we will contribute to SDGs through various technologies and businesses, and further strengthen our ESG initiatives.

As a newly integrated company, contribute to SDGs through various technologies and businesses, and further strengthen ESG efforts



Business Segments

Petrochemicals

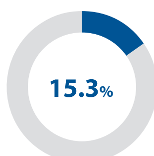


Consolidated Business Results *(Millions of yen)*	2020	2019	Increase/ decrease	Rate of change
Sales	193,385	250,678	-57,293	-22.9%
Operating Income	4,927	17,201	-12,274	-71.4%

The Oita Complex is the main manufacturing base of the Petrochemicals Division and is equipped with a naphtha cracker. The Complex produces olefins, including ethylene and propylene. As its feature, the Complex has a well-balanced demand structure. The basic raw materials manufactured within the Complex are supplied not only to Showa Denko's plants producing organic chemicals, including vinyl acetate, ethyl acetate and other acetylic derivatives, but also to other companies' plants in and around the Oita Complex producing plastics, synthetic rubber, and styrene monomer, including a plant producing polypropylene that is operated by SunAllomer Ltd., a subsidiary of Showa Denko.

Showa Denko is expanding business to produce acetylic derivatives by taking advantage of the Company's advanced catalyst technology.

Chemicals



Consolidated Business Results *(Millions of yen)*	2020	2019	Increase/ decrease	Rate of change
Sales	155,769	157,480	-1,711	-1.1%
Operating Income	13,481	13,656	-175	-1.3%

The Electronic Chemicals Division supplies semiconductor manufacturers in Japan and overseas with more than 20 kinds of high-purity gases, including fluorinated etching gases, ammonia and chlorine gases, chemicals, and equipment for use in the LCP, LED, and solar cell manufacturing processes.

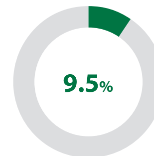
The Industrial Gases Division supplies oxygen, nitrogen, and argon separated from air as well as compressed hydrogen, carbonic acid, dry ice, and other industrial gases to wide-ranging industries. The Division especially contributes to a stable supply of food and food safety by providing carbonic acid gas, mainly used for carbonated drinks and dry ice to keep food cool.

The Basic Chemicals Division supplies ammonia, acrylonitrile, caustic soda, hydrochloric acid, and other industrial chemicals. The Division also supplies amino acids, as well as elastomer products, such as chloroprene rubber. *ECOANN*™ ammonia, which utilizes used plastics as a raw material, is a product that contributes to the creation of a recycling-oriented society and is mainly used as a denitration agent at thermal power plants.

The Functional Chemicals Division consists of the Functional Polymers Department and the Specialty Chemicals Department. The Functional Polymers Department provides various types of plastics, including unsaturated polyester resin, which is light, strong and corrosion-resisting, and molding compounds made by using the plastics. The Specialty Chemicals Department offers innovative and unique products, such as raw materials for cosmetics, resins for use as electronic materials, and columns for high performance liquid chromatography (HPLC). We have decided to concentrate domestic production bases to streamline our capacity to produce unsaturated polyester and vinyl ester resins.

Coating Materials Department was organized in July 2019 following our acquisition of Industrielack AG (ILAG), a nonstick coating chemicals manufacturer, of Switzerland. The Department provides nonstick coating chemicals, which are materials applicable to surfaces of cookware, home appliances, cars and industrial equipment in order to prevent burning on and staining.

Electronics



Consolidated Business Results *(Millions of yen)*	2020	2019	Increase/ decrease	Rate of change
Sales	97,415	96,445	970	1.0%
Operating Income	9,133	4,880	4,253	87.2%

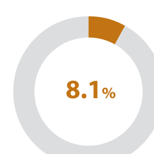
The Device Solutions Division provides data-recording media for hard disk drives and SiC epitaxial wafers for power devices. The Showa Denko Group is the largest independent HD media supplier in the world, and the Device Solutions Division conducts HD media business with production bases in Japan, Taiwan, Singapore, and Malaysia. This division provides world-class high-quality HD media for use in PCs and other consumer electronic products as well as for use in data centers and other fields, where demand is expected to grow due to the spread of cloud computing.

SiC epitaxial wafers are used as materials for next generation power semiconductors, which are expected to contribute to energy conservation. The wafers are being increasingly used in quick-chargers for EVs, photovoltaic generation, and servers. We are expanding our capacity to produce SiC epi-wafers and improving their quality in order to respond to quick expansion of the market for power control units for EVs.

The Electronics Materials Division (now Electronics Materials Project) supplies compound semiconductor materials and rare earth magnetic alloys. For compound semiconductor materials, the Division has a wide lineup of high-output LEDs with industrial applications, including use in displays and sensors. In our Long-Term Vision for the Newly Integrated Company, we positioned Electronics Materials as a "stable earnings" business. To strengthen this business's competitiveness and adaptability to changes in the market, we established Showa Denko Photonics Co., Ltd. which succeeded SDK's rare earth magnetic alloy and LED operations in January 2021.

The Advanced Battery Materials Division is promoting production and sales of various materials for lithium-ion batteries, including *VGCF*™-H unique anode and cathode additive which prolongs life of batteries, and *SPALF*™ aluminum laminated film for LIBs installed in smartphones, tablets and EVs.

Inorganics

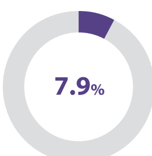


Consolidated Business Results *(Millions of yen)*	2020	2019	Increase/ decrease	Rate of change
Sales	82,899	230,135	-147,236	-64.0%
Operating Income	-32,300	89,256	-121,556	—

The Carbon Division supplies graphite electrodes for electric steelmaking furnaces. These electrodes are indispensable for the recycling of iron and steel. Showa Denko's graphite electrodes are highly acclaimed by customers around the world. The Division integrated the graphite electrode business of German company SGL GE GmbH in 2017 to become the world's number one manufacturer in this field. In February 2021, SDK acquired shares in AMI Automation, which provides electrode regulation systems and operation optimization software to improve efficiencies of electric arc furnaces. AMI also provides fully integrated automation and plant control systems for a wide range of industries. Through these investments, the Division now has operating synergies through the integration with AMI, and profitability of the graphite electrode business has improved. The Division will continue developing and producing high-end graphite electrodes and supplying them to advanced countries, and we will sell products for the mass-market sector in emerging countries that are growing very rapidly.

Capitalizing on long-accumulated high-temperature fusion technology, high-temperature sintering technology, and the pulverization/classification technology, the Ceramics Division manufactures and sells polishing materials, abrasives, and refractories where fused alumina, silicon carbide, and boron nitride are used. For ultrafine titanium oxide, used as the main material to manufacture multilayer ceramic capacitors (MLCCs) that are mounted on a range of electronic devices, the Division is expanding sales for use in high-end products.

Aluminum



Consolidated Business Results *(Millions of yen)*	2020	2019	Increase/ decrease	Rate of change
Sales	**80,185**	**97,542**	**-17,357**	**-17.8%**
Operating Income	**421**	**1,746**	**-1,326**	**-75.9%**

The Aluminum Specialty Components Division provides aluminum materials and processed products. The Division supplies the following products not only in Japan but also in Europe, the United States, and Southeast Asia: large/complexly shaped extruded products, continuously cast rods of aluminum alloys (*SHOTIC*™) made using Showa Denko's proprietary technologies, and forged products for automobile parts including compressors for car air conditioners.

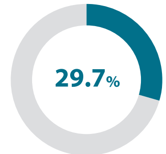
The Division also supplies a range of heat exchangers for home electric appliances and industrial equipment worldwide and is developing and manufacturing power semiconductor cooling devices used in hybrid cars, electric vehicles, and solar power generation equipment.

The Aluminum Rolled Products Division provides high-purity aluminum foils for use in electrolytic capacitors, which require high-purity aluminum and precision control in foil manufacturing process. Aluminum electrolytic capacitors are widely used in a range of products, including home electric appliances and automotive equipment.

The Showa Denko Group became the first company to manufacture aluminum beverage cans in Japan in 1971. Since then, the Aluminum Can Division has been supplying high-quality aluminum cans for beverages through integrated production, including pressing can bodies and can ends and printing labels.

In January 2021, after carefully weighing the options, we reached the conclusion that the expansion of the aluminum can and aluminum rolled products operations would be best achieved through business partners that have specialized knowledge and management resources to enable business growth, so we decided to transfer these operations to a subsidiary of Apollo Global Management, Inc. in mid-2021.

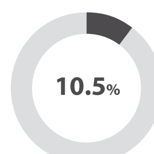
Showa Denko Materials



Consolidated Business Results *(Millions of yen)*	2020	2019	Increase/ decrease	Rate of change
Sales	**302,742**	—	—	—
Operating Income	**-6,303**	—	—	—

In April 2020, this segment was established by making Showa Denko Materials Co., Ltd. a consolidated subsidiary. Showa Denko Materials Group concentrates management resources on four business domains: information and communications, mobility, energy, and life sciences. The information and communications domain contributes to the evolution of information and communication equipment through the development of leading-edge technologies for semiconductor materials. These materials include polishing materials for semiconductor circuits; materials for displays, including films for connecting circuits for display panels; and materials for circuit boards, including copper-clad laminates. The mobility domain contributes to the development of next-generation automobiles through the production and sales of a wide range of products, including plastic components, tribology materials, powder metal products, carbon anode materials for lithium-ion batteries, and heat-resistant coating materials. The energy domain offers products that contribute to realizing ideal energy management, including lead storage batteries for industrial use, lithium-ion batteries, and car batteries. The life sciences business domain produces and sells diagnostic agents; develops manufacturing methods for regenerative medicines; and conducts commissioned production for these agents and technologies.

Others



Consolidated Business Results *(Millions of yen)*	2020	2019	Increase/ decrease	Rate of change
Sales	**107,301**	**126,163**	**-18,862**	**-15.0%**
Operating Income	**1,199**	**1,819**	**-620**	**-34.1%**

Included in this segment are themes for future businesses as well as the manufacture and sale of various chemical products, light metals, and building and civil engineering materials.

For details of business results, please see the Management's Discussion and Analysis (p. 19).

Management Team as of March 30, 2021

Back row: Noriko Morikawa, Kiyoshi Nishioka, Masaharu Oshima, Kozo Isshiki Middle row: Hiroshi Sakai, Hideo Ichikawa, Hisashi Maruyama Front row: Motohiro Takeuchi, Kohei Morikawa, Hidehito Takahashi

Directors

KOHEI MORIKAWA *Representative Director, President*

April 1982	Joined the Company
January 2013	Corporate Officer; General Manager, Electronic Chemicals Division
January 2016	Managing Corporate Officer; Chief Technology Officer (CTO)
March 2016	Director; Managing Corporate Officer; Chief Technology Officer (CTO)
January 2017	Director; President and Chief Executive Officer (CEO) (incumbent)

HIDEHITO TAKAHASHI *Representative Director*

April 1986	Joined The Mitsubishi Bank, Ltd. (currently MUFG Bank, Ltd.)
October 2004	Asia Pacific President, GE Sensing & Inspection Technologies, GE Japan Holding Corporation
October 2008	President & CEO, Silicones Business, Momentive Performance Materials Japan Inc.
January 2013	President and CEO, GKN Driveline Japan plc
October 2015	Joined the Company, Senior Corporate Fellow, Assistant to President
January 2016	Corporate Officer; General Manager, Corporate Strategy Department
January 2017	Managing Corporate Officer
March 2017	Director; Managing Corporate Officer
July 2017	Director; Managing Corporate Officer, General Manager, Carbon Division
January 2020	Director; Managing Corporate Officer, in charge of Carbon and Ceramics divisions, Coating materials Department, Yokohama and Shiojiri plants, and Corporate Strategy Department; Chief Strategy Officer (CSO) (incumbent)

MOTOHIRO TAKEUCHI *Representative Director*

April 1983	Joined the Company
January 2015	Corporate Officer; General Manager, Ceramics Division
January 2017	Corporate Officer; General Manager, Corporate Strategy Department
January 2019	Corporate Officer; Chief Financial Officer (CFO)
March 2019	Director; Corporate Officer; General Manager, Finance & Accounting Department; Chief Financial Officer (CFO)
January 2020	Director; Managing Corporate Officer, in charge of Finance & Accounting and Information Systems departments; Chief Financial Officer (CFO) (incumbent)

HIDEO ICHIKAWA *Chairman of the Board*

April 1975	Joined the Company
January 2006	Corporate Officer; General Manager, Corporate Strategy Office
March 2008	Director; Corporate Officer; General Manager, Corporate Strategy Office
September 2008	Director; Corporate Officer; Executive Officer, HD Sector
January 2010	Director; Managing Corporate Officer; Executive Officer, HD Sector
January 2011	Director; President and Chief Executive Officer (CEO)
January 2017	Director; Chairman of the Board (incumbent)

HISASHI MARUYAMA

April 1983	Joined Hitachi Chemical Company, Ltd. (currently Showa Denko Materials Co., Ltd.)
April 2016	President, Hitachi Chemical Company, Ltd.
June 2016	Director; President, Hitachi Chemical Company, Ltd.
June 2020	Director; President, Chief Executive Officer (CEO) and Chief Quality Officer (CQO), Hitachi Chemical Company, Ltd.
January 2021	Director; President and Chief Executive Officer (CEO), Showa Denko Materials Co., Ltd. (incumbent)
March 2021	Director of the Company (incumbent)

HIROSHI SAKAI

April 1986	Joined the Company
January 2015	Senior Corporate Fellow; General Manager, Technology Development Control Department, HD Division
January 2019	Corporate Fellow; General Manager, Technology Development Control Department, Device Solutions Division
January 2020	Corporate Officer, Chief Technology Officer (CTO)
March 2020	Director; Corporate Officer, Chief Technology Officer (CTO)
January 2021	Director; Corporate Officer, in charge of Advanced Battery Materials Division, Institute for Integrated Product Development, and Corporate R&D and Intellectual Property departments; Chief Technology and Officer (CTO) (incumbent)

MASAHARU OSHIMA *Outside Director*

April 1974	Joined Nippon Telegraph and Telephone Public Corporation (currently Nippon Telegraph and Telephone Corporation)
November 1995	Professor, Applied Chemistry Department, Graduate School of Engineering, The University of Tokyo
April 2006	Director, Synchrotron Radiation Research Organization, The University of Tokyo
October 2009	Chairman, The Japanese Society for Synchrotron Radiation Research
April 2013	Project Professor, Synchrotron Radiation Research Organization, The University of Tokyo
May 2013	Chairman, The Surface Science Society of Japan
June 2013	Emeritus Professor, The University of Tokyo (incumbent)
April 2014	Project Researcher, Synchrotron Radiation Research Organization, The University of Tokyo
March 2015	Director of the Company (incumbent)
April 2015	Special Professor, Tokyo City University (incumbent)
July 2016	Project Researcher, School of Engineering, The University of Tokyo
December 2016	Project Researcher, Institute for Solid State Physics, The University of Tokyo (incumbent)

KIYOSHI NISHIOKA *Outside Director*

April 1977	Joined Nippon Steel Corporation
June 2005	Director; General Manager, Technology Development Planning Department, Technology Development Headquarters, Nippon Steel Corporation
June 2009	Counselor, Nippon Steel Corporation
November 2012	Special Professor, Research Center for Advanced Science and Technology, The University of Tokyo
April 2017	Adviser, Research Center for Advanced Science and Technology, The University of Tokyo (incumbent)
April 2017	Visiting Professor, Ehime University (incumbent)
March 2018	Director of the Company (incumbent)
July 2019	Director, VCRI Co., Ltd. (incumbent)

KOZO ISSHIKI *Outside Director*

July 1969	Joined Japan Development Bank (currently Development Bank of Japan Inc.)
June 2001	Executive Director, Development Bank of Japan Inc.
May 2005	Chairman of the Board, Technology Alliance Investment, Ltd.
June 2015	Director, Medical System Network Co., Ltd. (Outside Director) (incumbent)
March 2019	Director of the Company (incumbent)

NORIKO MORIKAWA *Outside Director*

April 1981	Joined CHORI CO., LTD.
August 1988	Joined Daiwa Securities America Inc.
September 1991	Joined Arthur Andersen
March 1995	Joined Motorola Inc.
March 2005	Director, in charge of accounting and finance; General Manager, Accounting and Finance Headquarters in Japan, Motorola Inc.
June 2009	Joined Bosch Corporation
August 2010	Director; Vice President, in charge of Administrative Headquarters, Bosch Corporation
June 2018	Outside Director, CHORI CO., LTD. (incumbent)
March 2020	Director of the Company (incumbent)
June 2020	Outside Director, Mitsubishi Heavy Industries, Ltd. (incumbent)

Audit & Supervisory Board Members

TOSHIHARU KATO

April 1981	Joined Showa Aluminum Corporation (currently Showa Denko K.K.)
January 2016	Corporate Officer; General Manager, Finance & Accounting Department
January 2017	Corporate Officer; General Manager, Finance & Accounting Department; Chief Financial Officer (CFO)
March 2017	Director; Corporate Officer, General Manager, Finance & Accounting Department; Chief Financial Officer (CFO)
January 2018	Director; Corporate Officer, in charge of Finance & Accounting and Information Systems departments; Chief Financial Officer (CFO)
January 2019	Director, Assistant to President
March 2019	Audit & Supervisory Board Member (incumbent)

JUN TANAKA

April 1982	Joined the Company
January 2013	Corporate Officer; General Manager, Advanced Battery Materials Department
January 2017	Managing Corporate Officer; Chief Technology Officer (CTO)
March 2017	Director; Managing Corporate Officer; Chief Technology Officer (CTO)
January 2019	Director; Managing Corporate Officer, in charge of Advanced Battery Materials Division, Institute for Integrated Product Development, Advanced Technology Laboratory, Corporate R&D and Intellectual Property departments; Chief Technology Officer (CTO) (incumbent)
January 2020	Director, Assistant to President
March 2020	Audit & Supervisory Board Member (incumbent)

Back row: Masako Yajima, Kiyomi Saito, Setsu Onishi   Front row: Toshiharu Kato, Jun Tanaka

KIYOMI SAITO *Outside Member*

April 1973	Joined Nikkei Inc.
September 1975	Joined Sony Corporation
August 1984	Joined Morgan Stanley Investment Bank
January 1990	Executive Director, Morgan Stanley Investment Bank
April 2000	Director; President, JBond Co., Ltd. (currently JBond Totan Securities Co., Ltd.) (incumbent)
April 2011	Director; President, The Totan Information Technology Co., Ltd.
March 2012	Audit & Supervisory Board Member of the Company (incumbent)
June 2015	Outside Director, Kajima Corporation (incumbent)

SETSU ONISHI *Outside Member*

April 1978	Joined The Industrial Bank of Japan, Ltd. (currently Mizuho Bank, Ltd.)
April 2005	Corporate Officer; General Manager, 14th Marketing Department, Mizuho Corporate Bank, Ltd. (currently Mizuho Bank, Ltd.)
April 2007	Managing Corporate Officer, in charge of Global Syndication Unit and Global Products Unit
April 2010	Vice President; Corporate Officer; General Manager, Internal Audit Division, Mizuho Financial Group, Ltd.
June 2010	Director; Vice President; Corporate Officer; General Manager, Internal Audit Division, Mizuho Financial Group, Ltd.
April 2011	Director; Mizuho Financial Group, Ltd.
June 2011	Director; Vice President, IBJ Leasing Company, Limited
April 2013	Director; President, IBJ Leasing Company, Limited
June 2016	Councilor, Mizuho Financial Group, Ltd.
April 2017	Senior Counselor, Nippon Commercial Development Co., Ltd. (incumbent)
June 2017	Director, NS United Kaiun Kaisha, Ltd. (incumbent)
March 2018	Audit & Supervisory Board Member of the Company (incumbent)

MASAKO YAJIMA *Outside Member*

April 1994	Registered at Dai-Ichi Tokyo Bar Association Joined Nishimura Law Office (currently Nishimura & Asahi)
March 2001	Registered as a lawyer in the State of New York
April 2004	Assistant Professor, Law School, Keio University
January 2006	Partner, Nishimura & Tokiwa (currently Nishimura & Asahi) (incumbent)
April 2007	Professor, Law School, Keio University (incumbent)
March 2020	Audit & Supervisory Board Member of the Company (incumbent)

Corporate Officers

Chief Executive Officer

KOHEI MORIKAWA

Senior Managing Corporate Officer

JIRO ISHIKAWA

General Manager, Device Solutions Division; Officer in charge of Electronics Materials Project and Chichibu Plant

Managing Corporate Officers

HIDEHITO TAKAHASHI

Chief Strategy Officer (CSO); Officer in charge of Carbon and Ceramics divisions, Coating materials Department, Yokohama and Shiojiri plants, and Corporate Strategy Department

MOTOHIRO TAKEUCHI

Chief Financial Officer (CFO); Officer in charge of Finance & Accounting and Information Systems departments

KEIICHI KAMIGUCHI

Chief Risk Management Officer (CRO); Officer in charge of Internal Audit, Legal, CSR & General Affairs, Human Resources, and Purchasing & SCM departments

Corporate Officers

YOUICHI TAKEUCHI

Plant Manager, Kawasaki Plant

TAICHI NAGAI

Oita Complex Representative

MASUNORI KAIHO

Officer in charge of Kawasaki, Higashinagahara, Isesaki, and Tatsuno plants, Production Technology, Energy & Electricity, SPS Innovation, and Responsible Care departments

TESTUO WADA

General Manager, Institute for Integrated Product Development

HIROTSUGU FUKUDA

General Manager, Petrochemicals Division; Officer in charge of Oita Complex

EISHI WAKUTSU

General Manager, Corporate Strategy Department

KENJIRO YAMAMASU

General Manager, Electronic Chemicals Division; Officer in charge of Tokuyama Plant

HIROSHI SAKAI

Chief Technical Officer (CTO); Officer in charge of Advanced Battery Materials Division, Institute for Integrated Product Development, and Corporate R&D and Intellectual Property departments

KAZUO HIRAKURA

General Manager, Industrial Gases Division; Officer in Charge of Basic Chemicals, Electronic Chemicals, and Functional Chemicals divisions

HIROYUKI EDA

Officer in charge of Aluminum Rolled Products, Aluminum Specialty Components, and Aluminum Can divisions and Oyama and Kitakata plants

MAKOTO TAKEDA

General Manager, Carbon Division

Corporate Governance

Message from Hideo Ichikawa, Chairman of the Board

The Showa Denko Group views the further strengthening of corporate governance as a top management priority. In December 2015, the Company established Corporate Governance Basic Policies, aiming to meet stakeholders' expectations by increasing corporate value and shareholders' common interests. Guided by the Basic Principles, we updated our *Corporate Governance Report*, and we are now promoting constructive dialogues with investors and shareholders.

In 2020, we increased the number of outside directors from three to four, out of the nine members of the Board of Directors. For the Audit & Supervisory Board, three out of the five members are outside members. Those outside board members are experts from the financial and manufacturing industries, academia, and the legal profession. Further, the number of women among the 14 board members increased from one to three, contributing to greater diversity. Both boards have very high attendance rates, with free and vigorous exchanges of views.

In 2020, the Company made a tender offer for shares of Hitachi Chemical Company, Ltd.—the largest M&A in our history—and made it a consolidated subsidiary: Showa Denko Materials Co., Ltd. As the Chairman of the Board, I would like to steer the Company toward a smooth integration by 2023, aiming for the new Showa Denko Group to have a promising future. In preparation for the integration and to strengthen corporate governance in growth areas, Mr. Hisashi Maruyama, President of Showa Denko Materials, was appointed as a new director of the Company. Therefore, the total number of directors has been increased to 10.

From fiscal year 2020, I have concentrated my attention on my work as the Chairman of the Board. I would like to stimulate discussions at the Board of Directors' meetings and take the leadership to have deep discussions at our meetings on the medium- to long-term course of the management of the Company.

In view of the full integration with Showa Denko Materials (scheduled for January 2023), the Board of Directors will discuss important management policies of the Showa Denko Group, including our management philosophy, business strategy, and business portfolio as well as policies on capital investment, structural reform, and shareholders' returns.

We still have many social issues to be resolved by the power of chemistry, including global warming, marine plastic waste, effective use of limited oil and mineral resources, and improvements in the quality of life for people around the world. To contribute toward resolving these social issues, the whole Showa Denko Group will continue to work based on Our Code of Conduct, which includes our pledge to "maintain and improve the global environment." We will also take up the challenge of carbon neutrality, with the target year of 2050. The Group will actively develop, produce, and sell products as well as supply services that contribute to the achievement of SDGs, in this way enhancing our value as a "company contributing to the sound growth of society."

We look forward to the continued support of investors and shareholders.

Hideo Ichikawa
Chairman of the Board

1. Basic Concept of Corporate Governance

We will promote corporate governance to ensure the soundness, effectiveness, and transparency of management, and to continue enhancing our corporate value, thereby contributing to the sound growth of society and earning its full trust and confidence. To that end, it is essential for us to strengthen relations with our stakeholders, including shareholders, customers, suppliers, community residents, and employees. Based on the above, we have clarified our mission in the form of the Group's vision, as stated below, and we are working hard to realize this vision.

VISION	We at the Showa Denko Group will provide products and services that are useful and safe and exceed our customers' expectations, thereby enhancing the value of the Group, giving satisfaction to our shareholders, and contributing to the sound growth of international society as a responsible corporate citizen.

* Please visit our website (URL: https://www.sdk.co.jp/english/about/governance.html) for our Corporate Governance Basic Policies.

2. Supervisory and Decision-Making Functions

We have adopted the Audit & Supervisory Board system to enhance the fairness and transparency of management, ensuring efficient management of the Company. To clearly separate management supervision from business execution, we have introduced a corporate officer system. The top management team, consisting of the President and corporate officers in charge of their respective operations, is working to increase the speed of decision-making and to vitalize operations. At the same time, the Company has substantially reduced the number of directors.

In addition, we have strengthened supervisory functions by appointing outside directors. To reinforce the independence and objectivity of the Board of Directors, and accountability of the Board of Directors, the Company has established the Nomination Advisory Committee and the Remuneration Advisory Committee as advisory bodies to the Board of Directors. The majority of each committee consists of independent outside directors and outside members of the Audit & Supervisory Board. At board meetings held once or twice a month, the Board of Directors decides on the Company's basic policy and decides, after full deliberation, on matters provided for in the Companies Act and the Company's Articles of Incorporation as well as important matters for the execution of the Company's operations, ensuring a speedy and vigorous decision-making process.

We appoint directors from the viewpoint of strengthening corporate governance, aiming to strengthen the Board of Directors' supervisory functions and to ensure the propriety of the decision-making process.

We make sure that corporate officers whose duties are primarily business execution will not concurrently serve as directors, in principle. Furthermore, we have abolished the positions of managing directors and senior managing directors to put all directors (except for the Chairman, and the President) on an equal footing, while strengthening the supervision by Audit & Supervisory Board members (including outside members) and mutual supervision among directors. The term of office of directors has been shortened to one year to ensure a quick response to changes in the business environment and to clarify the management responsibility of directors. At the Company's ordinary general meeting of shareholders held on March 30, 2021, ten directors, including four outside directors were appointed. One of outside directors is a female director.

3. Business Execution

The Management Committee, which meets once a week in principle and is chaired by the President, deliberates and decides on matters to be referred to the Board of Directors' meetings and important matters for the overall management of the Company. The decisions are made after deliberations on two occasions. For investment plans, their risks are examined by task teams before referral to the Management Committee, and their progress is monitored after authorization.

The Company's medium-term business plans are decided not only by the Management Committee but also by the participation of all corporate officers. The Company considers that responsible execution forms the basis of corporate activities. The Company evaluates the performances of business segments to ensure the effective implementation of the performance-based evaluation system. The Company has Security Export Control and Safety Measures committees under the direct supervision of the President. The Company also has Sustainability, Responsible Care, and IR promotion councils under the Management Committee chaired by the President. These committees and councils investigate, study, and deliberate on specific matters important for the execution of business.

4. Audit & Supervisory Functions

The Company's Audit & Supervisory Board has five members, including three outside members. The members attend the Board of Directors' meetings and other important internal meetings, offering opinions as necessary. They audit and supervise the execution of operations through field investigations, by hearing sessions, and by reading important documents, making proposals and providing advice and recommendations to ensure the sound management of the Company. They are working to strengthen the consolidated audit & supervisory board system in cooperation with auditors of major associated companies.

The Internal Audit Department reports directly to the President and investigates the overall execution of business, checking for accuracy, propriety, and efficiency. It also investigates management policies as well as business plans and their execution, checking for consistency and soundness. The results of internal auditing are reported to the members of the Audit & Supervisory Board to ensure consistency with their audits.

For matters relating to the environment and safety, the divisions in charge conduct Responsible Care audits. KPMG AZSA LLC audits the Company based on an auditing contract and an annual plan agreed upon with the Audit & Supervisory Board, and provides the board with audit results. The auditing corporation and the Audit & Supervisory Board exchange information and views from time to time to strengthen cooperation.

5. Sustainability Promotion Council

The Sustainability Promotion Council examines the Showa Denko Group's important CSR issues in general, with a focus on compliance and risk management. Specifically for compliance, the Council reviews medium- to long-term action plans and significant issues, then formulates measures based on the action plans and evaluates the status of their implementation. In addition, the Council regularly aggregates and evaluates risks, formulates plans to mitigate critical risks that could affect the Group, and confirms how risk mitigation procedures are being implemented.

For the details of our policies on compliance and risk management, please visit our website: https://www.sdk.co.jp/english/csr/governance/risk_management.html

6. Other Items

Remuneration, etc., to the members of the Board of Directors and the Audit & Supervisory Board as well as the auditing corporation (for the period from January 1 through December 31, 2020) is as follows:

Remuneration, etc., for Board Members

	Remuneration, etc. (Millions of yen)	Total Amount by Type of Remuneration, etc. (Millions of yen)			Number of applicable persons
		Basic Compensation	Short-term Performance-linked Compensation	Stock Compensation	
Directors	362	258	56	48	11
Outside members included in above	53	53	—	—	4
Audit & Supervisory Board Members	96	96	—	—	7
Outside members included in above	35	35	—	—	4

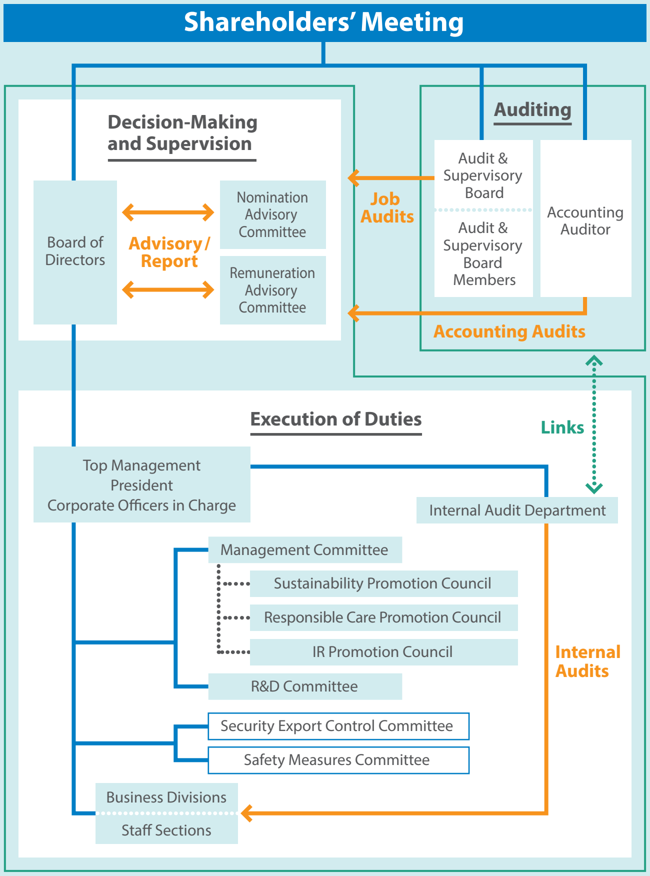
¥48 million is filed as Stock Compensation for Directors, not including outside Directors, based on the performance-linked stock compensation plan resolved at the 107th ordinary general meeting of shareholders held on March 30, 2016.

Remuneration for Auditing Corporation

	Paid amount
Name of accounting auditor: KPMG AZSA LLC Remuneration for issuing an auditing certification based on the auditing contract	¥185 million

7. Personal/Financial Relations and Interests among the Company and Outside Board Members

The Company has four outside members in the Board of Directors and three outside members in the Audit & Supervisory Board. None of them has special interests in the Company. An outline of the Company's corporate governance system is shown below.



Corporate Social Responsibility

We place environment, social, and governance (ESG) at the center of our management philosophy, and we will contribute to the creation of a sustainable society by capitalizing on our Group's strengths.

CSR Policy

For the Showa Denko Group, sustainability means being a sustainable company that can bring satisfaction to stakeholders by providing them with products and services that are useful for society and unique to the Group with a focus on the environment, social, and governance (ESG). In this way, we create both economic as well as social value as we contribute to the sustainability of the international community.

To make contributions to sustainability, we have developed the Showa Denko Group's CSR Policy, which we use as a guide for our CSR activities.

Showa Denko Group's CSR Policy (May 2019)

We at the Showa Denko Group will aim to make ourselves a social contribution company that satisfies all stakeholders by contributing to solving issues concerning SDGs through our business activities, and ensuring all employees' conduct conforming to Our Code of Conduct.

Main Theme **Creation of economic and social value through deepening of risk management on the basis of safety and compliance, and through creation of business opportunities on the basis of CSR communication**

Contribution to creation of society where affluence and sustainability are harmonized through effective use of technologies, products and services	Tackling environmental issues in order to realize sustainable society and as a mission of manufacturer	Development of human resources that contribute to sustainable growth of international society and the Showa Denko Group

Safety and compliance are the foundations for business continuity

For the Group, CSR means making social contributions through business operations, with all employees taking actions in line with Our Vision and Our Code of Conduct. In Our Vision, we are committed, as the Group's basic approach, to contributing to the sound growth of the international community. We believe that working to achieve the SDGs through our business operations will help us bring satisfaction to all stakeholders, which is our mission.

The main theme for our CSR Policy is the "creation of economic and social value by managing risk based on safety and compliance as well as through the creation of business opportunities based on communicating our CSR message." We need to ensure safety to be *qualified as a manufacturer* and to ensure compliance to be *qualified to compete*. The Showa Denko Group, having these qualifications, will contribute to reducing risks for society and increasing associated value through risk management and communication with stakeholders. At the same time, we will improve corporate governance and take the initiative to create *Koseiha* businesses, in this way creating economic and social value to become a sustainable social contribution company.

CSR Promotion Framework

Policies and plans related to CSR initiatives are determined by the Management Committee, which includes the president, corporate officers, and Audit & Supervisory Board members. The policies and plans are then finalized by the Board of Directors.

For CSR-related issues, we have the Sustainability Promotion Council, the Responsible Care Promotion Council, and the IR Promotion Council as advisory bodies to the Management Committee. Through these councils, we discuss individual issues related to CSR, such as risk management, compliance, our progress in contributing to the achievement of the SDGs, as well as initiatives to mitigate climate change and other environmental issues. We then incorporate the results of these discussions into our CSR plans and activities.

Moreover, our divisions and plants follow Responsible Care Action Guidelines, receiving support from the Responsible Care, CSR & General Affairs, Human Resources, and other departments to manage risk, protect human rights, and to comply with regulations.

We are also working cross-functionally when contributing to the SDGs and disclosing climate change-related information in response to the activities of the TCFD and other issues tackled across the organization.

Responsible Care Action Guidelines

Showa Denko established the Responsible Care Action Guidelines in March 1995. These guidelines specify management policies related to the environment, safety, and health. Our Group promotes initiatives based on these action guidelines.

In addition, we also signed the Responsible Care Global Charter in 2005, pledging our support for and implementation of the charter.

When the RC Charter was amended in 2014, we re-signed, making clear our willingness to promote RC activities through global collaboration.

The Showa Denko Group works continually to improve Responsible Care activities using the plan-do-check-act (PDCA) cycle when we formulate Responsible Care activity plans (plan), implement them (do), audit and evaluate the results (check), and reflect these in management reviews for the next round of objectives and activity plans (act). In addition, we continue to improve our management system by receiving and maintaining certificates of conformity to management system standards, including those for the environment, quality, and industrial health and safety.

Relationships with local communities and authorities

To become a social contribution company, as stated in the Group's CSR Policy, we proactively participate in local community initiatives and have frank, open discussions with local residents to help deepen mutual understanding, and will collaborate with them to solve local issues for the sustainable development of their communities. We are also working hard to earn the trust of local communities and officials through the Group's safe and steady operations.

The Showa Denko Group's activities and the SDGs

We believe that one of our social responsibilities is to contribute to the achievement of the SDGs through business. To this end, we have started selecting products that are innovative and that help us make social contributions (according to our own criteria) as "products and services contributing to the SDGs."

Also, the Showa Denko Group's Code of Conduct and material issues are aligned with the SDGs.

Please visit our websites

CSR site
https://www.sdk.co.jp/english/csr.html

Integrated reports
https://www.sdk.co.jp/english/csr/report/csr_report.html

Management’s Discussion and Analysis

Results of Operations

The Group recorded consolidated net sales of ¥973,700 million (US$9,408 million) in 2020, up 7.4% from the previous year. Sales in the Inorganics segment fell significantly due to a decrease in shipment volumes and lower prices for graphite electrodes resulting from lower worldwide production of steel. Sales in the Petrochemicals, Chemicals, Aluminum, and Others segments also fell. However, sales in the Showa Denko Materials segment increased due to consolidation that started at the beginning of the third quarter of 2020. Sales in the Electronics segment rose slightly.

The cost of sales increased ¥143,221 million, or 21.3%, to ¥814,378 million (US$7,868 million), due mainly to the new consolidation of Showa Denko Materials.

Selling, general and administrative expenses increased ¥64,272 million, or 56.1%, to ¥178,771 million (US$1,727 million), due mainly to the new consolidation.

R&D expenditures increased ¥13,774 million, or 66.8%, to ¥34,379 million (US$332 million), due mainly to the new consolidation.

Operating income of the Group in 2020 fell significantly, and the Group recorded an operating loss of ¥19,449 million (US$188 million), a deterioration of ¥140,247 million from the previous year. In the Electronics segment, operating income went up due to an increase in shipment volumes of hard disk (HD) media and lithium-ion battery (LIB) materials. However, the Inorganics segment recorded a sharp decrease in operating income due to lower shipment volumes for graphite electrodes and a drop in book value of the inventory of graphite electrodes resulting from a decline in market prices of products and application of the lower of cost or market valuation accounting method. Operating income in the Petrochemicals segment also decreased due to the impact of the negative spread between purchase and shipment prices of raw naphtha inventory. Operating income in the Showa Denko Materials segment, which was recently consolidated, also decreased due to lower demand for cars resulting from the spread of COVID-19 and recording of other losses that amounted to about ¥28,000 million, including amortization of goodwill. The Chemicals, Aluminum and Others segments also recorded falls in profit due to a reduction in shipment volumes of products.

Information by Business Segment

A breakdown of net sales and operating income by business segment follows.

Petrochemicals Segment

In the Petrochemicals segment, sales dropped by 22.9% from the previous year, to ¥193,385 million (US$1,868 million). In our olefin business, sales decreased due to lower market prices for products including ethylene and propylene resulting from a fall in prices of crude oil and raw naphtha and a softening supply-demand balance in East Asia in the first quarter caused by a slowdown in the Chinese economy. Sales of organic chemicals decreased due to lower shipment volumes for ethyl acetate and vinyl acetate resulting from the periodic shut down for maintenance of the plants that produce these products, in addition to the effect of a drop in market prices of organic chemicals. The demand for olefin products in East Asia has been recovering since the second quarter. The Petrochemicals segment recorded operating income of ¥4,927 million (US$48 million), down 71.4% from the previous year, due mainly to the remaining impact of the negative spread between purchase and shipment prices of raw naphtha inventory caused by a fall in raw naphtha prices.

Chemicals Segment

In the Chemicals segment, sales decreased 1.1% from the previous year, to ¥155,769 million (US$1,505 million). Sales of electronic chemicals rose due to higher shipment volumes resulting from a recovery of production in the semiconductor industry. Sales of coating materials, which was consolidated in the second half of 2019, also increased. However, sales of basic chemicals decreased. Sales of liquefied ammonia and acrylonitrile fell due to lower shipment volumes caused by a decline in domestic demand resulting from the spread of COVID-19. Sales of chloroprene rubber decreased due to a decline in exports. Sales of functional chemicals declined due mainly to a fall in sales volumes in Japan and China. Sales of industrial gases decreased due to a decline in shipment volumes of carbonic acid gas for use in the production of beverages. Operating income for the segment fell 1.3% from the previous year, to ¥13,481 million (US$130 million).

Electronics Segment

In the Electronics segment, sales rose 1.0% over the previous year, to ¥97,415 million (US$941 million). Sales of lithium-ion battery (LIB) materials increased due to higher shipment volumes of Showa Denko Packaging’s aluminum laminate film (*SPALF*™) used as packaging material for LIBs. Sales of compound semiconductors increased due to higher exports. Sales of HD media fell due to lower shipment volumes of media for PCs, despite an increase in shipment volumes of media for use in data centers. For SiC epitaxial wafers, sales increased due mainly to steady shipment volumes of wafers for use in railcars. Operating income for the segment increased 87.2% over the previous year, to ¥9,133 million (US$88 million).

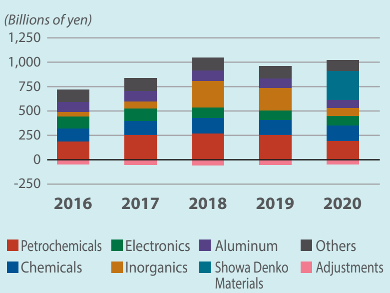
Inorganics Segment

In the Inorganics segment, sales decreased 64.0% from the previous year, to ¥82,899 million (US$801 million). Sales of graphite electrodes dropped significantly due to a further reduction in the Company’s production and sales volumes of graphite electrodes aiming to respond to the weakening supply-demand situation for graphite electrodes in the market resulting from a global slowdown in steel production and the partial clearance of our customers’ graphite electrode inventory. Sales of ceramics decreased due to a fall in sales volumes of abrasives and other products resulting from lower production of automobiles and steel. Operating income for the segment recorded a decrease due to a drop in book value for the inventory of graphite electrodes resulting from a decline in market prices of products and application of the lower of cost or market valuation accounting method. As a result, the segment recorded an operating loss of ¥32,300 million (US$312 million), a deterioration of ¥121,556 million from the previous year.

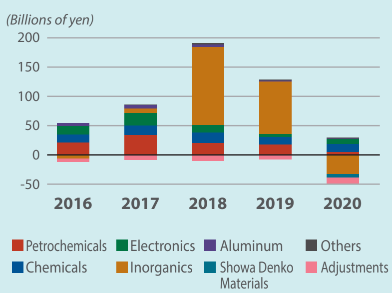
Aluminum Segment

In the Aluminum segment, sales decreased 17.8% from the previous year, to ¥80,185 million (US$775 million). Sales of rolled products decreased due to a decline in shipment volumes of high-purity aluminum foil for

Net Sales by Segment



Operating Income by Segment



capacitors resulting from adjustments in production in customer industries for capacitors, including the industrial equipment industry and the onboard equipment industry. Sales of aluminum specialty components fell due mainly to a decline in sales volumes of those for use in the car industry resulting from lower production of cars worldwide and those for use in office automation equipment and machine tools. Sales of aluminum cans dropped due to a reduction in the Group’s domestic production capacity and, in the Vietnamese market, a significant fall in production of beer resulting from restrictions on going outside as a countermeasure against COVID-19. The segment recorded operating income of ¥421 million (US$4 million), down 75.9% from the previous year.

Showa Denko Materials Segment

We started to consolidate Showa Denko Materials Co., Ltd. and its subsidiaries in the second quarter of 2020, and therefore we created a new segment for reporting. We started to incorporate sales figures and operating income of the new segment into SDK’s consolidated financial statements at the beginning of the third quarter. The Showa Denko Materials segment recorded net sales of ¥302,742 million (US$2,925 million) in 2020. Sales of electronic materials remained strong, including abrasives for chemical mechanical planarization of the surface of semiconductor chips (CMP slurry) and materials for circuit boards including copper-clad laminates. However, sales of mobility components, including molded resins, remained sluggish. As a result, the segment recorded an operating loss of ¥6,303 million (US$61 million). The operating loss for this segment includes amortization of the goodwill of the former Hitachi Chemical, which was calculated as a result of the acquisition of shares in the former Hitachi Chemical and other losses amounting to about ¥28,000 million (US$271 million).

Others Segment

In the Others segment, sales fell 15.0% from the previous year, to ¥107,301 million (US$1,037 million). SHOKO CO., LTD.’s sales decreased due to a fall in market prices of products and reduced demand. Operating income for the segment decreased 34.1%, to ¥1,199 million (US$12 million).

Information by Geographic Area

Sales in Japan

Sales in the Petrochemicals segment decreased due to a decline in market prices of petrochemical products resulting from lower raw naphtha prices. Sales in the Chemicals segment fell mainly due to the spread of COVID-19. In the basic chemicals area, sales decreased due partly to lower sales of acrylonitrile and liquefied ammonia resulting from a decline in domestic demand. Sales of industrial gases also decreased due partly to a fall in shipment volumes of carbonic acid gas for beverages and other gases. In the Electronics segment, sales increased due mainly to steady shipment volumes of SiC epitaxial wafers for use in electric trains. In the Inorganics segment, sales of graphite electrodes decreased due to a fall in market prices and a decrease in shipment volumes. Sales of ceramics also dropped due partly to lower shipment volumes of abrasives resulting from a decrease in the production of automobiles and steel. In the Aluminum segment, sales of high-purity aluminum foil for capacitors decreased due partly to a reduction in shipment volumes resulting from production adjustments by industrial equipment manufacturers. Sales of aluminum specialty components also decreased due to lower shipment volumes of products for use as automotive parts. Sales of aluminum cans fell due mainly to lower production capacity. In the Showa Denko Materials segment, sales increased due to the new consolidation. In the Others segment, sales fell due to a decline in sales figures for SHOKO CO., LTD. resulting from a decline in market prices of products and a decrease in demand.

As a result, consolidated sales from operations in Japan increased ¥22,132 million, or 4.4%, to ¥530,804 million (US$5,129 million).

Sales in China

Sales in China rose substantially due to the new consolidation of Showa Denko Materials Co., Ltd., despite a significant decrease in shipment volumes of graphite electrodes.

As a result, consolidated sales from operations in China increased ¥41,679 million, or 53.7% over the previous year, to ¥119,360 million (US$1,153 million).

Sales in Asia (excluding Japan and China)

Sales in the Petrochemicals segment in Asia decreased due to a fall in market prices of olefin products, despite higher export volumes for olefin products.

In the Chemicals segment, sales of electronic chemicals rose due to an increase in shipment volumes of high-purity gases for electronics resulting from a recovery of production in the semiconductor and display industries in East Asia. Sales of coating materials also increased due to higher shipment volumes.

In the Electronics segment, sales of HD media fell due to lower shipment volumes of media for PCs.

In the Inorganics segment, sales of graphite electrodes decreased due to lower demand.

In the Showa Denko Materials segment, sales increased due to the new consolidation.

As a result, consolidated sales from operations in Asia (excluding Japan and China) increased ¥63,685 million, or 43.0% over the previous year, to ¥211,674 million (US$2,045 million).

Sales in the Rest of the World

Sales in the rest of the world fell. This was mainly due to a decrease in sales in the Inorganics segment. Sales of graphite electrodes dropped significantly due to a weakening supply-demand situation in Europe and the United States resulting from a decrease in production of steel and the partial clearance of our customers’ graphite electrode inventory. However, new consolidation of the Showa Denko Materials segment significantly increased sales in the rest of the world.

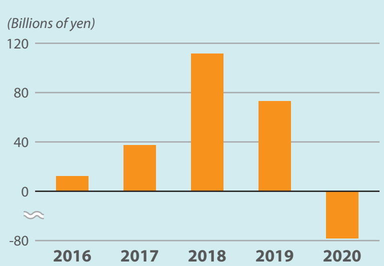
As a result, consolidated sales from operations in the rest of the world decreased ¥60,249 million, or 35%, to ¥111,862 million (US$1,081 million).

Other Income (Expenses) and Net Incomes

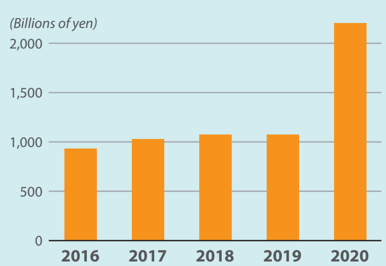
The gap between interest expenses and interest and dividend income deteriorated ¥4,893 million owing to the expenditure of ¥4,580 million (US$44 million), due mainly to an increase in interest expenses.

We recorded a gain on the equity in earnings of unconsolidated subsidiaries and affiliates to which the equity method is applied of ¥1,245

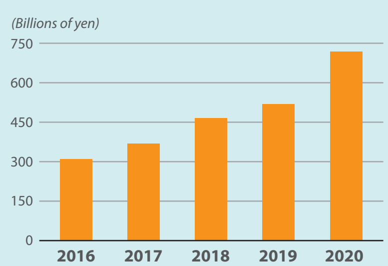
Net Income Attributable to Owners of the Parent



Total Assets



Total Net Assets



million (US$12 million), an increase of ¥497 million due mainly to the addition of Showa Denko Materials' unconsolidated subsidiaries and affiliates to which the equity method is applied, despite a lower dividend from a synthetic resin production company resulting from a sluggish market.

For foreign exchange gain (losses), the Group recorded foreign exchange losses of ¥2,979 million (US$29 million), an increase in losses of ¥2,251 from the previous year, due to the recording of foreign exchange losses at an HD media manufacturing subsidiary in Taiwan, as a result of the depreciation of US dollar against the New Taiwan dollar.

We recorded a gain of ¥18 million (US$0.2 million), net, on retirement and sales of noncurrent assets, an improvement of ¥4,473 million from the previous year, due mainly to the recording of a gain of ¥2,645 million, net, resulting from sales of land by SHOKO CO., LTD. and Showa Denko Materials Co., Ltd. This gain was despite the recording of retirement losses of ¥2,627 million resulting from removal of old plants that belonged to the Inorganics and Chemicals segments, which are significantly smaller than those in the previous year.

Gain on sales of investment securities (net) increased ¥1,191 million over the previous year, to ¥2,934 million (US$28 million).

We recorded impairment losses of ¥16,602 million (US$160 million) mainly for ceramics and aluminum, up ¥940 million from the previous year.

We also posted business restructuring expenses of ¥5,908 million (US$57 million), up ¥4,222 million from the previous year, due mainly to the decision to close a graphite electrode plant in Meitingen, Germany.

Overall, the total of other income (expenses), net, i.e., the total of non-operating income (expenses) and extraordinary income (expenses), net, deteriorated by ¥25,896 million, to a loss of ¥48,811 million (US$472 million).

As a result, the Company recorded a net loss before income taxes and non-controlling interests of ¥68,260 million (US$660 million), a deterioration of ¥166,143 million from the previous year.

Consequently, the Company recorded a net loss attributable to owners of the parent of ¥76,304 million (US$737 million), down ¥149,392 million from the previous year.

Note: Expenses for integration with Showa Denko Materials Co., Ltd. for full year 2020 was ¥38.9 billion, including advisory fees, PMI expenses, expenses related to fund raising, interest on borrowing related to share acquisition, and preferred stock dividends.

Expenses for amortization and stepping up of assets belonging to the Showa Denko Materials segment (which was considered to be consolidated on June 30, 2020) was ¥29.1 billion in total for the second half of 2020: amortization of goodwill and intangible fixed assets ¥17.2 billion; expenses for stepping up inventories (to fair value) ¥10.9 billion; expenses for stepping up investments and other assets ¥1.1 billion.

Financial Position

Total Assets

Total assets at the end of the year amounted to ¥2,203,606 million (US$21,291 million), an increase of ¥1,127,224 million from the level at December 31, 2019, due mainly to the increase in cash, deposits, accounts receivable-trade, inventories, tangible fixed assets, and intangible fixed assets resulting from the consolidation of the former Hitachi Chemical Company, Ltd. (currently Showa Denko Materials Co., Ltd.) and its subsidiaries.

Cash and deposits increased ¥76,896 million from the end of the previous year, to ¥198,982 million (US$1,923 million).

Net property, plant and equipment rose ¥253,951 million, to ¥727,119 million (US$7,025 million).

Total investments and other assets increased ¥291,833 million to ¥394,643 million (US$3,813 million). Goodwill increased ¥355,854 million to ¥359,200 million (US$3,471 million).

Liabilities

Total liabilities increased ¥928,577 million to ¥1,485,526 million (US$14,353 million), due mainly to the increase in accounts payable–trade, and the increase in interest-bearing debt resulting from acquisition of shares in the former Hitachi Chemical Company, Ltd. Interest-bearing debt increased by ¥756,954 million to ¥1,060,146 million (US$10,243 million).

Net Assets

Net assets at the end of the year amounted to ¥718,080 million (US$6,938 million), up ¥198,647 million from the end of the previous year, due mainly to an increase in non-controlling interests resulting from the issuance of preferred shares accompanying the acquisition of shares in the former Hitachi Chemical Company, Ltd., despite a decrease in retained earnings resulting from posting of net loss attributable to owners of the parent and the payment of dividends for 2019.

Note: We started to include lease liabilities in interest-bearing debts in the third quarter of 2020, and retrospectively adjusted the balance of interest-bearing debts as of the end of 2019 in the same way. SDK made the former Hitachi Chemical Company, Ltd. a consolidated subsidiary through a tender offer, considered June 30, 2020 as the acquisition date, and consolidated the former Hitachi Chemical's financial results into SDK's consolidated financial statements. For the impact of this consolidation on SDK's consolidated balance sheet, please refer to SDK's consolidated financial statements for the first half of 2020.

Capital Expenditures

Capital expenditures increased ¥18,836 million to ¥69,052 million (US$667 million) because we conducted a careful selection of investment projects and significantly reduced capital expenditures. These actions were taken to cope with a sharp decrease in demand for graphite electrodes and other products resulting from the spread of COVID-19 and despite an increase in capital expenditure amounting to about ¥23,000 million resulting from the new consolidation of the Sowa Denko Materials segment.

Cash Flows

Net cash provided by operating activities increased ¥30,733 million from the previous year, to ¥109,286 million (US$1,056 million), due partly to a decrease in inventories.

Net cash used in investing activities increased ¥881,891 million, to an expenditure of ¥930,047 million (US$8,986 million), due partly to the expenditure resulting from the acquisition of shares in a subsidiary accompanying an expansion of the scope of consolidation.

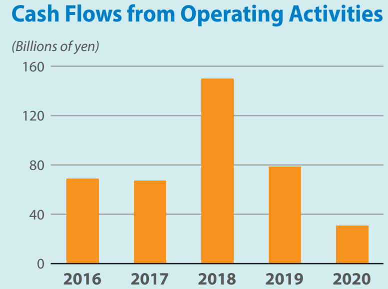
As a result, free cash flow ended in an expenditure of ¥820,761 million (US$7,930), a decrease in proceeds of ¥851,159 million.

Net cash provided by financial activities rose ¥915,067 million over the previous year, to proceeds of ¥896,521 million (US$8,662 million), due partly to an upsurge in proceeds resulting from an increase in long-term debt.

As a result, cash and cash equivalents at December 31, 2020 increased ¥76,194 million from the end of the previous year, to ¥197,928 million (US$1,912 million), including the effect of exchange rate fluctuations.

Interest-Bearing Debt

Cash Flows from Operating Activities



Risk Factors

The Showa Denko Group faces risks, as explained below, that could adversely affect our future performance, financial position, and cash flows, and we are working to put in place an improved risk management system to minimize these risks.

The following covers those risks considered material as of March 30, 2021. This list is not exhaustive.

The Group will continue to monitor the impact of the novel coronavirus (COVID-19) on our operation.

1 Substantial fluctuations in the performances of individual businesses

The Group is manufacturing and selling a wide variety of products, such as petrochemicals, chemicals, electronics, inorganics, and aluminum. The following risks are expected in major business fields, but those are not limited to the businesses mentioned below.

(1) Petrochemicals

The Group purchases and imports a large amount of feedstock, including naphtha. When the price of naphtha or other types of feedstock fluctuates due to a change in crude oil prices, a change in the supply-demand balance, or a currency fluctuation, and when we cannot secure sufficient spreads between the manufacturing cost and selling prices of products, the Group's performance and financial position can be affected. Furthermore, earnings from petrochemicals largely depend on the supply-demand balance. Construction of large plants by competitors and the resultant oversupply as well as a sharp decrease in demand due to unfavorable changes in the Japanese or world economies can affect the Group's performance and financial position.

To deal with these risks, the Group is stabilizing revenue, including by reviewing sales methods and by working to reduce costs.

(2) HD media

In the Group's HD media business, the sales volume is largely influenced by demand for IT devices and electric appliances. This business requires innovations at a rapid pace and involves fierce international competition. Fluctuations in demand and intensification of competition will cause fluctuations in selling prices. The Group is prepared to develop and provide products meeting the market requirements and has established a global production/marketing setup. However, when market requirements change more quickly than we expected, when supply-demand balance changes substantially, and when exchange rates sharply fluctuate, the Group's performance and financial conditions can be affected.

(3) Inorganics

The Group produces graphite electrodes in Asia, North America, and Europe, and sells those products globally. When the demand for graphite electrodes suddenly decreases due to unfavorable changes in the Japanese or world economies, deterioration in supply-demand balance may not allow us to secure sufficient spreads between the manufacturing cost and selling prices of products, and can affect the Group's performance and financial position.

In response to these risks, the Group is working to strengthen the revenue base through such initiatives as maintaining inventory at levels appropriate to market conditions and by further reducing costs.

(4) Aluminum

The Group imports a large amount of aluminum metal from overseas sources. When the aluminum ingot price rises due to a rise in LME prices, a rise in the premiums on aluminum, or a weaker yen, and when we cannot absorb the manufacturing cost increase in the form of higher product prices, the Group's performance and financial position can be affected. Furthermore, most of our products are sold as materials and components for the automobile, electric appliance, and electronics sectors. Trends in those industries, which are beyond our control, can substantially affect our businesses.

In response, the Group hedges against the risk of fluctuations in aluminum raw material prices by hedging on the LME and other currency exchanges, and we are working to build a more stable revenue structure by reducing costs and by taking other steps.

(5) Overseas operations

The Group is producing and selling in Asia, North America, and Europe. Operations overseas involve such special risks as unexpected changes in laws and regulations, deterioration in political/economic situations, and social disorder due to war and terrorism. Such risks can become real and affect our overseas operations, resulting in an adverse impact on the Group's performance and financial position.

(6) Mergers, acquisitions, capital tie-ups, business reorganization and restructuring

The Group implements mergers, acquisitions, capital tie-ups, business reorganization and restructuring at home and overseas to expand the scope of businesses and improve profitability. The Group undertakes careful due diligence for companies being considered as acquisition targets, and scrupulously verifies post-merger plans to mitigate risk. However, if changes in the business environment for the Group or companies that the Group invests in effectively prevent the desired results from being achieved, this could have a negative impact on the Group's performance and financial position. The Group's performance and financial position could also be affected if the Group restructures businesses, such as withdrawing from unprofitable businesses or reorganizing affiliated companies.

2 Unexpected fluctuations in financial position and cash flows

(1) Substantial fluctuations in exchange rates

For foreign-currency-based transactions centering on exports/imports, the Group makes best efforts to minimize exchange rate fluctuation risks, mainly through exchange contracts. However, substantial fluctuations in exchange rates can affect the Group's performance and financial position. In particular, a sharp appreciation of the yen against other currencies can affect the Group's performance. Exchange rate fluctuations can also affect the Group's performance and financial position through the conversion of overseas subsidiaries' financial statements into Japanese yen.

(2) Trends in financial markets and changes in the fund-raising environment

The trends in the financial markets and deterioration in the Group's financial indexes can affect the Group's fund-raising and interest expenses: for example, in the form of prompt repayment of a loan owing to the terms of financial covenants. In that event, the Group's performance and financial position could be affected.

In the event that the financial results, financial position, and financial indicators, etc. originally expected are not achieved, credit ratings may be reduced, which could in turn negatively affect the refinancing of existing debt and the terms for new borrowing.

In response to these risks, we are working to strengthen the Group's financial standing, as well as to secure liquidity through commitment lines and other agreements with financial institutions, to smooth out fluctuations in repayments and redemptions, and to take an effective approach to fundraising that balances fixed and variable interest rates, among other factors.

(3) Employees' severance indemnities

The Group's employees' severance indemnities and expenses are calculated based on various basic rates and the yield of pension assets used in pension calculations. Fluctuations in the current price of pension assets, trends in interest rates, and changes in the retirement benefit/pension systems can affect the Group's performance and financial position.

(4) Securities

As the Group owns securities with current prices, fluctuations in stock prices can result in valuation losses, affecting the Group's performance and financial position.

(5) Accounting for impairment of fixed assets

The Group may incur additional losses from the impairment of fixed assets including goodwill, intangible assets, and land, due to deterioration in profitability resulting from aggravation in the business environment, due to a considerable reduction in the current prices of land and other fixed assets. These losses can affect the Group's performance and financial position.

Further, the takeover of Hitachi Chemical Company, Ltd. (now Showa Denko Materials Co., Ltd.) led to an increase in the amount of goodwill and intangible assets. A deterioration in the financial results of the Showa Denko Materials group, could result in the Company incurring impairment losses that could in turn negatively affect the business performance and financial position of the Showa Denko Group.

Looking at the impact of COVID-19, in the event that the spread of infection is prolonged, some businesses could incur impairment losses, which could negatively affect the business performance and financial position of the Showa Denko Group.

(6) Deferred tax assets

The Group's financial statements include deferred tax assets in relation to temporary differences (differences between the assets/liabilities on the consolidated financial statements and the assets/liabilities in calculation of taxable income). The calculation of deferred tax assets is based on various projections for future taxable income. Thus, when actual taxable income differs from the projections or in case of a revision of the taxation system (including tax rates), it becomes necessary to revise deferred tax assets. That situation could affect the Group's performance and financial position.

Also, regarding the impact of COVID-19, in the event that the spread of infection is prolonged, some businesses may need to revise their assumptions in relation to the recoverability of these deferred tax assets, which could negatively affect the business performance and financial position of the Showa Denko Group.

3 Specific regulations

The Group's businesses are subject to various restrictions as stipulated by laws and regulations. The restrictions relate to industrial safety (such as the Law for Prevention of Disasters at Petroleum Complexes, Etc.; the Fire Service Law; and the High Pressure Gas Safety Law) and the environment and chemical substances (such as the Basic Environment Law; the Air Pollution Control Law; and the Law concerning the Examination and Regulation of Manufacture, Etc. of Chemical Substances). The Group observes these laws and regulations when conducting business. The Group shares information on laws and regulations that relate to manufacturing plants, and confirms the state of compliance when updating existing plants or building new ones. Nevertheless, in the event that the Group fails to observe any of the laws and regulations, the Group's activities could be restricted. In case stricter regulations are introduced, resulting in higher costs, the Group's performance and financial position can be affected.

4 Important lawsuits

While the Group makes best efforts to observe laws and agreements, the Group may be sued when conducting a wide range of businesses.

5 Others

(1) R&D

As a hybrid advanced material company combining midstream materials technology and downstream application technology, the Showa Denko Group focuses on achieving innovation through integration. the Group will continue to provide a broad range of solutions to the market, while focusing on research and development that strengthens existing businesses and creates new businesses. This will be accomplished by integrating three specific technologies: *chemistry to synthesize* for midstream materials, *chemistry to formulate* for downstream applications, and *chemistry to think* for evaluation/simulation, structural analysis, and computational science.

However, in case the actual results materially differ from original plans, the Group's performance and financial position could be affected.

(2) Intellectual property

The Group is making best efforts to obtain, use, and protect intellectual property, such as industrial property rights and know-how, in recognition of the ability to make the Group's businesses more competitive. The Group also respects other companies' rights. However, in the event of failure to duly obtain or use the rights, infringement by a third party, or if the Group is considered to have infringed a third party's intellectual property, or in the event that know-how, etc. owned by the Group is leaked unlawfully to a third party, the Group's operations can be hindered and the Group's performance and financial position could be affected.

(3) Quality assurance and product liability

The Group has established internal rules on quality assurance and quality control, as well as organizations for managing and promoting quality assurance. Furthermore, the Group has obtained certification under ISO 9001 standards to ensure strict quality control. However, in the event of a serious quality defect or being sued for product liability, the Group's reputation could be damaged and the Group may be forced to pay compensation to customers. This could affect the Group's performance and financial position.

In response to these risks, the Group implements procedures, such as maintaining facilities for reliable process management, installing measuring equipment, providing operating manuals, and training employees. In addition to building a system to prevent defective goods from being shipped, the Group maintains manufactured goods liability insurance policies both in Japan and overseas.

(4) Accidents and disasters

The Group is committed to securing steady and safe operations. The Group conducts regular inspections of all manufacturing facilities in an effort to minimize any risk factors pertaining to the suspension of operations or accidents due to problems with manufacturing facilities. In the event of injury or damage to property due to an accident, a large-scale natural disaster, a cyberattack, etc., the Group's reputation could be damaged. The Group may incur substantial costs in dealing with the situation and may lose business opportunities due to the suspension of production. This could affect the Group's performance and financial position.

In response to these risks, the Group has analyzed both internal and external accidents and disasters, created checklists of the lessons learned, and used them to identify risks and to compile educational materials. In addition to taking steps aimed at preventing accidents and minimizing damage when accidents do occur, the Group has prepared for cyberattacks by adopting comprehensive information management practices and by devising countermeasures to reduce the impact, if any incidents occur.

Furthermore, even when the Group's manufacturing facilities are not directly influenced, the Group's production activities may be restricted by trouble with procurement or disruption of supply chains due to accidents at suppliers' sites, a natural disaster, or a pandemic of infectious disease, or by a shortage of power supply. These factors could affect the Group's performance and financial position.

To minimize the impact of this type of damage at suppliers, the Purchasing Department has prepared a manual for gathering information for emergencies and for assessing the impact on the Group's production, and we hold BCP training sessions.

(5) Impact on the environment

The Group is committed to the principles of Responsible Care, which means that we are working to ensure the health and safety of everyone and to protect the environment from harm caused by chemical substances throughout their life cycles, namely, the development, production, distribution, use, and disposal. In the event of causing impact on the environment, the Group's reputation can be damaged. The Group may incur costs, including compensation, lose business opportunities due to the suspension of production, and/or pay compensation to customers. These factors can affect the Group's performance and financial position.

In response to these risks, the Group has implemented environmental risk evaluations after performing exhaustive risk assessments at every business location, and we are promoting safety at environmental sites. In addition, we have implemented a systematic program of inspections and repairs to prevent environmental pollution caused by age-related deterioration.

Moreover, the need to respond to the demands of society in relation to environmental issues, which have been increasing steadily in recent years, as well as strengthened environmental laws and regulations could have a negative impact on the Group's results of operations and financial position.

(6) Infectious disease pandemics

If another global pandemic occurs, such as the one caused by the novel coronavirus, the operating results and financial position of the Group could be affected by suspended production at manufacturing plants and suspended activity at sales offices, etc.

In response to the spread of COVID-19, the Group has established a COVID-19 Countermeasures Headquarters to review information from Japan and overseas, deliver regular alerts to employees, and provide instruction on ways to counter infection. The Group CEO sent this message to all Group employees: (1) We have assigned the highest priority to the health of employees and of all employees at cooperating companies; (2) We will fulfill our social responsibility to provide goods that are indispensable to life in society; and (3) We are preparing for the growth of the Showa Denko Group after we have conquered COVID-19.

In addition, a business continuity plan (BCP) has been drawn up, and measures are being taken to minimize the impact of risks on our business operations.

Consolidated Balance Sheets

Showa Denko K.K. and Consolidated Subsidiaries
As at December 31, 2020 and 2019

	Millions of yen		Thousands of U.S. dollars (Note 5)
ASSETS	**2020**	2019	**2020**
Current assets			
Cash and deposits (Notes 6, 7, and 11)	**¥ 198,982**	¥ 122,086	**$ 1,922,535**
Notes and accounts receivable (Notes 7, 10, and 11)	**287,900**	184,425	**2,781,647**
Allowance for doubtful accounts	**(1,092)**	(754)	**(10,546)**
Inventories (Note 11)	**190,208**	173,667	**1,837,757**
Other current assets (Notes 7 and 9)	**46,645**	17,632	**450,675**
Total current assets	**722,644**	497,057	**6,982,068**
Property, plant and equipment (Notes 11 and 14)			
Land (Note 19)	**264,589**	223,997	**2,556,419**
Buildings and structures	**351,987**	284,225	**3,400,845**
Machinery, equipment and vehicles	**1,016,307**	893,001	**9,819,396**
Leased assets (Note 16)	**34,026**	7,759	**328,753**
Construction in progress	**38,980**	18,794	**376,619**
	1,705,890	1,427,777	**16,482,032**
Less : Accumulated depreciation	**(978,771)**	(954,608)	**(9,456,728)**
Net property, plant and equipment	**727,119**	473,168	**7,025,305**
Investments and other assets			
Customer related assets	**152,564**	1,631	**1,474,053**
Investment securities (Notes 7, 8, and 11)	**106,408**	71,786	**1,028,101**
Long-term loans	**741**	334	**7,158**
Net defined benefit asset (Note 12)	**21,184**	244	**204,676**
Deferred tax assets (Note 13)	**15,883**	3,381	**153,458**
Other (Notes 7 and 9)	**105,609**	33,560	**1,020,381**
Allowance for doubtful accounts	**(7,747)**	(8,125)	**(74,851)**
Total investments and other assets	**394,643**	102,810	**3,812,976**
Goodwill	**359,200**	3,346	**3,470,529**
Total assets	**¥2,203,606**	¥1,076,381	**$21,290,877**

See notes to financial statements.

LIABILITIES AND NET ASSETS	Millions of yen 2020	Millions of yen 2019	Thousands of U.S. dollars (Note 5) 2020
Current liabilities			
Short-term debt (Notes 7 and 11)	**¥ 72,645**	¥ 52,720	**$ 701,885**
Current portion of long-term debt (Notes 7 and 11)	**56,387**	31,943	**544,803**
Notes and accounts payable (Notes 7, 10, and 11)	**191,067**	133,730	**1,846,058**
Income taxes payable	**6,041**	6,864	**58,363**
Provision for repairs	**28**	644	**271**
Provision for bonuses	**8,815**	3,050	**85,171**
Provision for stock payments (Note 3)	**13**	—	**129**
Provision for business structure improvement	**1,748**	1,686	**16,887**
Other current liabilities (Notes 7, 9, and 11)	**75,327**	32,238	**727,795**
Total current liabilities	**412,071**	262,875	**3,981,361**
Noncurrent liabilities			
Long-term debt less current portion (Notes 7 and 11)	**906,365**	213,861	**8,757,150**
Deferred tax liabilities (Note 13)	**63,372**	7,950	**612,287**
Provision for repairs	**3,168**	2,021	**30,612**
Provision for stock payments (Note 3)	**204**	200	**1,967**
Provision for business structure improvement	**654**	824	**6,318**
Net defined benefit liability (Note 12)	**24,750**	9,969	**239,129**
Deferred tax liabilities for land revaluation (Note 19)	**30,241**	32,150	**292,185**
Other noncurrent liabilities (Notes 7 and 9)	**44,701**	27,099	**431,895**
Total noncurrent liabilities	**1,073,455**	294,074	**10,371,543**
Contingent liabilities (Note 17)			
Net assets (Note 18)			
Shareholders' equity			
Capital stock			
Authorized, 330,000,000 shares			
Issued (2020): 149,711,292 shares	**140,564**	—	**1,358,102**
Issued (2019): 149,711,292 shares	**—**	140,564	**—**
Capital surplus	**78,190**	78,912	**755,455**
Retained earnings	**165,572**	249,246	**1,599,733**
Less: Treasury stock at cost (2020): 3,828,732 shares	**(11,657)**	—	**(112,626)**
Less: Treasury stock at cost (2019): 3,836,329 shares	**—**	(11,664)	**—**
Total shareholders' equity	**372,669**	457,057	**3,600,664**
Accumulated other comprehensive income			
Valuation difference on available-for-sale securities	**3,728**	9,789	**36,024**
Deferred gains or losses on hedges	**908**	433	**8,773**
Revaluation reserve for land (Note 19)	**29,034**	33,060	**280,524**
Foreign currency translation adjustments	**(506)**	4,140	**(4,892)**
Remeasurements of defined benefit plans (Note 12)	**128**	(5,114)	**1,236**
Total accumulated other comprehensive income	**33,292**	42,309	**321,665**
Non-controlling interests	**312,119**	20,067	**3,015,644**
Total net assets	**718,080**	519,433	**6,937,973**
Total liabilities and net assets	**¥2,203,606**	¥1,076,381	**$21,290,877**

Consolidated Statements of Operations

Showa Denko K.K. and Consolidated Subsidiaries

For the years ended December 31, 2020 and 2019

	Millions of yen		Thousands of U.S. dollars (Note 5)
	2020	2019	**2020**
Net sales	**¥973,700**	¥906,454	**$9,407,728**
Cost of sales (Notes 21 and 22)	**814,378**	671,157	**7,868,386**
Gross profit	**159,322**	235,297	**1,539,342**
Selling, general and administrative expenses (Notes 20 and 21)	**178,771**	114,499	**1,727,256**
Operating income (loss)	**(19,449)**	120,798	**(187,914)**
Other income (expenses)			
Interest and dividends income	**2,405**	2,568	**23,237**
Equity in earnings of unconsolidated subsidiaries and affiliates	**1,245**	748	**12,029**
Gain on sales of investment securities, net (Note 8)	**2,934**	1,743	**28,350**
Loss on valuation of investment securities (Note 8)	**(315)**	(9)	**(3,045)**
Foreign exchange losses	**(2,979)**	(728)	**(28,778)**
Rent income on noncurrent assets	**1,522**	1,351	**14,702**
Gain on sales of noncurrent assets, net	**2,645**	615	**25,554**
Interest expenses	**(6,986)**	(2,255)	**(67,493)**
Loss on retirement of noncurrent assets	**(2,627)**	(5,070)	**(25,380)**
Impairment loss (Note 14)	**(16,602)**	(15,662)	**(160,410)**
Subsidy income	**1,388**	65	**13,413**
Business structuring expenses (Notes 14 and 24)	**(5,908)**	(1,686)	**(57,081)**
Financing expenses (Note 23)	**(16,075)**	—	**(155,314)**
Other, net	**(9,459)**	(4,594)	**(91,390)**
Total	**(48,811)**	(22,915)	**(471,607)**
Income (loss) before income taxes	**(68,260)**	97,883	**(659,521)**
Income taxes (Note 13)			
Current	**6,891**	22,196	**66,581**
Deferred	**(10,051)**	386	**(97,108)**
Net income (loss)	**(65,101)**	75,300	**(628,994)**
Net income attributable to non-controlling interests	**11,203**	2,212	**108,243**
Net income (loss) attributable to owners of the parent	**¥ (76,304)**	¥ 73,088	**$ (737,237)**

	Yen		U.S. dollars (Note 5)
Per share amounts			
Net income (loss) attributable to owners of the parent : Basic	**¥(523.06)**	¥ 501.03	**$(5.05)**
Cash dividends (applicable to the period)	**65.00**	130.00	**0.63**

Note: Net income per share has been computed based on the average number of shares of common stock outstanding during the respective fiscal year.

See notes to financial statements.

Consolidated Statements of Comprehensive Income

Showa Denko K.K. and Consolidated Subsidiaries

For the years ended December 31, 2020 and 2019

	Millions of yen		Thousands of U.S. dollars (Note 5)
	2020	2019	**2020**
Net income (loss)	**¥(65,101)**	¥75,300	**$(628,994)**
Other comprehensive income:			
Valuation difference on available-for-sale securities	**(6,101)**	2,333	**(58,950)**
Deferred gains or losses on hedges	**474**	(406)	**4,581**
Foreign currency translation adjustments	**(4,770)**	(2,992)	**(46,090)**
Remeasurements of defined benefit plans, net of tax	**5,257**	3,131	**50,792**
Share of other comprehensive income of unconsolidated subsidiaries and affiliates accounted for using equity method	**54**	(59)	**518**
Total other comprehensive income (loss) (Note 15)	**¥ (5,087)**	¥ 2,007	**$ (49,150)**
Comprehensive income	**¥(70,188)**	¥77,308	**$(678,143)**
Comprehensive income attributable to:			
Owners of the parent	**(81,294)**	75,187	**(785,454)**
Non-controlling interests	**11,107**	2,121	**107,311**

See notes to financial statements.

Consolidated Statements of Changes in Net Assets

Showa Denko K.K. and Consolidated Subsidiaries

For the years ended December 31, 2020 and 2019

	Thousands	Millions of yen										
	Number of shares of capital stock	Capital stock	Capital surplus	Retained earnings	Treasury stock	Valuation difference on available-for-sale securities	Deferred gains or losses on hedges	Revaluation reserve for land	Foreign currency translation adjustments	Remeasure-ments of defined benefit plans	Non-controlling interests	Total net assets
Balance as at December 31, 2018	149,711	¥ 140,564	¥ 78,911	¥ 197,717	¥ (11,659)	¥ 7,489	¥ 836	¥ 33,281	¥ 7,069	¥(8,244)	¥ 19,377	¥ 465,340
Dividends from surplus	—	—	—	(21,924)	—	—	—	—	—	—	—	(21,924)
Net income (loss) attributable to owners of the parent	—	—	—	73,088	—	—	—	—	—	—	—	73,088
Purchase of treasury stock	—	—	—	—	(8)	—	—	—	—	—	—	(8)
Disposal of treasury stock	—	—	0	—	3	—	—	—	—	—	—	3
Increase by increase of consolidated subsidiaries	—	—	—	448	—	—	—	—	—	—	—	448
Decrease by increase of consolidated subsidiaries	—	—	—	(367)	—	—	—	—	—	—	—	(367)
Change in treasury shares of the parent arising from transactions with non-controlling shareholders	—	—	1	—	—	—	—	—	—	—	—	1
Changes in liabilities for written put options over non-controlling interests	—	—	—	—	—	—	—	—	—	—	—	—
Change due to merger	—	—	—	—	—	—	—	—	—	—	—	—
Reversal of revaluation reserve for land	—	—	—	285	—	—	—	—	—	—	—	285
Net changes of items other than shareholders' equity	—	—	—	—	—	2,301	(404)	(221)	(2,929)	3,130	690	2,568
Balance as at December 31, 2019	149,711	¥ 140,564	¥ 78,912	¥ 249,246	¥ (11,664)	¥ 9,789	¥ 433	¥ 33,060	¥ 4,140	¥(5,114)	¥ 20,067	¥ 519,433
Dividends from surplus	**—**	**—**	**—**	**(11,693)**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**(11,693)**
Net income (loss) attributable to owners of the parent	**—**	**—**	**—**	**(76,304)**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**(76,304)**
Purchase of treasury stock	**—**	**—**	**—**	**—**	**(3)**	**—**	**—**	**—**	**—**	**—**	**—**	**(3)**
Disposal of treasury stock	**—**	**—**	**(0)**	**—**	**11**	**—**	**—**	**—**	**—**	**—**	**—**	**11**
Increase by increase of consolidated subsidiaries	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**—**
Decrease by increase of consolidated subsidiaries	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**—**
Change in treasury shares of the parent arising from transactions with non-controlling shareholders	**—**	**—**	**(1,392)**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**(1,392)**
Changes in liabilities for written put options over non-controlling interests	**—**	**—**	**660**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**660**
Change due to merger	**—**	**—**	**10**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**10**
Reversal of revaluation reserve for land	**—**	**—**	**—**	**4,323**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**4,323**
Net changes of items other than shareholders' equity	**—**	**—**	**—**	**—**	**—**	**(6,061)**	**475**	**(4,026)**	**(4,646)**	**5,241**	**292,052**	**283,036**
Balance as at December 31, 2020	**149,711**	**¥140,564**	**¥78,190**	**¥165,572**	**¥(11,657)**	**¥ 3,728**	**¥908**	**¥29,034**	**¥ (506)**	**¥ 128**	**¥312,119**	**¥718,080**

	Thousands	Thousands of U.S. dollars (Note 5)										
	Number of shares of capital stock	Capital stock	Capital surplus	Retained earnings	Treasury stock	Valuation difference on available-for-sale securities	Deferred gains or losses on hedges	Revaluation reserve for land	Foreign currency translation adjustments	Remeasure-ments of defined benefit plans	Non-controlling interests	Total net assets
Balance as at December 31, 2019	149,711	$ 1,358,102	$ 762,435	$ 2,408,175	$ (112,699)	$ 94,584	$ 4,182	$ 319,424	$ 39,998	$(49,406)	$ 193,881	$ 5,018,675
Dividends from surplus	**—**	**—**	**—**	**(112,975)**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**(112,975)**
Net income (loss) attributable to owners of the parent	**—**	**—**	**—**	**(737,237)**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**(737,237)**
Purchase of treasury stock	**—**	**—**	**—**	**—**	**(32)**	**—**	**—**	**—**	**—**	**—**	**—**	**(32)**
Disposal of treasury stock	**—**	**—**	**(4)**	**—**	**106**	**—**	**—**	**—**	**—**	**—**	**—**	**102**
Increase by increase of consolidated subsidiaries	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**—**
Decrease by increase of consolidated subsidiaries	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**—**
Change in treasury shares of the parent arising from transactions with non-controlling shareholders	**—**	**—**	**(13,449)**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**(13,449)**
Changes in liabilities for written put options over non-controlling interests	**—**	**—**	**6,377**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**6,377**
Change due to merger	**—**	**—**	**97**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**97**
Reversal of revaluation reserve for land	**—**	**—**	**—**	**41,770**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**41,770**
Net changes of items other than shareholders' equity	**—**	**—**	**—**	**—**	**—**	**(58,560)**	**4,592**	**(38,901)**	**(44,890)**	**50,642**	**2,821,763**	**2,734,646**
Balance as at December 31, 2020	**149,711**	**$1,358,102**	**$755,455**	**$1,599,733**	**$(112,626)**	**$ 36,024**	**$8,773**	**$280,524**	**$ (4,892)**	**$ 1,236**	**$3,015,644**	**$6,937,973**

See notes to financial statements.

Consolidated Statements of Cash Flows

Showa Denko K.K. and Consolidated Subsidiaries

For the years ended December 31, 2020 and 2019

	Millions of yen		Thousands of U.S. dollars (Note 5)
	2020	2019	**2020**
Cash flows from operating activities			
Income (loss) before income taxes	**¥ (68,260)**	¥ 97,883	**$ (659,521)**
Adjustments for:			
Depreciation and amortization	**68,643**	37,704	**663,218**
Impairment loss	**16,602**	15,662	**160,410**
Amortization of goodwill	**9,322**	98	**90,064**
Increase (decrease) in allowance for doubtful accounts	**(791)**	(700)	**(7,646)**
Increase (decrease) in provision for business structure improvement	**(179)**	(494)	**(1,730)**
Increase (decrease) in net defined benefit liability	**2,431**	(11,757)	**23,488**
Interest and dividends income	**(2,405)**	(2,568)	**(23,237)**
Interest expenses	**6,986**	2,255	**67,493**
Financing expenses	**16,075**	—	**155,314**
Equity in (earnings) losses of unconsolidated subsidiaries and affiliates	**(1,245)**	(748)	**(12,029)**
Loss (gain) on sales and valuation of investment securities	**(2,619)**	(1,735)	**(25,305)**
Loss on retirement of noncurrent assets	**2,627**	5,070	**25,380**
Loss (gain) on sales of noncurrent assets	**(2,645)**	(615)	**(25,554)**
Decrease (increase) in notes and accounts receivable-trade	**14,879**	33,489	**143,754**
Decrease (increase) in inventories	**70,713**	(21,585)	**683,218**
Increase (decrease) in notes and accounts payable-trade	**(22,744)**	(21,898)	**(219,748)**
Other, net	**20,150**	(25,591)	**194,700**
Subtotal	**127,540**	104,472	**1,232,270**
Interest and dividends income received	**6,546**	3,431	**63,248**
Interest expenses paid	**(5,371)**	(2,326)	**(51,893)**
Income taxes (paid) refund	**(19,429)**	(27,022)	**(187,719)**
Net cash provided by (used in) operating activities	**109,286**	78,554	**1,055,905**
Cash flows from investing activities			
Payments into time deposits	**(885)**	(53)	**(8,553)**
Proceeds from withdrawal of time deposits	**1,144**	53	**11,058**
Purchase of property, plant and equipment	**(64,500)**	(40,708)	**(623,184)**
Proceeds from sales of property, plant and equipment	**7,723**	1,251	**74,623**
Purchase of investment securities	**(286)**	(864)	**(2,761)**
Proceeds from sales of investment securities	**22,697**	5,677	**219,298**
Purchase of investments in subsidiaries resulting in change in the scope of consolidation (Note 6)	**(890,230)**	(4,851)	**(8,601,256)**
Proceeds from sales of investments in subsidiaries resulting in change in scope of consolidation	**—**	529	**—**
Net decrease (increase) in short-term loans receivable	**67**	450	**650**
Payments of long-term loans receivable	**(630)**	(558)	**(6,084)**
Collection of long-term loans receivable	**275**	289	**2,658**
Other, net	**(5,425)**	(9,369)	**(52,414)**
Net cash provided by (used in) investing activities	**(930,047)**	(48,156)	**(8,985,966)**
Cash flows from financing activities			
Net increase (decrease) in short-term debt	**(9,226)**	(29,545)	**(89,140)**
Proceeds from long-term loans payable	**702,163**	64,396	**6,784,181**
Repayments of long-term loans payable	**(44,134)**	(47,206)	**(426,418)**
Proceeds from share issuance of bonds	**—**	20,000	**—**
Proceeds from issuance of preferred stock	**268,503**	—	**2,594,227**
Purchase of treasury stock	**(3)**	(9)	**(32)**
Proceeds from sales of treasury stock	**18**	0	**172**
Cash dividends paid	**(11,674)**	(21,861)	**(112,794)**
Cash dividends paid to non-controlling shareholders	**(1,397)**	(1,329)	**(13,501)**
Purchase of investments in subsidiaries without change in scope of consolidation	**(1,987)**	—	**(19,200)**
Other, net	**(5,740)**	(2,992)	**(55,459)**
Net cash provided by (used in) financing activities	**896,521**	(18,546)	**8,662,036**
Effect of exchange rate changes on cash and cash equivalents	**434**	(2,388)	**4,194**
Net increase (decrease) in cash and cash equivalents	**76,194**	9,464	**736,169**
Cash and cash equivalents at the beginning of the year	**121,734**	112,835	**1,176,175**
Increase in cash and cash equivalents resulting from newly consolidated subsidiaries	**—**	310	**—**
Decrease in cash and cash equivalents resulting from change in scope of consolidation	**—**	(875)	**—**
Cash and cash equivalents at the end of the year (Note 6)	**¥197,928**	¥121,734	**$1,912,344**

See notes to financial statements.

Notes to Financial Statements

Showa Denko K.K. and Consolidated Subsidiaries

1. BASIS OF REPORTING AND FINANCIAL STATEMENTS

The accompanying consolidated financial statements have been prepared in accordance with accounting principles and practices generally accepted in Japan, which are different in certain respects as to the application and disclosure requirements from International Financial Reporting Standards ("IFRS"), and restructured and translated into English from the consolidated financial statements which have been filed with the Kanto Local Finance Bureau as required by the Financial Instruments and Exchange Law of Japan.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

(a) Principles of Consolidation

The consolidated financial statements for the years ended December 31, 2020 and 2019 include the accounts of Showa Denko K.K. ("the Company") and its 151 and 61 significant subsidiaries, respectively (collectively "the Companies").

For the purposes of the consolidated financial statements, all significant intercompany transactions, account balances and unrealized profits among the Companies are entirely eliminated and the portions thereof attributable to non-controlling interests are credited or charged to non-controlling interests.

The Company applies the "Practical Solution on Unification of Accounting Policies Applied to Foreign Subsidiaries, etc. for Consolidated Financial Statements" (ASBJ Practical Issues Task Force [PITF] No. 18, June 28, 2019) and makes necessary adjustments for the consolidated settlement of accounts of its foreign subsidiaries, etc.

Showa Denko Singapore (Pte.) Ltd. is consolidated using its financial statement as of its fiscal year end, which falls on September 30, and necessary adjustments are made to its financial statement to reflect any significant transactions.

Of the consolidated subsidiaries, GMM Coatings Private Limited and 49 subsidiaries of Showa Denko Materials Co., Ltd. have business year ends of March 31. For these companies, financial statements based on the provisional settlement of accounts implemented on the date of consolidated settlement of accounts are used in the preparation of the consolidated financial statements.

The business year ends of all other consolidated subsidiaries are on December 31. From the fiscal year ended December 31, 2020, the business year ends of Showa Denko Materials Co., Ltd., which became a consolidated subsidiary in April 2020, and 12 of its subsidiaries, have been changed from March 31 to December 31, the same date as the date of consolidated settlement of accounts. Accordingly, the performance for the six-month period from July 1, 2020 to December 31, 2020 for these companies has been included in the consolidated financial statements for the fiscal year ended December 31, 2020.

In the initial consolidation, assets and liabilities of subsidiaries including those attributable to minority stockholders are recorded based on fair value in the accompanying consolidated financial statements.

Goodwill is amortized on a straight-line basis over a period during which the effect of such goodwill lasts but does not exceed 20 years from booking. In addition, negative goodwill arising from business combinations prior to April 1, 2010 is amortized on a straight-line basis over a period during which the effect of such negative goodwill lasts but does not exceed 20 years from booking.

(b) Investments in Unconsolidated Subsidiaries and Affiliates

The Company applied the equity method of accounting for investments in 2 unconsolidated subsidiaries in 2020 and 2 that of in 2019, as well as 11 affiliates in 2020 and 9 that of in 2019.

All underlying intercompany profits obtained from transactions among the Companies and unconsolidated subsidiaries and affiliates to which the equity method is applied are eliminated in the consolidated financial statements.

(c) Translation of Foreign Currency Accounts

All receivables and payables denominated in foreign currencies at the balance sheet date are translated into Japanese yen at the current exchange rates.

The resulting exchange gains or losses are credited or charged to income.

The financial statements of certain consolidated foreign subsidiaries are translated into Japanese yen at the year-end rate for assets and liabilities, at historical rates for the other balance sheet accounts exclusive of the current year's net income, and at the average annual rate for revenue and expense accounts and net income.

Translation adjustments resulting from the process of translating the financial statements of foreign subsidiaries into Japanese yen are accumulated and reported as a component of net assets on the consolidated balance sheets.

(d) Cash and Cash Equivalents

Cash and cash equivalents in the consolidated statements of cash flows are composed of cash on hand, bank deposits available for withdrawal on demand, and short-term investments with original maturities of three months or less and minor risk of value fluctuation.

(e) Securities

Debt securities that are intended to be held to maturity ("held-to-maturity debt securities") are stated at amortized cost on the balance sheets. Available-for-sale securities with available fair market values are stated at fair market values. Unrealized gains and unrealized losses on these available-for-sale securities are reported, net of applicable income taxes, as a separate component of the net assets.

Realized gains or losses on the sale of the available-for-sale securities are computed using primarily the moving-average cost.

Available-for-sale securities with no available fair market values are stated primarily at the moving-average cost.

(f) Allowance for Doubtful Accounts

To provide for losses from bad debts, the allowance is provided according to the actual rate of default for ordinary receivables and in view of the probability of recovery for specific doubtful receivables.

(g) Inventories

Inventories are stated at the lower of cost or market, using principally the gross-average cost method. The carrying value on the consolidated balance sheets is stated by the devaluation method based on declines in profitability.

(h) Property, Plant and Equipment

Property, plant and equipment is stated at cost, in principle.

Depreciation of property, plant and equipment is computed by the straight-line method.

(i) Intangible Assets

The Company and some of the consolidated subsidiaries principally apply the straight-line method over 5 years to amortize intangible assets.

(j) Leased Assets

Leased assets in finance lease transactions that do not transfer ownership to the lessee are depreciated using the straight-line method on the assumption that the useful life is equal to the lease term and the residual value is equal to zero. For leases with a residual value guarantee, the contracted residual value is considered to be the residual value for financial accounting purposes.

Subsidiaries that have adopted IFRS have applied IFRS 16 "Leases." With the application of IFRS 16, lessees record all leases as assets and liabilities on their balance sheets, in principle. Capitalized right-of-use assets are depreciated using the straight-line method.

(k) Provision for Business Structure Improvement
The Company and some of the consolidated subsidiaries record the provision for business structure improvement on an accrual basis to provide for expenses and losses resulting from their restructuring programs.

(l) Provision for Bonuses
A provision for bonuses is provided at an amount estimated based on the bonus to be paid subsequent to the balance sheet date.

(m) Provision for Repairs
The Company and some of the consolidated subsidiaries provide a provision for repairs in an amount estimated to be necessary for the scheduled maintenance for certain production equipment.

(n) Provision for Stock Payments
To provide for the Company's share payment to its Directors (excluding outside Directors), Corporate Officers, and Councilors, the provision is provided based on the Director Share Payment Regulations.

(o) Accounting Policy for Retirement Benefits
(1) Method of attributing expected benefits to periods
The attribution of expected benefits to periods up to the current consolidated fiscal year, upon calculating the retirement benefit obligations, is done on the benefit formula basis.

(2) Method of amortization of actuarial gain or loss and past service costs
The actuarial gain or loss is amortized starting from the year after such an actuarial loss is determined on a straight-line basis over certain periods (mainly 12 years) within the average remaining service periods.

Past service costs are amortized on a straight-line basis over certain periods (mainly 12 years) within the average remaining service periods.

(3) Application of a simplified method to small businesses
For the calculation of liabilities concerning retirement benefits and retirement benefit expenses, some consolidated subsidiaries have adopted a simplified method, which deems term-end amounts payable for voluntary retirement related to retirement benefits as retirement benefit obligations.

(p) Significant Revenue and Expense Recognition Standards
Subsidiaries that have adopted IFRS have applied IFRS 15 "Revenue from Contracts with Customers," and recognize revenue in an amount that reflects the consideration which they expect to receive in exchange for goods or services at the time the control of the promised goods or services is transferred to the customer.

(q) Income Taxes
Income taxes consist of taxes on corporations, enterprises, and inhabitants. The provision for income taxes is computed based on the pretax income of the Company and each of its consolidated subsidiaries with certain adjustments required for consolidation and tax purposes. The asset and liability approach is used to recognize deferred tax assets and liabilities for the expected future tax consequences of temporary differences between the carrying amounts and the tax bases of assets and liabilities. (Valuation allowances are recorded to reduce deferred tax assets based on the assessment of the realizability of the tax benefits.)

Application of the Consolidated Taxation System
The Company and certain domestic subsidiaries adopt the consolidated taxation system.

Application of Tax Effect Accounting for the Transition from the Consolidated Taxation System to the Group Tax Sharing System
With regard to the items subject to the transition to the group tax sharing system created under the "Act on Partial Revision of the Income Tax Act, etc." (Act No. 8 of 2020) and a review of the non-consolidated taxation system in line with the transition to the group tax sharing system, the Company and certain domestic subsidiaries have not applied the provisions of Paragraph 44 of the "Implementation Guidance on Tax Effect Accounting" (ASBJ Guidance No. 28, February 16, 2018) and have recorded the amounts of deferred tax assets and deferred tax liabilities based on the provisions of the tax laws before the revision, as allowed in the treatment of Paragraph 3 of the"Treatment of Tax Effect Accounting for the Transition from the Consolidated Taxation System to the Group Tax Sharing System" (ASBJ PITF No. 39, March 31, 2020).

(r) Derivative Financial Instruments and Hedge Accounting
The Company and certain subsidiaries state all derivative financial instruments at fair value and recognize changes in fair value as gains or losses unless the derivative financial instruments are used for hedging purposes.

If the derivative financial instruments meet certain hedging criteria, the Company and certain subsidiaries defer the recognition of gains or losses resulting from changes in the fair value of derivative financial instruments until the related gains or losses on hedged items are recognized.

However, when forward exchange contracts meet certain hedging criteria, the hedged items are stated by the forward exchange contract rate. If interest rate swap contracts meet certain hedging criteria, the net amount to be paid or received under the interest rate swap contracts is added to or deducted from the interest on the assets or liabilities for which the interest rate swap contracts were executed.

Subsidiaries that have adopted IFRS use fair value hedges and cash flow hedges.

(s) Reclassifications
Certain reclassifications have been made in the 2019 financial statements to conform to the presentation of 2020.

3. ADDITIONAL INFORMATION

(a) Board Benefit Trust (BBT)
Based on the resolution at the 107th ordinary general meeting of shareholders held on March 30, 2016, the Company introduced a new stock compensation plan called the Board Benefit Trust (BBT) ("the Scheme") for Directors and Corporate Officers on May 11, 2016.

Following the resolution of the Board of Directors on March 5, 2019, the Company decided to include its Councilors into the targets of the Scheme and revised the maximum amount of funds the Company will contribute to the trust, which are to be used by the trust to acquire shares in the company.

(1) Outline of the transaction
In the Scheme, the shares of the Company are granted to its Directors (excluding outside Directors), Corporate Officers, and Councilors pursuant to the Director Share Grant Regulations set forth by the Company.

The Company grants performance-linked points to its Directors, Corporate Officers, and Councilors every year, and grants shares of the Company to them based on the number of points granted when they resign from the Company. Provided that, however, with regard to a certain portion of the points, an amount of money corresponding to the prevailing market price of the Company's shares will be paid to any Director, Corporate Officer, or Councilor meeting the relevant requirements set forth in the Director Share Grant Regulations. The Company's shares that are granted to Directors, Corporate Officers, and Councilors including those to be granted in the future, shall be acquired by the trust using the entrusted funds and separately managed as trusted assets.

For accounting treatment concerning this trust agreement, the Company applied the gross method in which the assets and liabilities of the trust are recorded as assets and liabilities in the balance sheet by referring to the Practical Solution on Transactions of Delivering the Company's Own Stock to Employees etc. through Trusts (ASBJ PITF No. 30, issued on March 26, 2015).

(2) Residual shares of the company in the trust

Residual shares of the Company in the trust have been recorded as treasury stock under net assets at the book value in the trust (excluding the amount of ancillary expenses). The book value and the number of such treasury stock were ¥312 million (US$3,011 thousand) and 277,300 shares at the end of the fiscal year ended December 31, 2020, and ¥321 million and 286,000 shares at the end of the fiscal year ended December 31, 2019, respectively.

(b) Issuing of New Shares and Borrowing of Funds

HC Holdings K.K., a consolidated subsidiary of the Company, carried out a tender offer for common shares in Hitachi Chemical Company, Ltd. (current Showa Denko Materials Co., Ltd.), to make Hitachi Chemical Company, Ltd. a wholly owned subsidiary. With regard to the fractional shares resulting from the share consolidation implemented by Hitachi Chemical Company, Ltd. effective June 23, 2020, HC Holdings K.K. obtained permission from the court pursuant to the provisions of Article 234, Paragraph 2 of the Companies Act as applied mutatis mutandis under Article 235, Paragraph 2 of the same Act, and acquired the fractional shares on October 15, 2020.

To procure funds for this transaction, HC Holdings K.K. decided to issue 275 billion shares of preferred shares (at an issuance value of ¥1 per share) by means of a third-party share allotment, which was subscribed by Mizuho Bank, Ltd. and Development Bank of Japan Inc., and to issue 295 billion shares of common shares (at an issuance value of ¥1 per share) by means of a third-party share allotment, which was subscribed by the Company, and received these payments on April 27, 2020. In addition, the Company decided to take a loan of ¥295 billion (US$2,850 million) (at a variable interest rate based on JBA Japanese Yen TIBOR, with a term of seven years, repayment in a batch at the due date) from Mizuho Bank, Ltd., in order to raise the funds necessary to subscribe for the 295 billion shares of common shares. The loan was executed on April 27, 2020.

Furthermore, to procure funds for this transaction, HC Holdings K.K. executed a term loan agreement for a total of ¥400 billion (US$3,865 million) (at a variable interest rate based on JBA Japanese Yen TIBOR, with a term of five years, of which ¥50 billion (US$483 million) will be repaid in installments and ¥350 billion (US$3,382 million) will be repaid in a batch at the due date) and a commitment line agreement of ¥90 billion (US$870 million) (at a variable interest rate based on JBA Japanese Yen TIBOR, which will be repaid in a batch at the due date after one week to six months from the implementation of the individual loan) with Mizuho Bank, Ltd., and executed the term loan of ¥280.5 billion (US$2,710 million) on April 27, 2020, ¥0.5 billion (US$5 million) on September 25, 2020, and ¥119 billion (US$1,150 million) on October 9, 2020. The agreements contain certain financial covenants, mainly the maintenance of net assets and the maintenance of profits, and certain assets including the common shares of Hitachi Chemical Company, Ltd. were pledged as collateral.

(c) Accounting Estimates in Conjunction with the Spread of the COVID-19 pandemic

During the fiscal year ended December 31, 2020, the worldwide COVID-19 pandemic has caused our customers in certain businesses, specifically the manufacturers, to suspend production or to reduce production volume. This, in turn, has affected the Group's performance and financial conditions. The Company assumes that the Group's performance and financial conditions will begin to gradually recover toward the end of the following fiscal year, and will recover to the levels prior to the pandemic in two to three years, and accordingly makes accounting estimates on the valuation of noncurrent assets including goodwill and the recoverability of deferred tax assets, etc.

4. CHANGES IN ACCOUNTING POLICIES

New Accounting Standards Not Yet Applied

(a) "Accounting Standard for Revenue Recognition" (ASBJ Statement No. 29, March 31, 2020. Accounting Standards Board of Japan), "Implementation Guidance on Accounting Standard for Revenue Recognition" (ASBJ Guidance No. 30, March 31, 2020. Accounting Standards Board of Japan), and "Implementation Guidance on Disclosures about Fair Value of Financial Instruments" (ASBJ Guidance No. 19, March 31, 2020. Accounting Standards Board of Japan)

(1) Overview

The International Accounting Standards Board (IASB) and the Financial Accounting Standards Board (FASB) jointly developed a comprehensive accounting standard for revenue recognition, and published "Revenue from Contracts with Customers" (IFRS 15 at IASB, Topic 606 at FASB) in May 2014. Given that IFRS 15 will be applied to fiscal years starting on or after January 1, 2018 and Topic 606 will be applied to fiscal years starting on or after December 15, 2017, the Accounting Standards Board of Japan developed a comprehensive accounting standard for revenue recognition and published them together with implementation guidance. The basic policy of the Accounting Standards Board of Japan in developing the accounting standard for revenue recognition is to establish an accounting standard with the incorporation of the basic principles of IFRS 15 as a starting point from the perspective of comparability between financial statements, which is one of the benefits of seeking consistency with IFRS 15, and to add alternative treatments if there are any matters in Japanese practices as far as the comparability is not hindered.

(2) Scheduled date of application

The standard will be applied from the beginning of the fiscal year 2022.

(3) Impact of application

The impact of the application of the accounting standard and implementation guidance for revenue recognition on the consolidated financial statements is currently under review.

(b) "Accounting Standard for Fair Value Measurement" (ASBJ Statement No. 30, July 4, 2019), "Implementation Guidance on Accounting Standard for Fair Value Measurement" (ASBJ Guidance No. 31, July 4, 2019), "Accounting Standard for Measurement of Inventories" (ASBJ Statement No. 9, July 4, 2019), "Accounting Standard for Financial Instruments" (ASBJ Statement No. 10, July 4, 2019) and "Implementation Guidance on Disclosures about Fair Value of Financial Instruments" (ASBJ Guidance No. 19, March 31, 2020)

(1) Overview

"Accounting Standard for Fair Value Measurement" and "Implementation Guidance on Accounting Standard for Fair Value Measurement" (hereinafter referred to as "Fair Value Measurement Accounting Standards, etc.") were developed to increase the comparability with international accounting standards, and guidance and other rules were established with regard to the method for fair value measurement. Fair Value Measurement Accounting Standards, etc., will be applicable for fair values of the following items:

- Financial instruments included in "Accounting Standard for Financial Instruments"
- Inventories held for trading purposes included in "Accounting Standard for Measurement of Inventories"

In addition, "Implementation Guidance on Disclosures about Fair Value of Financial Instruments" was revised to include notes regarding the breakdown by level of fair values of financial instruments.

(2) Scheduled date of application

The standard will be applied from the beginning of the fiscal year 2022.

(3) Impact of application
The impact of the application on the consolidated financial statements is currently under review.

(c) "Accounting Standard for Accounting Policy Disclosures, Accounting Changes and Error Corrections" (ASBJ Statement No. 24, March 31, 2020)

(1) Overview
The purpose of this accounting standard is to clarify the principles and overview of procedures of the adopted accounting treatment, in cases where the provisions of relevant accounting standards, etc., are unclear.

(2) Scheduled date of application
The standard will be applied from the end of the fiscal year 2021.

(d) "Accounting Standard for Disclosure of Accounting Estimates" (ASBJ Statement No. 31, March 31, 2020)

(1) Overview
The purpose of this accounting standard is to disclose information that will facilitate the understanding of the users of financial statements, regarding items of accounting estimates for the amounts recorded in the financial statements for the current fiscal year that have the risk of significant impact on the financial statements for the following fiscal year.

(2) Scheduled date of application
The standard will be applied from the end of the fiscal year 2021.

5. JAPANESE YEN AND TRANSLATION INTO U.S. DOLLARS

The Companies' accounting records are maintained in yen. Yen amounts included in the financial statements are rounded to the nearest one million unit. Therefore, the total and subtotal amounts presented in the financial statements may not equal the exact sum of the individual balances. The U.S. dollar amounts appearing in the accompanying financial statements and notes thereto represent the arithmetical results of translating yen into U.S. dollars at the rate of ¥103.50 to US$1.00, the approximate rate of exchange as at December 31, 2020. The inclusion of such U.S. dollar amounts is solely for the convenience of readers; it does not carry with it any implication that yen amounts have been or could be converted into U.S. dollars at that rate.

6. CASH FLOW STATEMENTS

(a) Cash and Cash Equivalents
Cash and deposits as of December 31, 2020 and 2019 on the consolidated balance sheets and cash equivalents as at December 31, 2020 and 2019 on the consolidated statements of cash flows were reconciled as follows:

	Millions of yen		Thousands of U.S. dollars
	2020	2019	**2020**
Cash and deposits	**¥198,982**	¥122,086	**$1,922,535**
Original maturities more than three months	**(1,055)**	(352)	**(10,191)**
Cash and cash equivalents	**¥197,928**	¥121,734	**$1,912,344**

(b) Assets and Liabilities of Newly Consolidated Subsidiaries through the Acquisition of Shares Breakdown of the major assets and liabilities of the Company's newly consolidated subsidiary obtained through a share acquisition as of December 31, 2020

A breakdown of the major assets and liabilities at the time of the initial consolidation of Showa Denko Materials Co., Ltd. and its 90 subsidiaries, obtained through a share acquisition, as well as the acquisition values and expenditures for the acquisition (net amount) were as follows:

	Millions of yen	Thousands of U.S. dollars
Current assets	**¥315,505**	**$ 3,048,357**
Noncurrent assets	**604,006**	**5,835,807**
Goodwill	**365,123**	**3,527,763**
Current liabilities	**(159,969)**	**(1,545,594)**
Noncurrent liabilities	**(152,292)**	**(1,471,425)**
Non-controlling interests	**(8,333)**	**(80,512)**
Acquisition value of shares of the acquired company	**¥964,040**	**$ 9,314,397**
Cash and cash equivalents of the acquired company	**73,809**	**713,130**
Less: Expenditures for the acquisition	**¥890,230**	**$ 8,601,261**

7. FINANCIAL INSTRUMENTS

(a) Overview
(1) Management policy relating to financial instruments
The Companies finance necessary long-term funds by bank loans and bond issues following the capital investment plans and finance short-term operating funds by bank loans and commercial paper. Temporary excess funds are invested exclusively in financial instruments which have fixed returns and low risk of falling below par values. The Companies use derivative transactions to hedge the following risks and do not enter into derivative transactions for speculative purposes.

(2) Types of financial instruments and related risks
Operating receivables, such as notes and accounts receivable, are exposed to credit risk. Foreign-currency-denominated accounts receivable incurred through exports are exposed to foreign currency fluctuation risk. However, the Companies hedge the risk by utilizing forward exchange contracts, currency options, and currency swaps based on internal rules that set out foreign currency risk management principles.

Marketable securities and investment securities mainly consist of the stocks of partner companies to maintain and strengthen their business relationships and are exposed to market fluctuation risk.

Operating payables, such as notes and accounts payable-trade and other, are due within one year. Foreign-currency-denominated accounts payable incurred through imports of raw materials are exposed to foreign currency fluctuation risk. The Companies hedge the risk by utilizing forward exchange contracts following internal rules that set out the foreign currency risk management principles. Short-term debt and commercial paper are mainly used to finance short-term operating funds, and long-term debts and bonds are mainly used to finance equipment funds. Since some loans have financial covenants attached, they may affect liquidity risk related to financing. Variable interest rate loans are exposed to interest rate fluctuation risk. However, certain loans use interest rate swaps to hedge the risk.

The Companies utilize derivative transactions, such as forward exchange contracts, currency options, and currency swaps, to hedge the foreign currency fluctuation risk of operating receivables and payables denominated in foreign currencies and financing transactions denominated in foreign currencies. Interest rate swaps are utilized to hedge the interest rate fluctuation risk, and forward contracts and commodity swaps, etc. are utilized to hedge the market fluctuation risk.

(3) Risk management relating to financial instruments
(i) Credit risk management (risk of default by the counterparties)
The Company follows internal rules that set out accounts receivable management principles. The compliance department works with the sales division in each sector and monitors the customers' credit

conditions periodically and reviews the sales policy checking the sales volume and balances. The Company takes measures to obtain information on and minimize the credit risk that may arise due to the deterioration in the financial condition of their customers. Consolidated subsidiaries monitor their customers' financial and credit conditions based on their internal rules.

The held-to-maturity debts are limited to only highly rated securities.

The Companies utilize derivative transactions only with creditworthy financial institutions and trading companies to minimize credit risk.

The maximum credit risk as of December 31, 2020 is disclosed as the balance sheet amount of financial instruments exposed to credit risk.

(ii) Market risk management (risk of fluctuations in foreign currency and interest rates)

For operating receivables and payables and loans denominated in foreign currencies, the Company and certain consolidated subsidiaries utilize forward exchange contracts, currency options, and currency swaps to hedge some of the foreign currency fluctuation risk, which is categorized by currency and maturity date. The Company and certain consolidated subsidiaries utilize currency swaps to hedge the interest rate fluctuation risk of loans.

For marketable securities and investment securities, the Companies regularly review the fair value and issuers' financial conditions, and review the Companies' portfolio on an ongoing basis, except for held-to-maturity debt securities, according to market conditions and the business relationships with counterparties.

The Company has internal management rules that set out the approval authorities and procedures of the derivative transactions.

The derivative transactions are carried out based on the appropriate approver set out in the internal rules. For currency-related derivative transactions, each division and the treasury department perform and manage transactions and report to the director in charge periodically. For interest-related derivative transactions, the treasury department performs and manages the transactions and reports to the director in charge periodically. For commodity-related derivative transactions, each division performs and manages the transactions, and reports to the director in charge periodically. Consolidated subsidiaries perform and manage derivative transactions based on their internal management standards.

(iii) Liquidity risk management (risk of default on payment due dates)

The Company manages liquidity risk by requiring the treasury department to prepare and update cash plans, based on the schedule for cash inflows and disbursements in each division. In addition, the Company signs commitment line contracts and makes other arrangements with financial institutions to secure the necessary liquidity. Consolidated subsidiaries manage their liquidity risk through similar procedures.

(4) Supplemental explanation on fair value of financial instruments

Along with the values being based on market prices, the fair value of financial instruments includes values that are reasonably calculated in case market prices do not exist. As the calculation of those values uses certain assumptions, those values may vary in the case of different assumptions being applied. Also, for the contract amount and others regarding derivative transactions described in Note 9. DERIVATIVE FINANCIAL INSTRUMENTS, the contract amount itself does not indicate market risk related to derivative transactions.

(b) Fair Value of Financial Instruments

As at December 31, 2020 and 2019, book value, fair value, and difference were as follows.

The financial instruments whose fair value is extremely difficult to determine are not included below.

Year ended December 31, 2020	Millions of yen		
	Book value	Fair value	Difference
(1) Cash and deposits	**¥ 198,982**	**¥ 198,982**	**¥ —**
(2) Notes and accounts receivable-trade	**271,628**	**271,628**	**—**
(3) Marketable securities and investment securities	**27,576**	**27,576**	**—**
Total assets	**¥ 498,187**	**¥ 498,187**	**¥ —**
(1) Notes and accounts payable-trade	**¥ 164,356**	**¥ 164,356**	**¥ —**
(2) Short-term debt	**72,645**	**72,645**	**—**
(3) Current portion of long-term debt	**56,387**	**56,419**	**32**
(4) Accounts payable-other	**43,253**	**43,253**	**—**
(5) Long-term debt less current portion	**906,365**	**906,666**	**301**
Total liabilities	**¥1,243,006**	**¥1,243,339**	**¥333**
Derivative transactions*	**¥ 1,218**	**¥ 1,218**	**¥ —**

Year ended December 31, 2019	Millions of yen		
	Book value	Fair value	Difference
(1) Cash and deposits	¥122,086	¥122,086	¥ —
(2) Notes and accounts receivable-trade	170,293	170,293	—
(3) Investment securities	46,813	46,813	—
Total assets	¥339,192	¥339,192	¥ —
(1) Notes and accounts payable-trade	¥117,510	¥117,510	¥ —
(2) Short-term debt	52,720	52,720	—
(3) Current portion of long-term debt	31,943	31,952	8
(4) Accounts payable-other	30,597	30,597	—
(5) Long-term debt less current portion	213,861	213,424	(436)
Total liabilities	¥446,631	¥446,203	¥(428)
Derivative transactions*	¥ 608	¥ 608	¥ —

Year ended December 31, 2020	Thousands of U.S. dollars		
	Book value	Fair value	Difference
(1) Cash and deposits	**$ 1,922,535**	**$ 1,922,535**	**$ —**
(2) Notes and accounts receivable-trade	**2,624,429**	**2,624,429**	**—**
(3) Marketable securities and investment securities	**266,438**	**266,438**	**—**
Total assets	**$ 4,813,402**	**$ 4,813,402**	**$ —**
(1) Notes and accounts payable-trade	**$ 1,587,982**	**$ 1,587,982**	**$ —**
(2) Short-term debt	**701,885**	**701,885**	**—**
(3) Current portion of long-term debt	**544,803**	**545,115**	**312**
(4) Accounts payable-other	**417,904**	**417,904**	**—**
(5) Long-term debt less current portion	**8,757,150**	**8,760,055**	**2,905**
Total liabilities	**$12,009,724**	**$12,012,941**	**$3,217**
Derivative transactions*	**$ 11,772**	**$ 11,772**	**$ —**

*Derivative assets and liabilities are on a net basis.

Notes: 1. Valuation method for financial instruments and information on marketable securities and derivative transactions

Assets

Cash and deposits and Notes and accounts receivable-trade

The book value is deemed to approximate the fair value since these are scheduled to be settled in a short period of time.

Marketable securities and investment securities

The fair value of these securities is based on the price on stock exchanges. Refer to Note 8. SECURITIES regarding the securities categorized by holding purposes.

Liabilities

Notes and accounts payable-trade, Short-term debt, Commercial paper (included in the above Short-term debt), and Accounts payable-other

The book value is deemed to approximate the fair value since these are scheduled to be settled in a short period of time.

Current portion of long-term debt and Long-term debt (included in the above Long-term debt less current portion)

The fair value is measured as the net present value of the estimated cash flows by discounting the principal and interest value using the interest rate applied to the new loans. Parts of the long-term loans are variable rate loans, and they are subject to special treatment of interest rate swaps (refer to Note 9. DERIVATIVE FINANCIAL INSTRUMENTS); the fair value is measured as the net present value of the estimated cash flows by discounting the total amount of principal and interest processed as interest rate swaps using the interest rate applied to the new loans.

Current portion of bonds (included in the above Current portion of long-term debt) and Bonds (included in the above Long-term debt less current portion)

The fair value is based on the market prices.

Derivative transactions

Refer to Note 9. DERIVATIVE FINANCIAL INSTRUMENTS.

Notes: 2. Financial instruments for which fair value is extremely difficult to determine

	Millions of yen		Thousands of U.S. dollars
	2020	2019	**2020**
Non-listed equity securities	**¥ 78,856**	¥ 24,973	**$ 761,895**

These securities are not included in the above Marketable securities and investment securities, as it is extremely difficult to determine the fair value. As there was no quoted market value, estimating the future cash flows is deemed to be practically impossible.

Notes: 3. Redemption schedule for financial assets and securities with maturities

Year ended December 31, 2020	Millions of yen			
	Due in 1 year or less	Due after 1 year through 5 years	Due after 5 years through 10 years	Due after 10 years
Cash and deposits	**¥198,982**	**¥ —**	**¥ —**	**¥ —**
Notes and accounts receivable-trade	**271,628**	**—**	**—**	**—**
Marketable securities and investment securities:				
Held-to-maturity debt securities				
Government and local bonds and others	**20**	**—**	**—**	**—**
Total	**¥470,631**	**¥ —**	**¥ —**	**¥ —**

Year ended December 31, 2019	Millions of yen			
	Due in 1 year or less	Due after 1 year through 5 years	Due after 5 years through 10 years	Due after 10 years
Cash and deposits	¥122,086	¥ —	¥ —	¥ —
Notes and accounts receivable-trade	170,293	—	—	—
Total	¥292,379	¥ —	¥ —	¥ —

Year ended December 31, 2020	Thousands of U.S. dollars			
	Due in 1 year or less	Due after 1 year through 5 years	Due after 5 years through 10 years	Due after 10 years
Cash and deposits	**$1,922,535**	**$ —**	**$ —**	**$ —**
Notes and accounts receivable-trade	**2,624,429**	**—**	**—**	**—**
Marketable securities and investment securities:				
Held-to-maturity debt securities				
Government and local bonds and others	**193**	**—**	**—**	**—**
Total	**$4,547,157**	**$ —**	**$ —**	**$ —**

Notes: 4. Scheduled maturities of bonds and long-term debt after December 31, 2020 and 2019

Year ended December 31, 2020	Millions of yen					
	Due in 1 year or less	Due after 1 year through 2 years	Due after 2 years through 3 years	Due after 3 years through 4 years	Due after 4 years through 5 years	Due after 5 years
(1) Short-term debt	**¥ 72,645**	**¥ —**	**¥ —**	**¥ —**	**¥ —**	**¥ —**
(2) Long-term debt	**56,387**	**75,338**	**55,765**	**49,186**	**355,825**	**370,323**
Total	**¥129,032**	**¥75,338**	**¥55,765**	**¥49,186**	**¥355,825**	**¥370,323**

Year ended December 31, 2019	Millions of yen					
	Due in 1 year or less	Due after 1 year through 2 years	Due after 2 years through 3 years	Due after 3 years through 4 years	Due after 4 years through 5 years	Due after 5 years
(1) Short-term debt	¥52,720	¥ —	¥ —	¥ —	¥ —	¥ —
(2) Long-term debt	31,943	53,191	48,870	32,309	24,291	55,200
Total	¥84,663	¥53,191	¥48,870	¥32,309	¥24,291	¥55,200

Year ended December 31, 2020	Thousands of U.S. dollars					
	Due in 1 year or less	Due after 1 year through 2 years	Due after 2 years through 3 years	Due after 3 years through 4 years	Due after 4 years through 5 years	Due after 5 years
(1) Short-term debt	**$ 701,885**	**$ —**	**$ —**	**$ —**	**$ —**	**$ —**
(2) Long-term debt	**544,803**	**727,901**	**538,793**	**475,226**	**3,437,926**	**3,577,997**
Total	**$1,246,688**	**$727,901**	**$538,793**	**$475,226**	**$3,437,926**	**$3,577,997**

8. SECURITIES

(a) Available-for-sale Securities

Year ended December 31, 2020	Millions of yen		
	Book value	Acquisition cost	Difference
Available-for-sale securities whose book value exceeds their acquisition cost			
Equity securities	**¥20,549**	**¥11,951**	**¥ 8,599**
Other	**183**	**159**	**24**
Available-for-sale securities whose book value is less than their acquisition cost			
Equity securities	**6,824**	**8,986**	**(2,162)**
Total	**¥27,556**	**¥21,096**	**¥ 6,460**

Year ended December 31, 2019	Millions of yen		
	Book value	Acquisition cost	Difference
Available-for-sale securities whose book value exceeds their acquisition cost			
Equity securities	¥39,905	¥23,089	¥ 16,817
Other	176	154	22
Available-for-sale securities whose book value is less than their acquisition cost			
Equity securities	6,732	8,542	(1,810)
Total	¥46,813	¥31,784	¥ 15,029

Year ended December 31, 2020	Thousands of U.S. dollars		
	Book value	Acquisition cost	Difference
Available-for-sale securities whose book value exceeds their acquisition cost			
Equity securities	**$198,546**	**$115,466**	**$ 83,080**
Other	**1,766**	**1,537**	**229**
Available-for-sale securities whose book value is less than their acquisition cost			
Equity securities	**65,933**	**86,825**	**(20,892)**
Total	**$266,245**	**$203,827**	**$ 62,418**

(b) Available-for-sale Securities Sold in the Years Ended December 31, 2020 and 2019:

Year ended December 31, 2020	Millions of yen		
	Sales	Gross gain	Gross loss
Equity securities	**¥22,866**	**¥4,959**	**¥(2,004)**
Total	**¥22,866**	**¥4,959**	**¥(2,004)**

Year ended December 31, 2019	Millions of yen		
	Sales	Gross gain	Gross loss
Equity securities	¥4,922	¥1,669	¥(5)
Total	¥4,922	¥1,669	¥(5)

Year ended December 31, 2020	Thousands of U.S. dollars		
	Sales	Gross gain	Gross loss
Equity securities	**$220,927**	**$47,917**	**$(19,361)**
Total	**$220,927**	**$47,917**	**$(19,361)**

(c) Impairment of securities

For the years ended December 31, 2020 and 2019, the Companies recorded an impairment loss of ¥315 million (US¥3,045 thousand) on available-for-sale securities and ¥3 million on available-for-sale securities with fair market values, respectively.

Securities are deemed to be "substantially declined" when their fair values have declined 30% or more. When their fair values have declined 50% or more, the impairment losses are recorded on those securities. When their fair values have declined between 30% and 50%, the impairment losses are recorded on those securities unless such values are considered to be recoverable on an individual basis.

9. DERIVATIVE FINANCIAL INSTRUMENTS

(a) Derivative Transactions to Which Hedge Accounting is Not Applied

	Millions of yen								Thousands of U.S. dollars			
	2020				2019				**2020**			
	Contract amount	Contract amount over 1 year	Fair value	Valuation gain (loss)	Contract amount	Contract amount over 1 year	Fair value	Valuation gain (loss)	Contract amount	Contract amount over 1 year	Fair value	Valuation gain (loss)
Currency related:												
Forward exchange contracts:												
Buying												
U.S. Dollar	**¥ —**	**¥—**	**¥ —**	**¥ —**	¥ 184	¥—	¥ 1	¥ 1	**$ —**	**$—**	**$ —**	**$ —**
Euro	**—**	**—**	**—**	**—**	2	—	0	0	**—**	**—**	**—**	**—**
Selling												
U.S. Dollar	**939**	**—**	**11**	**11**	198	—	(1)	(1)	**9,074**	**—**	**104**	**104**
Euro	**9,540**	**—**	**(13)**	**(13)**	—	—	—	—	**92,173**	**—**	**(127)**	**(127)**
Swiss Franc	**1,506**	**—**	**(1)**	**(1)**	1,369	—	(16)	(16)	**14,549**	**—**	**(10)**	**(10)**
Currency options:												
Buying and selling												
U.S. Dollar	**¥16,013**	**¥—**	**¥ 98**	**¥ 98**	¥ —	¥—	¥—	¥—	**$154,715**	**$—**	**$ 947**	**$ 947**

Notes: Fair value calculation method:

1. Fair values of forward exchange contracts are stated by the forward exchange rates.
2. Fair values of currency options are measured at the quoted price obtained from the financial institutions.
3. Currency options are zero-cost option contracts, and call options and put options are shown as a lump sum because they are included in integrated contract.

(b) Derivative Transactions to Which Hedge Accounting is Applied

	Millions of yen						Thousands of U.S. dollars		
	2020			2019			2020		
	Contract amount	Contract amount over 1 year	Fair value	Contract amount	Contract amount over 1 year	Fair value	Contract amount	Contract amount over 1 year	Fair value
(1) Currency related:									
Principle method									
Forward exchange contracts:									
Buying									
U.S. Dollar	¥10,581	¥1,454	¥ 31	¥ 8,682	¥3,109	¥240	$102,231	$14,051	$ 300
Euro	9	—	0	19	—	0	82	—	0
Canadian Dollar	—	—	—	3	—	0	—	—	—
Australian Dollar	—	—	—	1	—	(0)	—	—	—
Selling									
U.S. Dollar	2,638	—	6	5,594	—	(19)	25,485	—	60
Euro	5	—	(0)	201	—	(2)	45	—	(0)
Allocation method									
Forward exchange contracts:									
Buying									
U.S. Dollar	¥9,951	¥ —	¥ —	¥ 1,623	¥ —	¥ —	$ 96,149	$ —	$ —
Euro	42	—	—	47	—	—	410	—	—
Selling									
U.S. Dollar	2,932	—	—	6,073	—	—	28,327	—	—
Euro	428	—	—	332	—	—	4,133	—	—
Yuan Renminbi	1,406	—	—	701	—	—	13,585	—	—
Currency swaps:									
Receipt U.S. Dollar									
Payment Yen	¥2,000	¥2,000	¥ —	¥ 2,900	¥2,000	¥ —	$ 19,324	$19,324	$ —
Cash flow hedge									
Forward exchange contracts:									
Selling									
U.S. Dollar	¥1,051	¥ —	¥ 22	¥ —	¥ —	¥ —	$ 10,155	$ —	$ 213
Fair value hedge									
Forward exchange contracts:									
Selling									
U.S. Dollar	¥1,578	¥ —	¥ 33	¥ —	¥ —	¥ —	$ 15,246	$ —	$ 319
Mexican Peso	1,787	—	(162)	—	—	—	17,266	—	(1,565)
(2) Interest rate related:									
Special method									
Interest rate swaps:									
Receipt-variable rate/Payment-fixed rate	¥2,600	¥2,600	¥ —	¥ 5,433	¥2,600	¥ —	$ 25,121	$25,121	$ —
(3) Commodity related:									
Principle method									
Aluminum forward contracts:									
Buying	¥9,998	¥1,971	¥1,172	¥15,649	¥5,993	¥428	$ 96,597	$19,040	$11,328
Selling	857	—	(10)	1,538	—	(22)	8,284	—	(95)
Cash flow hedge									
Commodity swaps:									
Buying	¥2,067	¥ —	¥ 9	¥ —	¥ —	¥ —	$ 19,971	$ —	$ 87
Commodity future contracts:									
Buying	¥ 689	¥ 21	¥ 19	¥ —	¥ —	¥ —	$ 6,657	$ 203	$ 184
Selling	225	—	4	—	—	—	2,174	—	39

Notes: 1. The main items hedged by forward exchange contracts are accounts payable for buying, accounts receivable for selling and long-term debt by interest rate swaps. The main items hedged by aluminum forward transactions are aluminum metal transactions. The main items hedged by commodity swaps and commodity future contracts are copper and lead purchase transactions.

2. Fair value calculation method:
The fair values of forward exchange contracts are stated by the forward exchange rates. The fair values of currency swaps are measured at the quoted price obtained from the financial institutions. The fair values of aluminum forward transactions are stated by forward quotations of the London Metal Exchange. The fair values of commodity swaps and commodity future contracts are measured at the quoted price obtained from the financial institutions.

3. The fair values of forward exchange contracts and currency swaps that meet the allocation method criteria are reflected in the fair values of accounts receivable, accounts payable and debts of their hedged items.

4. The fair values of interest rate swaps that meet the special treatment criteria are reflected in the fair values of long-term debt of their hedged item.

10. EFFECT OF YEAR-END DATE ON FINANCIAL STATEMENTS

The year-end date of 2020, namely, December 31, 2020, was a bank holiday. Although notes receivable and payable maturing on this date were accordingly settled on January 4, 2021, the Companies accounted for those notes in their financial statements as if they had been settled on the maturity date.

Notes outstanding as at December 31, 2020 and 2019 dealt with in the above-mentioned manner were as follows:

	Millions of yen		Thousands of U.S. dollars
	2020	2019	2020
Notes receivable	¥1,068	¥1,524	$10,321
Notes payable	608	1,074	5,873

11. SHORT-TERM DEBT AND LONG-TERM DEBT

As at December 31, 2020 and 2019, the short-term debt of the Companies consisted of the following:

	Millions of yen		Thousands of U.S. dollars
	2020	2019	2020
Bank loans at the average interest rate of 0.56%	¥62,645	¥52,720	$605,267
Commercial paper	10,000	—	96,618
Total	¥72,645	¥52,720	$701,885

As at December 31, 2020 and 2019, the long-term debt of the Companies consisted of the following:

	Millions of yen		Thousands of U.S. dollars
	2020	2019	2020
0.630% bonds due 2021 (*1)	¥ 15,000	¥ 15,000	$ 144,928
0.200% bonds due 2021 (*1)	10,000	10,000	96,618
0.734% bonds due 2022 (*1)	10,000	10,000	96,618
0.190% bonds due 2024 (*1)	10,000	10,000	96,618
0.500% bonds due 2026 (*1)	7,000	7,000	67,633
0.430% bonds due 2029 (*1)	10,000	10,000	96,618
1.191% bonds due 2022 (*2)	9,994	—	96,560
0.375% bonds due 2027 (*2)	19,935	—	192,609
Loans principally from banks and insurance companies due 2022 to 2028 at the average interest rate of 1.09%	870,823	183,804	8,413,750
	962,752	245,804	9,301,953
Less: current portion	(56,387)	(31,943)	(544,803)
Total	¥906,365	¥213,861	$8,757,150

*1 Showa Denko K.K.
*2 Showa Denko Materials Co., Ltd.

The aggregate annual maturities of the noncurrent portion of long-term debt were as follows:

Years ending December 31	Millions of yen	Thousands of U.S. dollars
2022	¥ 75,338	$ 727,901
2023	55,765	538,793
2024	49,186	475,226
2025	355,825	3,437,926
2026 and thereafter	370,323	3,577,997
Total	¥906,437	$8,757,842

As at December 31, 2020 and 2019, the assets pledged as collateral for long-term debt were as follows:

	Millions of yen		Thousands of U.S. dollars
	2020	2019	2020
Assets pledged as collateral			
Cash and deposits	¥ 10,548	¥ —	$ 101,913
Notes and accounts receivable-trade	1,486	—	14,362
Inventories	3,146	—	30,393
Investment securities	134	408	1,295
Property, plant and equipment, less accumulated depreciation	127,712	136,697	1,233,930
Total	¥143,026	¥137,105	$1,381,893

In addition to the above, investments in subsidiaries of ¥977,437 million (US$9,443,836 thousand) and loans receivable from subsidiaries and affiliates of ¥57,041 million (US$551,121 thousand), which were eliminated as intercompany transactions, were pledged as collateral for the current year.

As at December 31, 2020 and 2019, the liabilities with collateral were as follows:

	Millions of yen		Thousands of U.S. dollars
	2020	2019	2020
Secured short-term debt and long-term debt			
Short-term debt	¥ 577	¥ 92	$ 5,580
Long-term debt	392,917	160	3,796,296
Other debt	1,456	143	14,068
Total	¥394,950	¥395	$3,815,943

As at December 31, 2020 and 2019, the non-recourse liabilities were as follows.

The following amounts are included in the amounts stated as collateral assets and secured liabilities above:

	Millions of yen		Thousands of U.S. dollars
	2020	2019	2020
Long-term debt	¥392,400	¥ —	$3,791,304
Other debt	1,404	—	13,565
Total	¥393,804	¥ —	$3,804,870

As at December 31, 2020 and 2019, the assets corresponding to the non-recourse liabilities were as follows:

	Millions of yen		Thousands of U.S. dollars
	2020	2019	2020
Cash and deposits	¥10,548	¥ —	$101,913

In addition to the above, investments in subsidiaries of ¥977,437 million (US$9,443,836 thousand) and loans receivable from subsidiaries and affiliates of ¥57,041 million (US$551,121 thousand), which were eliminated as intercompany transactions, were pledged as collateral for the current year.

12. RETIREMENT BENEFITS

(a) Defined benefit pension plan, including the plans using the simplified method

(1) Reconciliation of opening and closing balance of retirement benefit obligation for the years ended December 31, 2020 and 2019 was as follows:

	Millions of yen		Thousands of U.S. dollars
	2020	2019	**2020**
Balance of retirement benefit obligation at the beginning of the year	**¥102,553**	¥100,324	**$ 990,854**
Service cost	**4,971**	2,677	**48,033**
Interest cost	**574**	487	**5,543**
Actuarial gain and loss	**393**	3,646	**3,793**
Retirement benefits paid	**(9,134)**	(5,035)	**(88,248)**
Past service cost	**138**	30	**1,331**
Increase from changes in scope of consolidation	**92,888**	1,630	**897,469**
Decrease from changes in scope of consolidation	**(163)**	(885)	**(1,575)**
Other	**(121)**	(321)	**(1,172)**
Balance of the retirement benefit obligation at the end of the year	**¥192,099**	¥102,553	**$1,856,026**

(2) Reconciliation of opening and closing balance of plan assets for the years ended December 31, 2020 and 2019 was as follows:

	Millions of yen		Thousands of U.S. dollars
	2020	2019	**2020**
Balance of plan assets at the beginning of the year	**¥ 92,827**	¥78,554	**$ 896,881**
Expected return on plan assets	**1,822**	1,523	**17,606**
Actuarial gain and loss	**5,780**	5,101	**55,847**
Contribution from employer	**5,201**	11,799	**50,250**
Retirement benefits paid	**(7,597)**	(4,507)	**(73,403)**
Increase from changes in scope of consolidation	**90,303**	1,338	**872,493**
Decrease from changes in scope of consolidation	**—**	(989)	**—**
Other	**197**	9	**1,902**
Balance of plan assets at the end of the year	**¥188,533**	¥92,827	**$1,821,576**

(3) Reconciliation of the ending balance of retirement benefit obligations and plan assets, and the net defined benefit liability and the net defined benefit asset for the years ended December 31, 2020 and 2019 was as follows:

	Millions of yen		Thousands of U.S. dollars
	2020	2019	**2020**
Funded retirement benefit obligations	**¥ 179,789**	¥ 99,208	**$1,737,095**
Plan assets	**(188,533)**	(92,827)	**(1,821,576)**
	(8,744)	6,381	**(84,481)**
Unfunded retirement benefit obligations	**12,309**	3,344	**118,931**
Net amount of relevant liabilities and assets on the consolidated balance sheets	**3,566**	9,725	**34,453**
Net defined benefit liability	**24,750**	9,969	**239,129**
Net defined benefit asset	**(21,184)**	(244)	**(204,676)**
Net amount of relevant liabilities and assets on the consolidated balance sheets	**3,566**	9,725	**34,453**

(4) Retirement benefit expenses and the components of the amounts thereof for the years ended December 31, 2020 and 2019 were as follows:

	Millions of yen		Thousands of U.S. dollars
	2020	2019	**2020**
Service cost	**¥4,971**	¥ 2,677	**$ 48,033**
Interest cost	**574**	487	**5,543**
Expected return on plan assets	**(1,822)**	(1,523)	**(17,606)**
Amortization of actuarial gain and loss	**2,131**	2,234	**20,592**
Amortization of past service cost	**134**	30	**1,294**
Retirement benefit expenses related to the defined benefit pension plan	**¥5,988**	¥ 3,906	**$ 57,856**

(5) Remeasurements of defined benefit plans

The components of items (before tax) reported under remeasurements of defined benefit plans for the years ended December 31, 2020 and 2019 were as follows:

	Millions of yen		Thousands of U.S. dollars
	2020	2019	**2020**
Past service cost	**¥ 5**	¥ (0)	**$ 46**
Actuarial gain and loss	**(7,522)**	(4,442)	**(72,677)**
Total	**¥(7,517)**	¥(4,443)	**$(72,630)**

(6) Accumulated remeasurements of defined benefit plans

The components of items (before tax) reported under accumulated remeasurements of defined benefit plans for the years ended December 31, 2020 and 2019 were as follows:

	Millions of yen		Thousands of U.S. dollars
	2020	2019	**2020**
Unrecognized past service cost	**¥(15)**	¥ (20)	**$ (145)**
Unrecognized actuarial gain and loss	**46**	7,568	**443**
Total	**¥ 31**	¥7,548	**$ 298**

(7) Matters regarding plan assets

(i) Major content of the plan assets

The percentages of major asset types that account for the total plan assets as of December 31, 2020 and 2019 were as follows:

	Ratio	
	2020	2019
Bonds	**50 %**	41 %
Stocks	**27**	37
General accounts of life insurance company	**9**	19
Cash and deposits	**7**	1
Other	**7**	2
Total	**100 %**	100 %

(ii) Method for setting the long-term rate of expected return on plan assets

To determine the long-term rate of expected return on plan assets, the current and anticipated long-term yield rates of various assets that constitute the plan assets as well as the current and projected distribution of plan assets, have been taken into account.

(8) Matters regarding the assumptions for actuarial calculations

Key assumptions for actuarial calculations as of December 31, 2020 and 2019 were as follows:

	Ratio	
	2020	2019
Discount rate	**Mainly 0.5%**	Mainly 0.2%
Long-term rate of expected return on plan assets	**Mainly 1.8%**	Mainly 1.8%

(b) Defined contribution pension plan

The amounts required to be contributed by consolidated subsidiaries for the years ended December 31, 2020 and 2019 were ¥1,697 million (US$16,395 thousand), and ¥738 million, respectively.

13. INCOME TAXES

(a) As at December 31, 2020 and 2019, significant components of deferred tax assets and liabilities were as follows:

	Millions of yen		Thousands of U.S. dollars
	2020	2019	**2020**
Deferred tax assets:			
Impairment loss	**¥ 22,110**	¥ 21,335	**$ 213,624**
Tax loss carryforwards (Note 2)	**21,366**	3,898	**206,434**
Write-down of marketable and investment securities	**16,184**	14,560	**156,364**
Net defined benefit liability	**9,610**	3,717	**92,853**
Depreciation and amortization	**5,492**	2,696	**53,065**
Allowance for doubtful accounts	**4,053**	3,380	**39,162**
Provision for bonuses	**2,046**	747	**19,771**
Undetermined accrued liabilities	**1,983**	1,227	**19,155**
Loss on valuation of inventories	**1,519**	2,241	**14,677**
Provision for repairs	**975**	814	**9,423**
Unrealized earnings from the sale of fixed assets	**431**	487	**4,164**
Write-down of golf club memberships	**428**	211	**4,137**
Other	**15,935**	4,333	**153,960**
Subtotal of deferred tax assets	**102,133**	59,645	**986,790**
Valuation allowance related to tax loss carryforwards (Note 2)	**(11,711)**	(2,752)	**(113,154)**
Valuation allowance related to the total of deductible temporary differences	**(48,431)**	(39,423)	**(467,935)**
Total valuation allowance (Note 1)	**(60,143)**	(42,175)	**(581,089)**
Total deferred tax assets	**41,990**	17,470	**405,701**
Deferred tax liabilities:			
Amount of revaluation from the book value	**(66,543)**	(4,585)	**(642,929)**
Special depreciation reserve	**(7,175)**	(4,990)	**(69,320)**
Net defined benefit asset	**(6,388)**	—	**(61,720)**
Foreign subsidiaries' undistributed retained earnings	**(5,520)**	(4,054)	**(53,329)**
Valuation difference on available-for-sale securities	**(1,853)**	(4,675)	**(17,905)**
Reserve for advanced depreciation of fixed assets	**(542)**	(240)	**(5,235)**
Deferred gains or losses on hedges	**(384)**	(192)	**(3,710)**
Other	**(1,074)**	(3,303)	**(10,375)**
Total deferred tax liabilities	**(89,478)**	(22,040)	**(864,523)**
Net deferred tax assets (liabilities)	**¥ (47,488)**	¥ (4,569)	**$ (458,821)**

Notes: 1. Valuation allowance increased by ¥17,968 million (US$173,605 thousand). The main reason for this increase was the increase in the valuation allowance for tax loss carryforwards as a result of making Hitachi Chemical Company, Ltd. (current Showa Denko Materials Co., Ltd.) a consolidated subsidiary through tender offer.

2. A breakdown of tax loss carryforwards and valuation allowance by expiry date as of December 31, 2020 are as follows.

Year ended December 31, 2020	Millions of yen						
	Due in 1 year or less	Due after 1 year through 2 years	Due after 2 years through 3 years	Due after 3 years through 4 years	Due after 4 years through 5 years	Due after 5 years	Total
Tax loss carryforwards*1	**¥ 95**	**¥2,095**	**¥2,450**	**¥ 489**	**¥ 278**	**¥15,959**	**¥ 21,366**
Valuation allowance	**(72)**	**(213)**	**(975)**	**(489)**	**(138)**	**(9,825)**	**(11,711)**
Deferred tax assets	**23**	**1,882**	**1,476**	**—**	**140**	**6,134**	**9,655** *2

Year ended December 31, 2020	Thousands of U.S. dollars						
	Due in 1 year or less	Due after 1 year through 2 years	Due after 2 years through 3 years	Due after 3 years through 4 years	Due after 4 years through 5 years	Due after 5 years	Total
Tax loss carryforwards*1	**$ 915**	**$20,242**	**$23,673**	**$ 4,728**	**$ 2,687**	**$154,193**	**$ 206,437**
Valuation allowance	**(696)**	**(2,060)**	**(9,417)**	**(4,728)**	**(1,331)**	**(94,923)**	**(113,151)**
Deferred tax assets	**219**	**18,182**	**14,256**	**—**	**1,356**	**59,270**	**93,285** *2

*1. Tax loss carryforwards are multiplied by the statutory effective tax rate.

*2. For the tax loss carryforwards of ¥21,366 million (US$206,437 thousand), the amount obtained by multiplying by the statutory tax rate, ¥9,655 million (US$93,285 thousand) was booked as deferred tax assets. The Company does not recognize valuation allowances for the portion of the tax loss carryforwards deemed to be recoverable due to the prospect of future taxable income.

(b) Significant items in the reconciliation of the statutory tax rate with the effective tax rate as at December 31, 2020 and 2019 were as follows:

	2020	2019
Statutory tax rate	— %	30.6 %
Differences of statutory tax rate in subsidiaries	—	(5.5)
Effect on the reexamination of recoverability	—	(2.4)
Deferred taxes on undistributed earnings of foreign subsidiaries	—	0.6
Consolidated adjustment for loss on valuation of investments in capital of subsidiaries and associates, etc.	—	(0.1)
Unrealized earnings from the sale of fixed assets	—	0.0
Other	—	(0.2)
Effective tax rate	— %	23.1 %

Due to the recording of a loss before income taxes, significant items in the reconciliation of the statutory tax rate with the effective tax rate as at December 31, 2020 has been omitted.

14. IMPAIRMENT LOSS

As at December 31, 2020, major impairment losses on fixed assets were as follows:

Location	Major use	Asset category	Millions of yen	Thousands of U.S. dollars
Sakai City, Osaka Prefecture	Production facilities for aluminum sheets, foils, etc.	Land, etc.	¥ 8,789	$ 84,921
Shiojiri City, Nagano Prefecture	Production facilities for ceramics, etc.	Land, etc.	6,179	59,700
Meitingen, Germany	Production facilities for connecting pins used for connecting rods of graphite electrodes	Leased asset, etc.	1,942	18,766
Omachi City, Nagano Prefecture	Welfare facilities, etc.	Land, etc.	663	6,404
Other			971	9,385
Total			¥18,545	$179,177

The amount in the above table included ¥1,942 million (US$18,766 thousand) which were reported as business structuring expenses on the consolidated statements of operations.

15. CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)

Reclassification adjustments and tax effects for components of other comprehensive income (loss) for the year ended December 31, 2020, were as follows:

	Millions of yen	Thousands of U.S. dollars
Valuation difference on available-for-sale securities		
Increase during the year	¥ (6,733)	$(65,056)
Reclassification adjustments	(3,358)	(32,442)
Amount before income tax effect	(10,091)	(97,497)
Income tax effect	3,990	38,548
Total	¥ (6,101)	$(58,950)
Deferred gains or losses on hedges		
Increase during the year	¥ 762	$ 7,366
Reclassification adjustments	(24)	(237)
Adjustments of acquisition cost of assets	(38)	(364)
Amount before income tax effect	700	6,766
Income tax effect	(226)	(2,185)
Total	¥ 474	$ 4,581
Foreign currency translation adjustments		
Increase during the year	¥ (4,770)	$(46,090)
Reclassification adjustments	—	—
Amount before income tax effect	(4,770)	(46,090)
Income tax effect	—	—
Total	¥ (4,770)	$(46,090)
Remeasurements of defined benefit plans, net of tax		
Increase during the year	¥ 5,252	$ 50,744
Reclassification adjustments	2,265	21,886
Amount before income tax effect	7,517	72,630
Income tax effect	(2,260)	(21,839)
Total	¥ 5,257	$ 50,792
Share of other comprehensive income of unconsolidated subsidiaries and affiliates accounted for using the equity method		
Increase during the year	¥ 54	$ 518
Reclassification adjustments	—	—
Total	¥ 54	$ 518
Total other comprehensive income	¥ (5,087)	$(49,150)

16. LEASES

(a) Finance Leases as a Lessee

Finance lease transactions other than those involving transfer of ownership to the lessee and right-of-use assets of subsidiaries that have applied IFRS 16

(1) Type of leased assets

a) Tangible fixed assets: Principally office buildings
b) Intangible fixed assets: Principally software

(2) Method of depreciation

The depreciation method of leased assets is described in Note 2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (j) Leased Assets.

(b) Operating Leases as a Lessee

As at December 31, 2020 and 2019, assets leased under non-capitalized operating leases were as follows:

Future minimum lease payments for the remaining lease periods:

	Millions of yen		Thousands of U.S. dollars
	2020	2019	**2020**
Due within 1 year	**¥ 272**	¥ 341	**$ 2,629**
Due over 1 year	**2,582**	1,271	**24,946**
Total	**¥2,854**	¥1,612	**$27,575**

(c) Operating Leases as a Lessor

As at December 31, 2020 and 2019, non-cancelable operating lease receivables for the remaining lease periods were as follows:

Future minimum lease receivables for the remaining lease periods:

	Millions of yen		Thousands of U.S. dollars
	2020	2019	**2020**
Due within 1 year	**¥1**	¥ 80	**$6**
Due over 1 year	**—**	364	**—**
Total	**¥1**	¥445	**$6**

17. CONTINGENT LIABILITIES

As at December 31, 2020 and 2019, the Companies were guarantors for the borrowings below. The guarantees were principally for unconsolidated subsidiaries, affiliates and others.

	Millions of yen		Thousands of U.S. dollars
	2020	2019	**2020**
Guarantees	**¥758**	¥867	**$7,321**

As the amounts include joint and several guarantors' portions as well as the Companies', the actual amounts that the Companies were contingently liable to pay were smaller than the above.

18. NET ASSETS

The Corporation Law of Japan (the "Law") provides that the entire amount paid for new shares may be credited to the stated capital, with the provision that, by resolution of the Board of Directors, up to one-half of such amount paid for new shares may be credited to additional paid-in capital, which is included in capital surplus.

The Law provides that an amount equal to 10% of cash appropriations of retained earnings shall be set aside as additional paid-in capital or a legal earnings reserve until the total of such reserve and additional paid-in capital equals 25% of the stated capital. Additional paid-in capital and the legal earnings reserve may be used to eliminate or reduce a deficit, if any, or be capitalized by resolution at the ordinary general meeting of shareholders. All additional paid-in capital and the legal earnings reserve may be transferred to other capital surplus and retained earnings, respectively, which are potentially available for dividends. Additional paid-in capital and the legal earnings reserve are included in capital surplus and retained earnings, respectively.

The Law does not have a definition about the classification of paid-in capital between common stock and preferred stock. Accordingly, the Company states its capital in the total amount paid by issuing common stock and preferred stock.

The maximum amount that the Company can distribute as dividends is calculated based on the unconsolidated financial statements of the Company in accordance with Japanese laws and regulations.

19. REVALUATION RESERVE FOR LAND

The Company and some of its consolidated subsidiaries revalued the land they own for business in accordance with the Law concerning the Revaluation of Land. The difference between the revalued amount and the book value, after the deduction of applicable tax, is stated as a land revaluation reserve. The revaluation was conducted using methods stipulated in the ordinance for enforcement of the law, specifically, the method in Item 4 of Article 2 (Reasonable Adjustment of the Appraised Value Relating to Land Price Tax), and the method in Item 5 of Article 2 (Estimation by Experts). The excess of the carrying amount of the revalued land over the market value as at December 31, 2020 was ¥53,703 million (US$518,871 thousand).

20. SELLING, GENERAL AND ADMINISTRATIVE EXPENSES

Selling, general and administrative expenses for the years ended December 31, 2020 and 2019 were summarized as follows:

	Millions of yen		Thousands of U.S. dollars
	2020	2019	**2020**
Freight	**¥ 34,585**	¥ 27,446	**$ 334,154**
Employees' compensation	**38,461**	26,550	**371,606**
Experiment and research expenses	**18,154**	8,976	**175,397**
Other	**87,571**	51,527	**846,099**
Total	**¥178,771**	¥114,499	**$1,727,256**

Research and development expenses included in selling, general and administrative expenses for the years ended December 31, 2020 and 2019 were ¥28,307 million (US$273,494 thousand) and ¥20,591 million, respectively.

21. RESEARCH AND DEVELOPMENT

Research and development costs included in manufacturing costs, selling, general and administrative expenses for the years ended December 31, 2020 and 2019 were ¥34,379 million (US$332,161 thousand) and ¥20,605 million, respectively.

22. INVENTORY WRITE DOWNS

As at December 31, 2020 and 2019, inventory write-downs of ¥17,790 million (US$171,888 thousand) and ¥1,808 million, respectively, based on the lower of the cost or market method, were deducted from the carrying value of inventories.

23. FINANCING EXPENSES

Financing expenses include one-time expenses, etc., paid to financial institutions relating to the share acquisition of Hitachi Chemical Company, Ltd. (current Showa Denko Materials Co., Ltd.).

24. BUSINESS STRUCTURING EXPENSES

Business structuring expenses are expenses and losses expected in conjunction with the closing, etc., of manufacturing bases. The main component includes retirement-related expenses.

25. BUSINESS COMBINATION

(a) Overview of the Business Combination

(1) Name and scope of the business of the acquired company

Name of the acquired company: Hitachi Chemical Company, Ltd. (current Showa Denko Materials Co., Ltd.)

Scope of the main business: Manufacturing, processing, and selling functional materials, advanced components, and systems

(2) Main reason for the business combination

By pursuing synergies between the Company's strengths in a wide range of "material design technology," "material analysis technology," and "adhesion technology between different materials" which connects multiple materials, and the target company's strengths in "material design technology utilizing characteristics of raw materials," "ability to evaluate functions" for customer marketing, and "ability to design functions leading to process technology, including module segmentation" that realizes functions demanded by customers, the Company will solidify its position as a "one-stop, advanced materials partner."

(3) Date of business combination

Date of acquisition of control: April 28, 2020 (assumed date of acquisition: June 30, 2020)
Date of additional share acquisition: October 15, 2020

(4) Legal form of business combination

Share acquisition in exchange for cash

(5) Name of the acquired company subsequent to the business combination

Showa Denko Materials Co., Ltd.
(Effective October 1, 2020, Hitachi Chemical Company, Ltd. changed its trade name to "Showa Denko Materials Co., Ltd.")

(6) Percentage of voting rights after acquisition

(i) Percentage of voting rights held prior to the share acquisition: —%
(ii) Percentage of voting rights acquired on the day of acquisition of control: 100%
(iii) Percentage of voting rights acquired additionally subsequent to the acquisition of control: —%
(iv) Percentage of voting rights held after additional share acquisition: 100%

(7) Main grounds leading to the determination of the acquired company

The Company obtained 100% of the voting rights through the cash acquisition of shares.

(b) Overview of Accounting Treatments

The additional share acquisition is treated as a single transaction together with the share acquisition by means of the tender offer on April 28, 2020, and the goodwill related to the interest acquired in the additional share acquisition subsequent to the acquisition of control is calculated as goodwill recorded at the time of the acquisition of control, in accordance with the "Accounting Standard for Business Combinations" (ASBJ Statement No. 21, January 16, 2019) and "Implementation Guidance on Accounting Standard for Business Combinations and Accounting Standard for Business Divestitures" (ASBJ Guidance No. 10, January 16, 2019).

(c) The Accounting Period of the Financial Results of the Acquired Company Included in the Consolidated Financial Statements

From July 1, 2020 to December 31, 2020

(d) Acquisition Cost of the Acquired Company and Breakdown by Type of Consideration

	Millions of yen	Thousands of U.S. dollars
Cash	¥964,040	$9,314,396
Acquisition cost	¥964,040	$9,314,396

(e) Details and Amount of Main Acquisition-related Expenses

	Millions of yen	Thousands of U.S. dollars
Advisory fees, etc.	¥5,030	$48,597

(f) Amount of Goodwill Incurred, Reason for its Recognition, Amortization Method, and Amortization Period

(1) Amount of goodwill incurred

¥365,123 million (US$3,527,763 thousand)
As of the end of the second quarter ended June 30, 2020, and the end of the third quarter ended September 30, 2020, the Company conducted provisional accounting with regard to the determination and allocation of the acquisition cost based on information available at that time. As of December 31, 2020, the determination and allocation of the acquisition cost have been completed.

(2) Reason for the recognition of goodwill

Because the acquisition cost exceeded the net amount allocated to the assets acquired and the liabilities assumed, the excess amount was recorded as goodwill.

(3) Amortization method and amortization period

Straight-line method over 20 years

(g) Assets Acquired and Liabilities Assumed on the Date of the Business Combination and their Breakdown

	Millions of yen	Thousands of U.S. dollars
Current assets	¥315,505	$3,048,357
Noncurrent assets	604,006	5,835,807
Total assets	¥919,511	$8,884,164
Current liabilities	¥159,969	$1,545,594
Noncurrent liabilities	152,292	1,471,425
Total liabilities	¥312,261	$3,017,019

(h) Amount of Acquisition Cost which was Allocated to Intangible Assets Other than Goodwill and its Breakdown by Major Type and their Weighted-average Amortization Periods

Amount allocated to intangible assets other than goodwill: ¥215,918 million (US$2,086,164 thousand)
(including customer-related assets of ¥154,917 million (US$1,496,783 thousand), amortization period: 20 years)
(including technology-related assets of ¥57,138 million (US$552,058 thousand), amortization period: 7 years)
(including trademark right of ¥3,863 million (US$37,324 thousand), amortization period: 20 years)

(i) Estimated Amount of the Effect on the Consolidated Statements of Operations for the Fiscal Year Ended December 31, 2020 Assuming that the Business Combination Was Completed at the Beginning of the Fiscal Year, and its Calculation Method

	Millions of yen	Thousands of U.S. dollars
Net sales	¥278,231	$2,688,222
Operating income (loss)	(6,572)	(63,496)
Ordinary income (loss)	(7,760)	(74,974)
Net income (loss) attributable to owners of the parent	(15,624)	(150,959)

(Calculation method of the estimated amount)
The estimated amount of effect indicates the differences between net sales and the income and loss information calculated under the assumption that the business combination was completed at the beginning of the fiscal year, and net sales and the income and loss information on the consolidated statements of operations of the acquired company. These differences include adjustments for amortization of goodwill, etc., assuming that the goodwill, etc., which was incurred at the time of acquisition of control, had been incurred at the beginning of the fiscal year.

This note has not received audit certification.

Notes to Financial Statements

Showa Denko K.K. and Consolidated Subsidiaries

26. SEGMENT INFORMATION

(a) Information about sales, operating income, assets, and other items by reportable segment

Year ended December 31, 2020	Millions of yen									
	Petrochemicals	Chemicals	Electronics	Inorganics	Aluminum	Showa Denko Materials	Others	Total	Adjustments	Consolidated
Sales										
Outside customers	¥184,173	¥139,517	¥ 96,296	¥ 77,158	¥ 73,559	¥ 302,687	¥100,310	¥ 973,700	¥ —	¥ 973,700
Inter-segment	9,213	16,251	1,119	5,741	6,626	55	6,991	45,996	(45,996)	—
Total	193,385	155,769	97,415	82,899	80,185	302,742	107,301	1,019,696	(45,996)	973,700
Operating income (loss)	¥ 4,927	¥ 13,481	¥ 9,133	¥ (32,300)	¥ 421	¥ (6,303)	¥ 1,199	¥ (9,443)	¥(10,006)	¥ (19,449)
Assets	¥122,760	¥230,846	¥138,788	¥199,410	¥113,935	¥1,241,782	¥150,011	¥2,197,530	¥ 6,076	¥2,203,606
Depreciation and amortization	4,186	9,489	9,371	8,252	4,539	29,592	2,504	67,933	710	68,643
Amortization of goodwill	—	(60)	12	8	211	9,128	23	9,322	—	9,322
Investments in unconsolidated subsidiaries and affiliates	9,827	3,854	—	1,677	—	50,966	249	66,574	—	66,574
Increase in property, plant and equipment and intangible assets	5,088	11,397	8,305	8,074	9,666	267,087	2,694	312,312	700	313,011

Notes: 1. Adjustments are as follows:

(1) Elimination of inter-segment transactions of ¥198 million (US$1,914 thousand) and total corporate expenses of ¥(10,204) million (US$(98,594) thousand) that were not allocated to any reportable segment were included in "Adjustments" for "Operating income" of ¥(10,006) million (US$(96,680) thousand). The total corporate expenses consist of the expenses relating to the share acquisition of Hitachi Chemical Company, Ltd. (current Showa Denko Materials Co., Ltd.) of ¥(3,546) million (US$(34,260) thousand) and the total corporate common research expenses that are not attributable to any reportable segment of ¥6,659 million (US$64,334 thousand).

(2) Elimination of inter-segment receivables and payables and assets of ¥(54,890) million (US$(530,336) thousand) and total corporate assets of ¥60,966 million (US$589,039 thousand) that were not allocated to any reportable segment were included in "Adjustments" for "Assets" of ¥6,076 million (US$58,703 thousand). The total corporate assets principally consist of surplus funds of the Companies under management (in the form of cash and deposits), deferred tax assets and assets related to the total corporate common research and development expenses.

2. Amortization of negative goodwill was included in "Amortization of goodwill."

Year ended December 31, 2019	Millions of yen								
	Petrochemicals	Chemicals	Electronics	Inorganics	Aluminum	Others	Total	Adjustments	Consolidated
Sales									
Outside customers	¥240,923	¥140,158	¥ 95,702	¥221,453	¥ 90,500	¥117,717	¥ 906,454	¥ —	¥ 906,454
Inter-segment	9,755	17,322	743	8,682	7,042	8,446	51,989	(51,989)	—
Total	250,678	157,480	96,445	230,135	97,542	126,163	958,443	(51,989)	906,454
Operating income (loss)	¥ 17,201	¥ 13,656	¥ 4,880	¥ 89,256	¥ 1,746	¥ 1,819	¥ 128,557	¥ (7,759)	¥ 120,798
Assets	¥137,504	¥230,932	¥142,511	¥281,757	¥135,072	¥160,063	¥1,087,839	¥(11,458)	¥1,076,381
Depreciation and amortization	4,136	9,267	9,274	8,091	4,826	1,526	37,120	584	37,704
Amortization of goodwill	—	(163)	12	8	217	24	98	—	98
Investments in unconsolidated subsidiaries and affiliates	10,570	3,457	—	1,754	—	487	16,268	—	16,268
Increase in property, plant and equipment and intangible assets	4,404	11,412	10,474	11,685	8,464	2,889	49,328	888	50,216

Notes: 1. Adjustments are as follows:

(1) Elimination of inter-segment transactions of ¥302 million and total corporate expenses of ¥(8,061) million that were not allocated to any reportable segment were included in "Adjustments" for "Operating income" of ¥(7,759) million. The total corporate expenses principally consist of the total corporate common research expenses that are not attributable to any reportable segment.

(2) Elimination of inter-segment receivables and payables and assets of ¥(46,101) million and total corporate assets of ¥34,644 million that were not allocated to any reportable segment were included in "Adjustments" for "Assets" of ¥(11,458) million. The total corporate assets principally consist of surplus funds of the Companies under management (in the form of cash and deposits), deferred tax assets and assets related to the total corporate common research and development expenses.

2. Amortization of negative goodwill was included in "Amortization of goodwill."

Year ended December 31, 2020	Thousands of U.S. dollars									
	Petrochemicals	Chemicals	Electronics	Inorganics	Aluminum	Showa Denko Materials	Others	Total	Adjustments	Consolidated
Sales										
Outside customers	**$1,779,446**	**$1,347,994**	**$ 930,396**	**$ 745,485**	**$ 710,718**	**$ 2,924,512**	**$ 969,176**	**$ 9,407,728**	**$ —**	**$ 9,407,728**
Inter-segment	**89,010**	**157,017**	**10,812**	**55,467**	**64,019**	**531**	**67,548**	**444,405**	**(444,405)**	**—**
Total	**1,868,456**	**1,505,012**	**941,208**	**800,953**	**774,737**	**2,925,043**	**1,036,725**	**9,852,133**	**(444,405)**	**9,407,728**
Operating income (loss)	**$ 47,603**	**$ 130,249**	**$ 88,239**	**$ (312,080)**	**$ 4,065**	**$ (60,897)**	**$ 11,587**	**$ (91,234)**	**$ (96,680)**	**$ (187,914)**
Assets	**$1,186,083**	**$2,230,391**	**$1,340,950**	**$1,926,662**	**$1,100,820**	**$11,997,890**	**$1,449,378**	**$21,232,174**	**$ 58,703**	**$21,290,877**
Depreciation and amortization	**40,449**	**91,682**	**90,538**	**79,725**	**43,858**	**285,911**	**24,190**	**656,354**	**6,864**	**663,218**
Amortization of goodwill	**—**	**(582)**	**114**	**81**	**2,038**	**88,194**	**219**	**90,064**	**—**	**90,064**
Investments in unconsolidated subsidiaries and affiliates	**94,952**	**37,235**	**—**	**16,206**	**—**	**492,425**	**2,404**	**643,223**	**—**	**643,223**
Increase in property, plant and equipment and intangible assets	**49,156**	**110,120**	**80,243**	**78,013**	**93,391**	**2,580,551**	**26,031**	**3,017,505**	**6,759**	**3,024,264**

(b) Information about geographical areas

Year ended December 31, 2020	Millions of yen				
	Japan	China	Asia (exc. China)	Others	Total
Sales	**¥530,804**	**¥119,360**	**¥211,674**	**¥111,862**	**¥973,700**

Year ended December 31, 2019	Millions of yen				
	Japan	China	Asia (exc. China)	Others	Total
Sales	¥508,672	¥77,681	¥147,989	¥172,111	¥906,454

Year ended December 31, 2020	Thousands of U.S. dollars				
	Japan	China	Asia (exc. China)	Others	Total
Sales	**$5,128,538**	**$1,153,240**	**$2,045,162**	**$1,080,788**	**$9,407,728**

Year ended December 31, 2020	Millions of yen			
	Japan	Asia	Others	Total
Property, plant and equipment	**¥495,516**	**¥143,439**	**¥88,164**	**¥727,119**

Year ended December 31, 2019	Millions of yen			
	Japan	Asia	Others	Total
Property, plant and equipment	¥366,375	¥37,980	¥68,813	¥473,168

Year ended December 31, 2020	Thousands of U.S. dollars			
	Japan	Asia	Others	Total
Property, plant and equipment	**$4,787,596**	**$1,385,880**	**$851,829**	**$7,025,305**

(c) Information about impairment loss on property, plant and equipment by reportable segment

Year ended December 31, 2020	Millions of yen								
	Petrochemicals	Chemicals	Electronics	Inorganics	Aluminum	Showa Denko Materials	Others	Elimination	Total
Impairment loss on assets	**¥93**	**¥2**	**¥244**	**¥9,049**	**¥8,802**	**¥288**	**¥66**	**¥ —**	**¥18,545**

Year ended December 31, 2019	Millions of yen							
	Petrochemicals	Chemicals	Electronics	Inorganics	Aluminum	Others	Elimination	Total
Impairment loss on assets	¥2	¥2,871	¥272	¥179	¥11,447	¥892	¥ —	¥15,662

Year ended December 31, 2020	Thousands of U.S. dollars								
	Petrochemicals	Chemicals	Electronics	Inorganics	Aluminum	Showa Denko Materials	Others	Elimination	Total
Impairment loss on assets	**$902**	**$22**	**$2,355**	**$87,433**	**$85,044**	**$2,783**	**$638**	**$ —**	**$179,177**

(d) Information about amortization of goodwill and unamortized balance by reportable segment

Year ended December 31, 2020	Millions of yen								
	Petrochemicals	Chemicals	Electronics	Inorganics	Aluminum	Showa Denko Materials	Others	Elimination	Total
Amortization	**¥ —**	**¥ 248**	**¥ 44**	**¥ 8**	**¥ 265**	**¥ 9,128**	**¥26**	**¥ —**	**¥ 9,719**
Unamortized balance	**—**	**3,123**	**155**	**21**	**1,618**	**355,995**	**68**	**—**	**360,980**

Year ended December 31, 2019	Millions of yen							
	Petrochemicals	Chemicals	Electronics	Inorganics	Aluminum	Others	Elimination	Total
Amortization	¥ —	¥ 145	¥ 44	¥ 8	¥ 270	¥27	¥ —	¥ 496
Unamortized balance	—	3,241	199	29	1,960	94	—	5,524

Year ended December 31, 2020	Thousands of U.S. dollars								
	Petrochemicals	Chemicals	Electronics	Inorganics	Aluminum	Showa Denko Materials	Others	Elimination	Total
Amortization	**$ —**	**$ 2,393**	**$ 428**	**$ 81**	**$ 2,556**	**$ 88,194**	**$254**	**$ —**	**$ 93,906**
Unamortized balance	**—**	**30,169**	**1,498**	**203**	**15,628**	**3,439,569**	**659**	**—**	**3,487,727**

Amortization of negative goodwill arose from business combinations prior to April 1, 2010 and its unamortized balance are as follows:

Year ended December 31, 2020	Millions of yen								
	Petrochemicals	Chemicals	Electronics	Inorganics	Aluminum	Showa Denko Materials	Others	Elimination	Total
Amortization	**¥ —**	**¥ 308**	**¥ 33**	**¥ —**	**¥ 54**	**¥ —**	**¥ 4**	**¥ —**	**¥ 398**
Unamortized balance	**—**	**1,164**	**228**	**—**	**379**	**—**	**10**	**—**	**1,780**

Year ended December 31, 2019	Millions of yen							
	Petrochemicals	Chemicals	Electronics	Inorganics	Aluminum	Others	Elimination	Total
Amortization	¥ —	¥ 308	¥ 33	¥ —	¥ 54	¥ 4	¥ —	¥ 398
Unamortized balance	—	1,472	260	—	432	13	—	2,178

Year ended December 31, 2020	Thousands of U.S. dollars								
	Petrochemicals	Chemicals	Electronics	Inorganics	Aluminum	Showa Denko Materials	Others	Elimination	Total
Amortization	**$ —**	**$ 2,975**	**$ 314**	**$ —**	**$ 518**	**$ —**	**$35**	**$ —**	**$ 3,842**
Unamortized balance	**—**	**11,248**	**2,199**	**—**	**3,658**	**—**	**92**	**—**	**17,198**

27. SIGNIFICANT SUBSEQUENT EVENTS

(a) Execution of Master Agreement regarding Series of Transactions to Effect, among other matters, the Succession of the Aluminum Can and Aluminum Rolling Businesses

On January 28, 2021, the Company has decided to execute a master agreement (hereinafter referred to as the "Master Agreement") with a special-purpose company formed by funds managed by Apollo Global Management, Inc. and its affiliates (collectively, hereinafter referred to as "Apollo"), regarding a series of transactions, including the succession of the aluminum can business of the Company to Showa Aluminum Can Corp., which is a wholly owned consolidated subsidiary of the Company (hereinafter referred to as "Showa Aluminum Can"), and the succession of the aluminum rolling business to Showa Denko Sakai Aluminum Corp., which is a wholly owned non-consolidated subsidiary of the Company, by company splits (absorption-type company split), with tentative effective dates of June 1, 2021 and August 2, 2021, respectively. Following the completion of the series of transactions under the Master Agreement, Showa Aluminum Can is expected to no longer be a consolidated subsidiary of the Company, and be succeeded by Apollo as an independent company.

(1) Objectives of the series of transactions

In light of the rapidly changing business environment, the Company has been examining the optimal allocation of management resources and portfolio management to realize sustainable growth. After careful consideration of all available options, the Company reached the conclusion that the expansion of the aluminum can business and the aluminum rolling business would be best achieved through business partners that have specialized knowledge and management resources to enable future growth of these businesses together with the employees engaged in the respective business. Taking these factors into consideration, the Company decided to execute the transactions set forth in the Master Agreement with Apollo, which is one of the world's leading alternative investment managers and has a wealth of experience supporting aluminum-related industries for more than 20 years.

(2) Schedule for the company split and series of transactions

Master Agreement Execution Date	January 28, 2021
Absorption Split Agreement Execution Date (aluminum can business)	April 21, 2021 (Expected)
Absorption Split Agreement Execution Date (aluminum rolling business)	June 24, 2021 (Expected)
Absorption Split Effective Date (aluminum can business)	June 1, 2021 (Expected)
Absorption Split Effective Date (aluminum rolling business)	August 2, 2021 (Expected)

Note: As the Company Split corresponds to a simplified company split (kani kyushu-bunkatsu) under Article 784 Paragraph 2 of the Companies Act, it is planned to be performed without the passing of a resolution at a general shareholders' meeting of the Company.

(3) Description of business of departments to be split

Aluminum can business	The manufacture and sale of aluminum cans, etc., for beverages of the Company
Aluminum rolling business	The manufacture and sale of high-purity aluminum foil, etc., mainly to be used for electrolytic capacitors of the Company

(b) Execution of Basic Agreement regarding Tender Offer over Subsidiary

On March 4, 2021, the Company entered into: (i) a basic agreement (hereinafter referred to as the "Basic Agreement") setting forth the application for 3,160,306 shares of SHOKO CO., LTD. (hereinafter referred to as "SHOKO"), the Company's consolidated subsidiary, among the shares of SHOKO owned by the Company, in a tender offer for the common shares issued by SHOKO (hereinafter referred to as the "SHOKO Shares"), that will commence on March 5, 2021, with such tender offer being made by SKT Holdings Ltd., (hereinafter referred to as "SKTHD"), a wholly owned subsidiary of iSigma Business Advancement Fund III Investment LLP (hereinafter referred to as "iSigma Business Advancement Fund III") managed and operated by iSigma Capital Corporation (hereinafter referred to as "iSigma Capital"); and (ii) a shareholder agreement (hereinafter referred to as the "Shareholder Agreement") with iSigma Business Advancement Fund III that governs the handling of the SHOKO Shares owned by the Company and SKTHD.

(1) Reasoning behind applying for this tender offer

The Company has been considering measures to improve corporate value by resolving reform issues in mid-term business plans at SHOKO under a rapidly changing business environment. Under these circumstances, the Company received a proposal from iSigma Capital to improve corporate value at SHOKO. Upon careful consideration of the proposal, the Company has come to the conclusion that SHOKO can further accelerate growth and increase its corporate value through facilitating the development of customers and sales channels, expanding its product lineup, improving profitability by taking advantage of economies of scale, improving management efficiency, and so on, by utilizing the domestic and overseas networks and management know-how of iSigma Capital and its parent company, Marubeni Corporation, as well as its group companies. Therefore, the Company has determined to enter into the Basic Agreement with SKTHD.

Furthermore, the Shareholder Agreement has also been executed with iSigma Business Advancement Fund III in view of the fact that the Company will continue to hold a part of the SHOKO Shares after the tender offer. The Company has agreed on the business operations of SHOKO after this transaction, such as the appointment of certain candidates to become directors of SHOKO, and the handling of the SHOKO Shares after this transaction.

If the tender offer is successful, SHOKO will cease to be one of the Company's consolidated subsidiaries due to the application made by the Company for the tender offer. However, the Company plans to continue the business relationship with SHOKO even after the tender offer is executed.

(2) Overview of SHOKO CO., LTD. (as of December 31, 2020)

Name	SHOKO CO., LTD.
Address	4-1, Shiba Koen 2-Chome, Minato-ku, Tokyo
Title and name of the representative	Representative Director & President Junichi Inaizumi
Business description	Sale of chemicals, resins, metals and other industrial materials
Capital amount	¥8,021 million (US$77,498 thousand)

(3) Outline of SKT Holdings Ltd., (as of December 31, 2020)

Name	SKT Holdings Ltd.,
Address	5-1, Otemachi 1-Chome, Chiyoda-ku, Tokyo
Title and name of the representative	CEO and Representative Director Akihiko Watanabe
Business description	(i) Acquisition, holding, administration and disposition of shares (ii) Providing services ancillary to the above
Capital amount	¥10,000 (US$97)

(4) Number of shares, transfer price, status of owned shares prior to and after transfer to apply for this tender offer

Number of shares owned prior to application	4,790,153 shares
Number of shares planned for subscription	3,160,306 shares
Transfer price	¥2,515,603,576 (¥796 per share) (US$24,305,349 (US$7.69 per share))
Number of shares owned after this tender offer	1,629,847 shares

Report of Independent Certified Public Accountants

KPMG

Independent auditor's report

To the Board of Directors of Showa Denko K.K.:

Opinion

We have audited the accompanying consolidated financial statements of Showa Denko K.K. ("the Company") and its consolidated subsidiaries (collectively referred to as "the Group"), which comprise the consolidated balance sheets as at December 31, 2020 and 2019, the consolidated statements of operations, statements of comprehensive income, statements of changes in net assets and statements of cash flows for the years then ended, and notes, comprising a summary of significant accounting policies, other explanatory information.

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Group as at December 31, 2020 and 2019, and its consolidated financial performance and cash flows for the years then ended in accordance with accounting principles generally accepted in Japan.

Basis for Opinion

We conducted our audit in accordance with auditing standards generally accepted in Japan. Our responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Consolidated Financial Statements* section of our report. We are independent of the Group in accordance with the ethical requirements that are relevant to our audit of the consolidated financial statements in Japan, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Responsibilities of Management and Corporate auditors and the Audit and Supervisory board for the Consolidated Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with accounting principles generally accepted in Japan, and for such internal control as management determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern in accordance with accounting principles generally accepted in Japan and using the going concern basis of accounting unless management either intends to liquidate the Group or to cease operations, or has no realistic alternative but to do so.

Corporate auditors and the Audit and Supervisory board are responsible for overseeing the directors' performance of their duties including the design, implementation and maintenance of the Group's financial reporting process.

Auditor's Responsibilities for the Audit of the Consolidated Financial Statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with auditing standards generally accepted in Japan will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

As part of our audit in accordance with auditing standards generally accepted in Japan, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, while the objective of the audit is not to express an opinion on the effectiveness of the Group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to continue as a going concern.
- Evaluate whether the presentation and disclosures in the consolidated financial statements are in accordance with accounting standards generally accepted in Japan, the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with corporate auditors and the Audit and Supervisory board regarding, among other matters, the planned scope and timing of the audit, significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide corporate auditors and the Audit and Supervisory board with a statement that we have complied with relevant ethical requirements regarding independence, and communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

Report of Independent Certified Public Accountants

Convenience Translation

The U.S. dollar amounts in the accompanying consolidated financial statements with respect to the year ended December 31, 2020 are presented solely for convenience. Our audit also included the translation of yen amounts into U.S. dollar amounts and, in our opinion, such translation has been made on the basis described in Note 5 to the consolidated financial statements.

Interest required to be disclosed by the Certified Public Accountants Act of Japan

We do not have any interest in the Group which is required to be disclosed pursuant to the provisions of the Certified Public Accountants Act of Japan.

Michitaka Shishido

Designated Engagement Partner

Certified Public Accountant

Noriaki Sakurai

Designated Engagement Partner

Certified Public Accountant

Daio Aida

Designated Engagement Partner

Certified Public Accountant

KPMG AZSA LLC

Yokohama Office, Japan

April 8, 2021

Notes to the Reader of Independent Auditor's Report:
This is a copy of the Independent Auditor's Report and the original copies are kept separately by the Company and KPMG AZSA LLC.

Corporate Data

Investor Information

Head Office

Showa Denko K.K.
13-9, Shiba Daimon 1-chome, Minato-ku, Tokyo 105-8518, Japan
URL: https://www.sdk.co.jp/english
Phone: +81-3-5470-3235
E-mail: sdk_prir@showadenko.com

Ordinary General Meeting

The Ordinary General Meeting of Shareholders was held on March 30, 2021.

Shareholders (Top 10)

(As of December 31, 2020)

Shareholder	Number of Shares Held (in thousands)	Rate of Shareholding (%)
The Master Trust Bank of Japan, Ltd. (T)	13,228	9.05
KOREA SECURITIES DEPOSITORY - SAMSUNG	7,018	4.80
Custody Bank of Japan, Ltd. (T)	6,589	4.51
Fukoku Mutual Life Insurance Company	4,517	3.09
Mizuho Securities Co., Ltd.	3,629	2.48
The Dai-ichi Life Insurance Company, Limited	2,700	1.85
Custody Bank of Japan, Ltd. (T7)	2,671	1.83
Meiji Yasuda Life Insurance Company	2,645	1.81
Custody Bank of Japan, Ltd. (T5)	2,360	1.61
Custody Bank of Japan, Ltd. (T6)	2,131	1.46

Note: Each rate of shareholding was calculated after deducting the number of treasury shares (3,551 thousand) from the number of shares outstanding.

Number of Shares Outstanding

149,711,292 as of December 31, 2020

Number of Shareholders

86,395 as of December 31, 2020

Classification of Stock

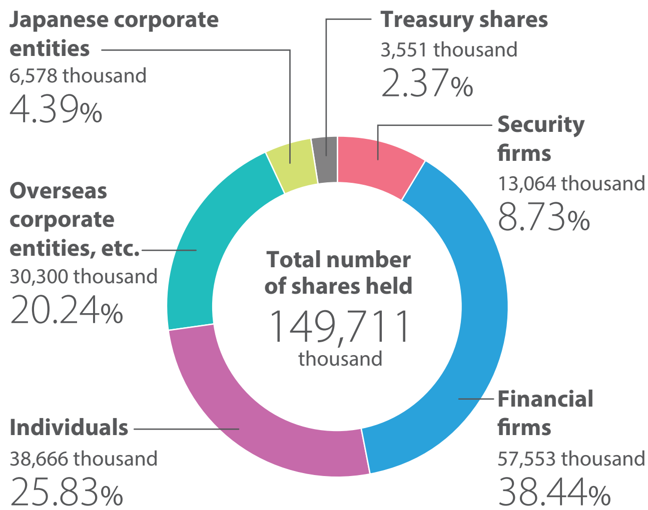
All stock issued by Showa Denko is common stock.

Stock Transfer Agent

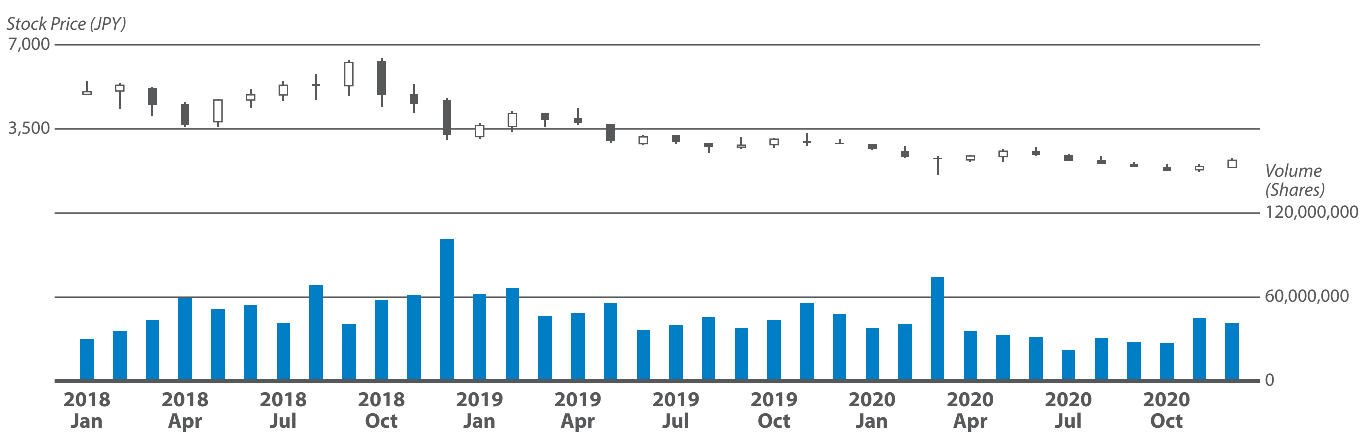
Mizuho Trust & Banking Co., Ltd.
2-1, Yaesu 1-chome, Chuo-ku, Tokyo 103-8670, Japan

Shareholders by Sector

(As of December 31, 2020)



Stock Price and Trading Volume



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