

Management's Discussion and Analysis

Results of Operations

The Group recorded consolidated net sales of ¥992,136 million (US\$8,938 million) in 2018, up 27.1% from the previous year. The sales in the Electronics segment decreased due to a lower shipment volumes of HD media for mobile PCs. However, the sales in the Inorganics segment considerably increased due partly to the effect of the business integration in our graphite electrode business, which took place in the second half of 2017, and a rise in market prices of graphite electrodes. In the Petrochemicals segment, sales increased due to a rise in market prices of products resulting from a rise in raw naphtha price, despite a decrease in production resulting from the large-scale periodic shutdown maintenance of ethylene production facilities. Sales in the Chemicals, Aluminum, and Others segments also increased due to higher shipment volumes.

The cost of sales went up ¥102,115 million, or 16.9%, to ¥705,003 million (US\$6,351 million), reflecting the increase in net sales.

Selling, general and administrative expenses rose ¥7,340 million, or 7.4%, to ¥107,130 million (US\$965 million), due partly to the higher transportation cost. R&D expenditures rose ¥1,196 million to ¥19,735 million (US\$178 million).

Operating income of the Group substantially increased by 131.6%, or ¥102,295 million over the previous year, to ¥180,003 million (US\$1,622 million). In the Petrochemicals segment, operating income decreased due mainly to the large-scale shutdown maintenance. The Electronics and Aluminum segments also recorded lower income. However, the Inorganics segment recorded considerably higher income due to the effect of the business integration in graphite electrode business and a rise in the market prices of graphite electrodes. The Chemicals and Others segments also recorded higher income.

Information by Business Segment

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

Petrochemicals

Production of ethylene and propylene decreased from the previous year due to periodic shutdown maintenance of ethylene production facilities which is conducted once every four years. Sales of olefins rose due to a rise in the market prices of products resulting from a rise in raw naphtha price, despite a decrease in production quantities resulting from the large-scale periodic shutdown maintenance of ethylene production facilities. Sales of organic chemicals increased due to a rise in prices of products including ethyl acetate and vinyl acetate.

As a result, sales in the Petrochemicals segment increased ¥17,751 million, or 7.1% over the previous year, to ¥268,879 million (US\$2,422 million). However, this segment recorded operating income of ¥20,333 million (US\$183 million), down ¥13,024, or 39.0% from the previous year due mainly to the large-scale periodic shutdown maintenance and a decrease in spreads between raw naphtha price and market prices of cracked fuel oil and the raw material for butadiene.

Chemicals

Production of liquefied ammonia decreased slightly from the previous year. However, production of high-purity gases for electronics increased. In the basic chemicals business, sales of liquefied ammonia dropped slightly due to a decrease in shipment volumes. However, sales of acrylonitrile and chloroprene rubber increased due to a rise in market prices. Sales of electronic chemicals went up due to higher shipment volumes of high-purity gases for electronics caused by an increase in production in the semiconductor and display panel industries. Sales of industrial gases increased due to higher shipment volumes of carbon dioxide and dry ice. Sales of functional chemicals also rose due to higher sales prices of products reflecting a rise in prices of raw materials.

As a result, sales in the Chemicals segment increased ¥7,782 million, or 5.2% over the previous year, to ¥156,541 million (US\$1,410 million). The segment recorded operating income of ¥17,393 million (US\$157 million), up ¥919 million, or 5.6% over the previous year.

Electronics

Production of HD media in 2018 fell from the previous year due mainly to a weakness in shipment volumes of HD media for use in PCs, though the demand for HD media for use in servers for data centers remained strong. Thus the sales of HD media dropped, reflecting a decrease in sales volumes. Sales of compound semiconductors increased due to higher shipment volumes. However, sales of rare earth magnetic alloys fell due to reforms in business structure. Sales of lithium-ion battery (LIB) materials increased due to higher shipment volumes to China.

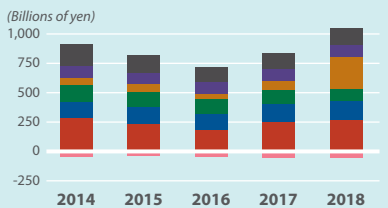
As a result, the Electronics segment's sales decreased ¥17,241 million, or 14.0% from the previous year, to ¥105,823 million (US\$953 million). The segment recorded operating income of ¥12,397 million (US\$112 million), down ¥9,528 million, or 43.5% from the previous year.

Inorganics

Production of graphite electrodes increased from the previous year due to a rise in output from the electric steel industry as the customer. Sales of graphite electrodes went up sharply due to consolidation of SHOWA DENKO CARBON Holding GmbH in the second half of 2017, in addition to a rise in sales prices of graphite electrodes in the global market caused by higher production of electric steel in China resulting from enforcement of stricter environmental policy, and the tight supply-demand situation resulting from an electric steel production on a global scale, especially in the U.S. market. Sales of ceramics decreased due mainly to a fall in shipment volumes of general-purpose alumina caused by SDK's withdrawal from PT. Indonesia Chemical Alumina (ICA), despite higher shipment volumes of abrasives and fine ceramics for electronics.

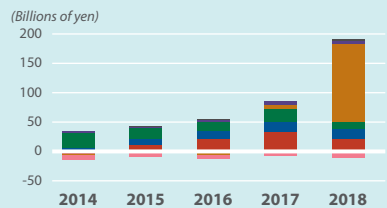
As a result, sales in the Inorganics segment increased ¥192,707 million, or 262.4% over the previous year, to ¥266,149 million (US\$2,398 million). This segment recorded operating income of ¥132,445 million (US\$1,193 million), up ¥125,466 million over the previous year.

Net Sales by Segment



Legend: Petrochemicals (red), Electronics (green), Aluminum (purple), Adjustments (pink), Chemicals (blue), Inorganics (orange), Others (grey)

Operating Income by Segment



Legend: Petrochemicals (red), Electronics (green), Aluminum (purple), Adjustments (pink), Chemicals (blue), Inorganics (orange), Others (grey)



Management's Discussion and Analysis (cont.)

Aluminum

Production of high-purity foil for aluminum electrolytic capacitors increased from the previous year. Sales of rolled products went up due to higher shipment volumes of high-purity foil for aluminum electrolytic capacitors for use in industrial equipment and automotive applications. Sales of aluminum specialty components increased slightly due to a rise in product prices caused by higher price of aluminum ingots. Sales of aluminum cans slightly fell due to lower shipment volumes to the domestic market.

As a result, sales in the Aluminum segment increased ¥2,815 million, or 2.7% over the previous year, to ¥108,254 million (US\$975 million). However, operating income of the segment decreased ¥1,755 million, or 26.2% from the previous year, to ¥4,942 million (US\$45 million).

Others

Sales in the Others segment increased ¥9,789 million, or 7.3% over the previous year, to ¥143,413 million (US\$1,292 million) due mainly to the increase in Shoko Co., Ltd.'s sales and shipment volumes of SiC epitaxial wafers for power devices. Operating income of the segment rose by ¥2,260 million, or 357.0% over the previous year, to ¥2,893 million (US\$26 million).

Information by Geographic Area

Sales in Japan

Sales in the Petrochemicals segment increased due to a rise in market prices of products resulting from higher raw naphtha prices. Sales in the Chemicals segment went up due to an increase in shipment volumes of high-purity gases for electronics caused by a production increase in the semiconductor and display panel industries and a rise in the market price of acrylonitrile. Sales figures of the Electronics segment fell due to lower shipment volumes of HD media, despite increased shipment volumes and sales of compound semiconductors. In the Inorganics segment, sales rose due to an increase in market prices and sales volumes of graphite electrodes, and an increase in shipment volumes of ceramics for electronics including titanium oxide and thermally conductive fillers. Sales in the Aluminum segment rose due to higher sales volumes of high-purity foil for aluminum electrolytic capacitors and an increase in sales of aluminum specialty components resulting from a rise in price of aluminum ingots. Sales figures of the Others segment rose due to an increase in Shoko Co., Ltd.'s sales and higher shipment volumes of SiC epitaxial wafers, for which we have been increasing our productive capacity. As a result, consolidated sales from operations in Japan rose ¥47,170 million, or 9.4%, to ¥551,333 million (US\$4,967 million).

Sales in Asia (excluding Japan)

Sales in the Petrochemicals segment in Asia fell due to a decline in the export of olefins resulting from periodic shutdown maintenance of ethylene production facilities conducted once every four years. Sales in

Asia for the Chemicals segment increased. For the basic chemicals business, sales of chloroprene rubber rose due to an increase in export volumes. For the electronic chemicals business, sales went up due to an increase in shipment volumes of high-purity gases for electronics caused by higher production in the semiconductor and display panel industries in East Asia. For the functional chemicals business, sales increased due to a rise in market prices of products resulting from a rise in raw material prices. The Electronics segment's sales went down due to lower shipment volumes of HD media resulting from a decline in demand for HDDs used in PCs. Sales in the Inorganics segment rose due mainly to a rise in prices of graphite electrodes in the global market and the full-year contribution from SHOWA DENKO CARBON Holding GmbH, which was consolidated in the fourth quarter of 2017, to the increase in sales. Sales in the Aluminum segment increased due to higher shipment volumes of aluminum cans recorded by Hanacans Joint Stock Company in Vietnam. Sales in the Others segment decreased due to lower sales recorded by Shoko Co., Ltd.

As a result, consolidated sales from operations in Asia (excluding Japan) increased ¥9,241 million, or 4.0% over the previous year, to ¥239,885 million (US\$2,161 million).

Sales in the Rest of the World

Sales in the rest of the world increased substantially due mainly to a rise in sales in the Inorganics segment. Showa Denko Carbon Inc., our U.S. subsidiary producing graphite electrodes, recorded higher sales due mainly to a rise in graphite electrode prices in the global market. SHOWA DENKO CARBON Holding GmbH, which was consolidated in the fourth quarter of 2017, also contributed to the increase in sales in the Inorganics segment throughout 2018.

As a result, consolidated sales from operations in the rest of the world increased ¥155,338 million, or 340.8% over the previous year, to ¥200,919 million (US\$1,810 million).

Other Income (Expenses) and Net Income Attributable to Owners of the Parent

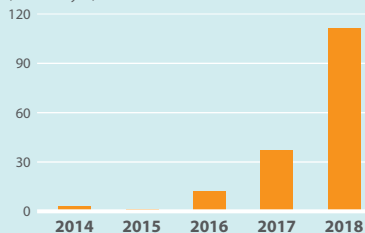
The gap between interest expenses and interest and dividends income improved ¥578 million to expenses of ¥629 million (US\$6 million), mainly from an increase in interest income.

We recorded a gain on the equity in earnings of unconsolidated subsidiaries and affiliates to which the equity method is applied of ¥1,253 million (US\$11 million), an improvement of ¥8,942 million. This gain was due mainly to a backlash from the previous year's recording of an impairment loss on the equity in earnings of unconsolidated subsidiaries and affiliates to which the equity method is applied from ICA.

For foreign exchange gain (losses), the Group recorded foreign exchange losses of ¥347 million (US\$3 million) in 2018, an improvement of ¥2,444 million from the previous year due mainly to the recording of foreign exchange gain from a subsidiary manufacturing HD media in Taiwan caused by the depreciation of the New Taiwan dollar against the

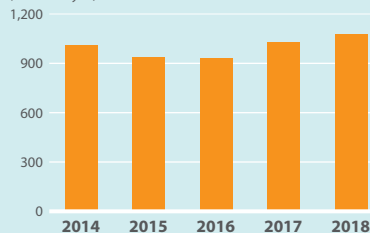
Net Income Attributable to Owners of the Parent

(Billions of yen)



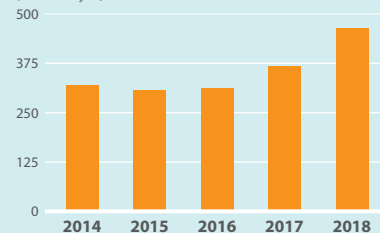
Total Assets

(Billions of yen)



Total Net Assets

(Billions of yen)



U.S. dollar. In 2017, however, this HD media manufacturing subsidiary in Taiwan recorded foreign exchange losses due to the appreciation of the New Taiwan dollar against the U.S. dollar.

We recorded a loss of ¥4,993 million (US\$45 million), net, on retirement and sales of non-current assets, an increase of ¥563 million, due mainly to the recording of retirement losses resulting from removal of old facilities that belonged to the Inorganics, Chemicals, and Petrochemicals segments.

We also recorded a loss of ¥22,573 million (US\$203 million) for the impairment loss on fixed assets, an increase of ¥15,369 million, due partly to our recognition of an impairment loss amounting to ¥8,845 million from the business to manufacture aluminum can for beverages operated by SDK and Showa Aluminum Can Corporation, our consolidated subsidiary, and another impairment loss amounting to ¥4,641 million from the business to manufacture lithium-ion battery materials, as a result of our review on the value of businesses taking their business perspectives into consideration. In addition, we recorded impairment loss amounting to ¥5,967 million and ¥1,864 million on idle properties: the Hikone Plant and the Institute for Advanced and Core Technology.

Gain on sales of investment securities increased ¥1,113 million, to ¥1,521 million (US\$14 million).

The sum of extraordinary losses, other than those mentioned above, decreased ¥1,792 million from the previous year, to ¥7,626 million (US\$69 million), which was due mainly to posting of a loss on valuation of investment securities.

Overall, the total of other income (expenses), net, i.e., the total of non-operating income (expenses) and extraordinary income (expenses), net, deteriorated by ¥7,317 million, to a loss of ¥34,494 million (US\$311 million).

As a result, the Company recorded income before income taxes and non-controlling interests of ¥145,509 million (US\$1,311 million), up ¥94,978 million from the previous year.

Income taxes increased ¥17,942 million to ¥28,756 million (US\$259 million) due to the improvement in the Company's performance. Consequently, the Company recorded net income attributable to owners of the parent of ¥111,503 million (US\$1,005 million), up ¥74,099 million over the previous year.

Financial Position

Total Assets

Total assets at the end of 2018 rose ¥48,747 million from the end of the previous year, to ¥1,075,746 million (US\$9,691 million), due mainly to the increase in notes and accounts receivable and inventories resulting from a rise in product and raw material prices in our graphite electrode business. Cash and deposits increased ¥35,938 million from the end of the previous year to ¥113,186 million (US\$1,020 million).

Net property, plant and equipment decreased ¥27,527 million to ¥478,406 million (US\$4,310 million), due mainly to the recording of

impairment loss. Total investments and other assets decreased by ¥16,812 million, to ¥97,060 million (US\$874 million), due partly to the depreciation in the market valuation of investment securities.

Liabilities

Interest-bearing debt fell ¥58,758 million from the end of the previous year, to ¥287,968 million (US\$2,594 million), despite an increase in accounts payable-trade caused by a rise in prices of raw materials for graphite electrodes. Total liabilities fell ¥47,599 million, to ¥610,406 million (US\$5,499 million).

Net Assets

Net assets at the end of 2018 amounted to ¥465,340 million (US\$4,192 million), up ¥96,346 million over the previous year, due partly to the posting of net income attributable to owners of the parent.

Capital Expenditures

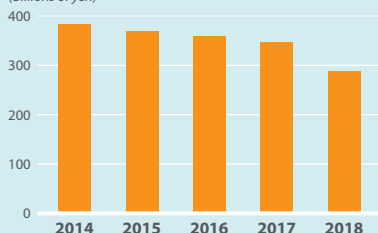
Capital expenditures decreased ¥60 million from the previous year, to ¥41,727 million (US\$376 million). Capital expenditures for the Petrochemicals segment increased due to periodic shutdown maintenance, and that for the Others segment increased due to investment in facilities to produce SiC epitaxial wafers for power devices. However, in the Chemicals segment, the amount of capital investment in the electronic chemicals business decreased due to the end of large-scale investment in facilities in 2017 to produce etching gases, though the amount of capital investment continued to be at a high level throughout 2018. In the Electronics segment, investment in facilities to produce HD media in 2018 decreased from the previous year.

Cash Flows

Net cash provided by operating activities increased ¥82,550 million over the previous year to proceeds of ¥149,785 million (US\$1,349 million), due mainly to the increase in net income attributable to owners of the parent. Net cash used in investing activities increased ¥19,472 million, to ¥49,338 million (US\$444 million), due partly to a decrease in proceeds from repayment of time deposits. Thus, free cash flow ended up with the proceeds of ¥100,447 million (US\$905 million), an improvement of ¥63,078 million. Net cash used in financing activities increased ¥42,691 million due to the reduction in interest-bearing debt, and ended up with the payment of ¥61,061 million (US\$550 million). As a result, and due partly to the influence of exchange rate fluctuations, cash and cash equivalents at December 31, 2018 increased ¥36,002 million from the end of the previous year, to ¥112,835 million (US\$1,017 million).

Interest-Bearing Debt

(Billions of yen)



Cash Flows from Operating Activities

(Billions of yen)

