PROJECT 2020+

Evolving unique chemical company

Third Quarter, 2018 Financial Results
- Consolidated -

SHOWA DENKO K.K.

November 8, 2018

Toshiharu Kato, CFO
Director & Corporate Officer

Performance forecast and other statements pertaining to the future as contained in this presentation are based on the information available as of today and assumptions as of today regarding risk factors that could affect our future performance. Actual results may differ materially from the forecast due to a variety of risk factors, including, but not limited to, 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. We undertake no obligation to update the forward-looking statements unless required by law.

Consolidated Companies

- Consolidated subsidiaries: 60

  2 companies excluded compared with the end of 2017
  Baotou Showa Rare Earth Hi-tech New Material Co., Ltd. (Electronics, liquidated)
  Be International Co. (Others, Merged by Shoko Co., Ltd.)

  1 company excluded after the end of June
  Be International Co.

- Equity method applied: 12

  1 company newly applied compared with the end of 2017, after the end of June
  SK Showa Denko Co., Ltd. (Chemicals)

Selected Data

(Average)

	2017		2018		Increase/decrease	
	Jan.-Sept.	Jul.-Sept.	Jan.-Sept.	Jul.-Sept.	Jan.-Sept.	Jul.-Sept.
■Exchange rate:						
¥/US$	111.9	111.0	109.6	111.5	-2.3	0.4
¥/€	124.6	130.4	131.0	129.6	6.4	-0.8
■Domestic naphtha price: ¥/KL	39,050	36,100	50,050	53,500	11,000	17,400
■Aluminum						
LME price: US$/T	1,933	2,027	2,163	2,067	230	40
Domestic market*: K¥/T	271	279	296	289	25	10

Exchange rate at December 31, 2017 ¥113.0/US$, at September 30, 2018 ¥113.6/US$
⇒Yen depreciated by ¥0.6/US$

*Domestic market: data from Nikkei

Summary

Jan. 1 – Sept. 30, 2017 vs. Jan. 1 – Sept. 30, 2018

(Unit: Billions of Yen)

	Jan.-Sept. 2017	Jan.-Sept. 2018	Increase/ decrease
Net Sales	563.8	724.9	161.1
Operating Income	55.9	134.5	78.6
Non-operating income and expenses, net	-13.6	-0.3	13.3
Interest/Dividends income and expenses	-1.0	-0.7	0.3
Equity in earnings of affiliates	-8.5	1.0	9.4
Foreign exchange gains or losses	-2.8	0.2	3.1
Other	-1.3	-0.8	0.5
Ordinary Income	42.4	134.2	91.8
Extraordinary Profit	0.4	0.5	0.2
Extraordinary Loss	-9.8	-3.1	6.8
Income before income taxes	32.9	131.7	98.7
Income taxes	-7.9	-27.9	-20.0
Profit	25.1	103.7	78.7
Net income attributable to non-controlling interests	-1.6	-4.5	-2.9
Net income attributable to owners of the parent	23.4	99.3	75.8

Extraordinary Profit/Loss

(Unit: Billions of Yen)

	Jan.-Sept. 2017	Jan.-Sept. 2018	Increase/ decrease
■Extraordinary Profit	0.4	0.5	0.2
●Gain on sales of investment securities, net	0.2	0.3	0
●Gain on liquidation of subsidiaries	—	0.2	0.2
●Other	0.1	0.1	-0
■Extraordinary Loss	-9.8	-3.1	6.8
●Loss on sales and retirement of noncurrent assets	-1.6	-2.4	-0.8
●Provision for loss on guarantees	-3.1	—	3.1
●Other	-5.2	-0.7	4.5
■Extraordinary Profit/Loss, Net	-9.4	-2.5	6.9

Consolidated Sales by Segment

(Unit: Billions of Yen)

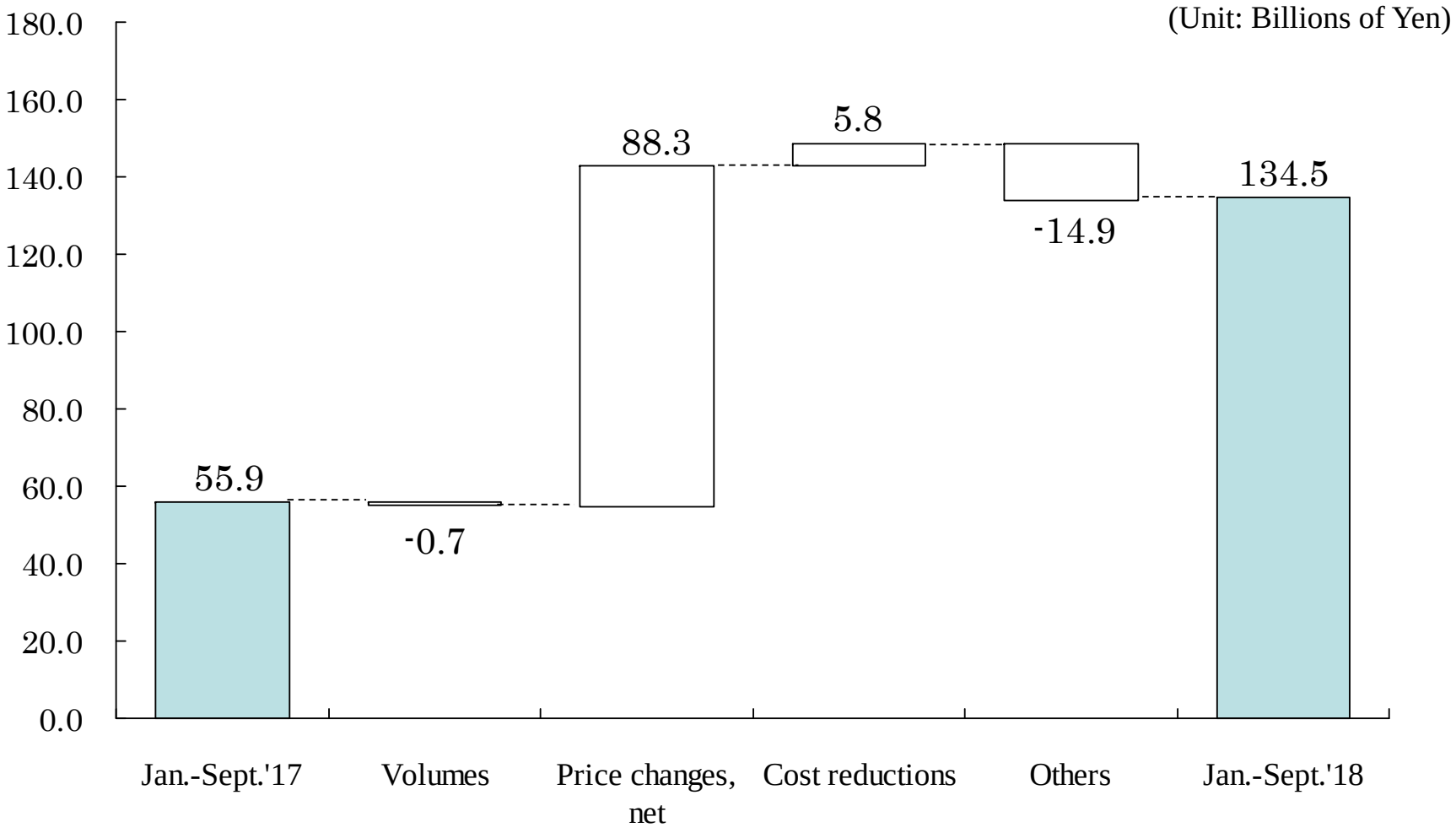
	Jan.-Sept. 2017	Jan.-Sept. 2018	Increase/ decrease	
Petrochemicals	183.2	191.6	8.5	【Olefins】sales maintained at the year-earlier level (shipment volumes down due to shutdown maintenance, market prices up) 【Organic chemicals】sales increased (vinyl acetate, ethyl acetate: market prices up) 【SunAllomer Ltd. 】sales increased (market prices up)
Chemicals	108.5	115.1	6.6	【Basic chemicals】sales increased (AN, caustic soda: market prices up, chloroprene rubber: sales slightly up) 【Electronic chemicals】sales increased (high-purity gases for electronics: shipment volumes up) 【Industrial gases】【Functional chemicals】sales slightly increased
Electronics	95.3	81.4	-13.8	【HDs】sales decreased (shipment volumes for PCs down) 【Compound semiconductors】【Rare earths】sales increased (shipment volumes up) 【LIB materials】sales increased (shipment volumes up)
Inorganics	42.6	192.2	149.6	【Ceramics】sales decreased (shipment volumes of alumina down) 【Graphite electrodes】sales significantly increased (market prices up) the consolidation of SHOWA DENKO CARBON Holding GmbH (4Q, 2017)
Aluminum	77.3	81.1	3.8	【High-purity foil for capacitors】sales increased (shipment volumes up) 【Aluminum specialty components】sales increased (product prices up due to a rise in the price of aluminum ingot) 【Aluminum cans】sales slightly decreased
Others	98.1	105.6	7.5	【SHOKO Co., Ltd.】sales increased 【SiC epitaxial wafers】sales increased (shipment volumes up)
Adjustments	-41.1	-42.0	-0.9	
Total	563.8	724.9	161.1	

Consolidated Operating Income by Segment

(Unit: Billions of Yen)

	Jan.-Sept. 2017	Jan.-Sept. 2018	Increase/ decrease	
Petrochemicals	24.1	15.5	-8.6	【Olefins】profit decreased (shipment volumes down due to shutdown maintenance, C4 fraction) 【Organic chemicals】profit slightly decreased 【SunAllomer Ltd. 】profit decreased (time lag between the rise in raw material prices and that in sales prices)
Chemicals	11.3	12.6	1.3	【Basic chemicals】profit increased (AN, chloroprene rubber, caustic soda) 【Electronic chemicals】【Industrial gases】profit increased (shipment volumes up) 【Functional chemicals】profit decreased (time lag between the rise in raw material prices and that in sales prices)
Electronics	18.4	10.1	-8.3	【HDs】profit decreased (shipment volumes for PCs down) 【Compound semiconductors】【Rare earths】profit slightly increased 【LIB materials】profit increased (shipment volumes up)
Inorganics	2.4	97.9	95.5	【Ceramics】profit increased (shipment volumes for electronic materials up) 【Graphite electrodes】profit significantly increased (market prices up) the consolidation of SHOWA DENKO CARBON Holding GmbH (4Q, 2017)
Aluminum	4.8	4.0	-0.8	【High-purity foil for capacitors】profit slightly increased 【Aluminum specialty components】profit slightly decreased 【Aluminum cans】profit decreased (shipment volumes for domestic market down)
Others	0.4	2.1	1.7	【SHOKO Co., Ltd.】profit increased 【SiC epitaxial wafers】profit increased (shipment volumes up)
Adjustments	-5.6	-7.7	-2.1	
Total	55.9	134.5	78.6	

Operating Income Breakdown by Factor



Summary

CQ3 (Jul.1 – Sept.30), 2017 vs. CQ3 (Jul.1 – Sept.30), 2018

(Unit: Billions of Yen)

	CQ3, 2017	CQ3, 2018	Increase/ decrease
Net Sales	191.6	269.1	77.5
Operating Income	20.9	56.6	35.7
Non-operating income and expenses, net	-0.8	-0	0.8
Interest/Dividends income and expenses	-0.4	-0.3	0.1
Equity in earnings of affiliates	0.3	0.4	0.1
Foreign exchange gains or losses	0.1	0.7	0.6
Other	-0.7	-0.8	-0.1
Ordinary Income	20.1	56.6	36.5
Extraordinary Profit	0.1	0	-0.1
Extraordinary Loss	-0.2	-1.1	-0.9
Income before income taxes	20.1	55.6	35.5
Income taxes	-3.7	-12.7	-9.0
Profit	16.4	42.9	26.5
Net income attributable to non-controlling interests	-0.8	-1.6	-0.8
Net income attributable to owners of the parent	15.6	41.3	25.7

Consolidated Sales by Segment

CQ3 (Jul.1 – Sept.30), 2017 v s. CQ3 (Jul.1 – Sept.30), 2018

(Unit: Billions of Yen)

	CQ3, 2017	CQ3, 2018	Increase/ decrease	
Petrochemicals	59.2	76.2	17.0	【Olefins】sales increased (market prices up due to naphtha prices up) 【Organic chemicals】sales increased (vinyl acetate, ethyl acetate: market prices up, NPAC: shipment volumes up) 【SunAllomer Ltd. 】sales increased (market prices up)
Chemicals	38.4	40.5	2.0	【Basic chemicals】sales increased (AN: market prices up, chloroprene rubber: shipment volumes up) 【Electronic chemicals】sales increased (high-purity gases for electronics: shipment volumes up) 【Industrial gases】【Functional chemicals】sales slightly increased
Electronics	32.3	27.1	-5.2	【HDs】sales decreased (shipment volumes for PCs down) 【Compound semiconductors】sales increased (shipment volumes up) 【Rare earths】sales decreased (shipment volumes down) 【LIB materials】sales increased (shipment volumes up)
Inorganics	16.0	75.7	59.7	【Ceramics】sales decreased (shipment volumes of alumina down) 【Graphite electrodes】sales significantly increased (market prices up) the consolidation of SHOWA DENKO CARBON Holding GmbH (4Q, 2017)
Aluminum	26.4	27.8	1.4	【High-purity foil for capacitors】sales increased (shipment volumes up) 【Aluminum specialty components】【Aluminum cans】sales slightly increased
Others	33.0	36.0	2.9	【SHOKO Co., Ltd.】sales increased 【SiC epitaxial wafers】sales increased (shipment volumes up)
Adjustments	-13.8	-14.1	-0.3	
Total	191.6	269.1	77.5	

Consolidated Operating Income by Segment

CQ3 (Jul.1 – Sept.30), 2017 v s. CQ3 (Jul.1 – Sept.30), 2018

(Unit: Billions of Yen)

	CQ3, 2017	CQ3, 2018	Increase/ decrease	
Petrochemicals	7.9	8.1	0.1	【Olefins】profit slightly increased 【Organic chemicals】profit increased (vinyl acetate, ethyl acetate: market prices up) 【SunAllomer Ltd. 】profit decreased (time lag between the rise in raw material prices and that in sales prices)
Chemicals	4.4	4.9	0.4	【Basic chemicals】【Functional chemicals】profit slightly increased 【Electronic chemicals】【Industrial gases】profit increased (shipment volumes up)
Electronics	6.3	4.5	-1.8	【HDs】profit decreased (shipment volumes for PCs down) 【Compound semiconductors】profit slightly decreased 【Rare earths】profit maintained at the year-earlier level 【LIB materials】profit slightly increased
Inorganics	2.3	39.8	37.5	【Ceramics】profit increased (shipment volumes for electronic materials up) 【Graphite electrodes】profit significantly increased (market prices up) the consolidation of SHOWA DENKO CARBON Holding GmbH (4Q, 2017)
Aluminum	1.6	1.4	-0.2	【High-purity foil for capacitors】profit slightly increased 【Aluminum specialty components】profit decreased (SHOTIC) 【Aluminum cans】profit slightly decreased
Others	0.4	0.8	0.4	【SHOKO Co., Ltd.】profit maintained at the year-earlier level 【SiC epitaxial wafers】profit increased (shipment volumes up)
Adjustments	-2.0	-2.7	-0.7	
Total	20.9	56.6	35.7	

Consolidated Balance Sheet

(Unit: Billions of Yen)

Assets	Dec. 31, 2017*	Sept. 30, 2018	Increase/ decrease	**Liabilities and Net Assets**	Dec. 31, 2017*	Sept. 30, 2018	Increase/ decrease
Cash and deposits	77.2	138.2	61.0	Notes and accounts payable	120.8	148.1	27.3
Notes and accounts receivable	176.0	213.6	37.6	Interest-bearing debt	346.7	330.9	-15.9
Inventories	114.9	148.9	34.0	Net defined benefit liability	19.0	15.9	-3.1
Other current assets	39.0	37.2	-1.8	Other liabilities	171.6	172.2	0.6
Total Current Assets	407.2	537.9	130.7	Total Liabilities	658.0	667.0	9.0
Buildings and structures	85.9	84.6	-1.3	Capital stock	140.6	140.6	0
Machinery and equipment	151.6	154.9	3.3	Capital surplus	61.7	78.9	17.2
Land	244.7	244.9	0.2	Retained earnings	100.1	189.2	89.2
Other tangible fixed assets	23.7	18.6	-5.0	Treasury stock	-10.5	-1.7	8.8
Total Tangible Fixed Assets	505.9	503.0	-3.0	Total Shareholders' equity	291.8	407.1	115.3
Intangible fixed assets	12.8	14.3	1.4	Valuation difference on available-for-sale securities	16.5	13.5	-3.0
Investments and other assets	101.1	93.8	-7.2	Deferred gains or losses on hedges	3.8	1.8	-2.0
incl. investment securities	89.2	83.3	-5.9	Revaluation reserve for land	29.5	29.5	-0
				Foreign currency translation adjustment	15.5	14.6	-0.9
				Remeasurements of defined benefit plans	-4.7	-3.6	1.1
				Total Accumulated Other Comprehensive Income	60.7	55.8	-4.8
				Non-controlling interests	16.5	19.0	2.5
Total Fixed Assets	619.8	611.1	-8.7	Total Net Assets	369.0	481.9	113.0
Total Assets	**1,027.0**	**1,149.0**	**122.0**	**Total Liabilities and Net Assets**	**1,027.0**	**1,149.0**	**122.0**

*The tentative accounting policy applied to calculation of 2017 financial results due to consolidation of former SGL GE Holding GmbH has been finalized. Accordingly, some of the amounts for Dec. 31, 2017 have been retroactively changed.

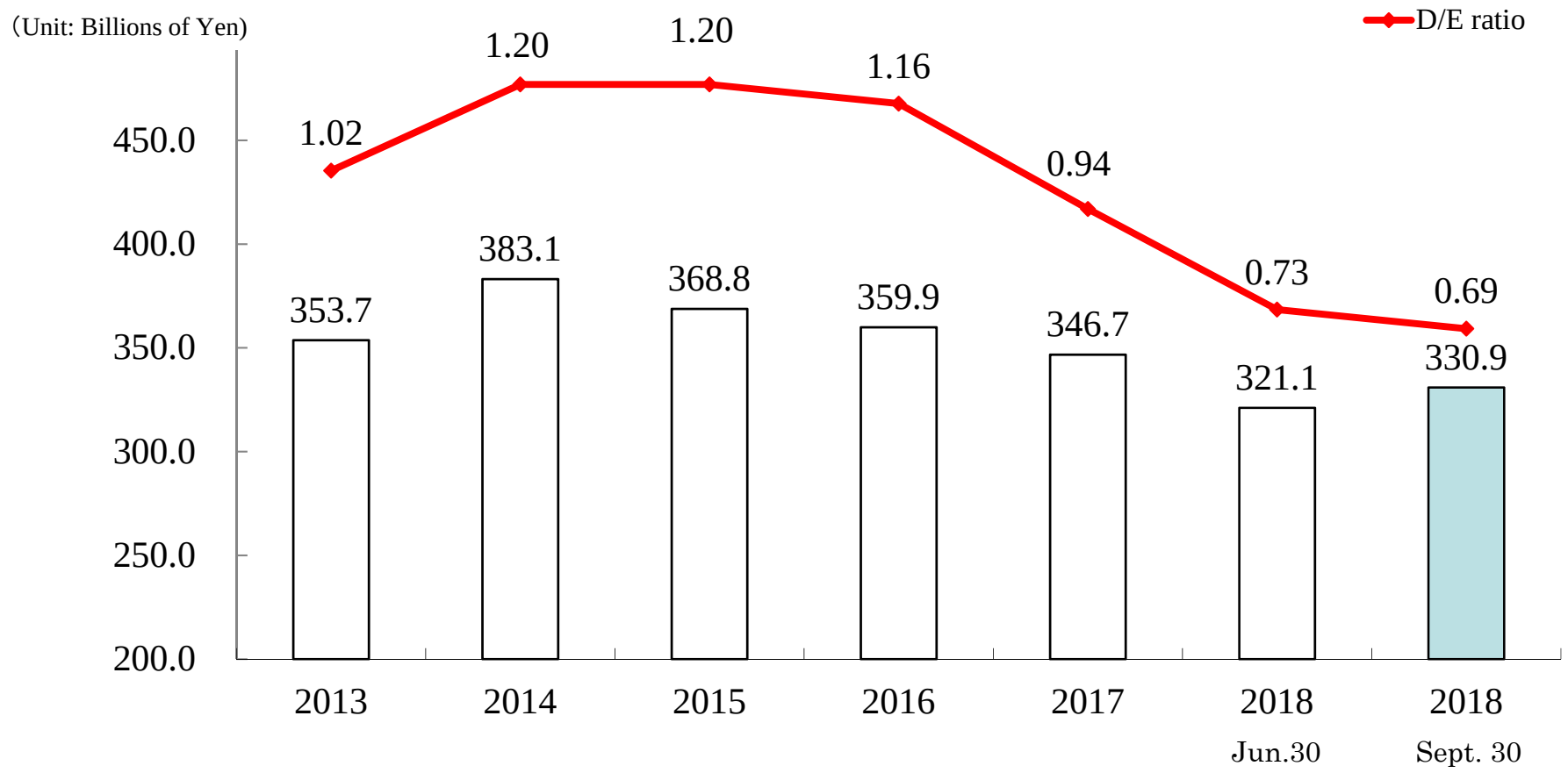
Total Assets
Interest-bearing Debt and D/E ratio

(Unit: Billions of Yen)

	Dec. 31, 2017*	Sept. 30, 2018	Increase/ decrease
● Total assets	1,027.0	1,149.0	122.0
● Interest-bearing debt	346.7	330.9	-15.9
● Debt/Equity ratio	0.94 times	0.69 times	-0.25p
● Stockholders' Equity ratio	34.3%	40.3%	6.0p

* The tentative accounting policy applied to calculation of 2017 financial results due to consolidation of former SGL GE Holding GmbH has been finalized. Accordingly, some of the amounts for Dec. 31, 2017 have been retroactively changed.

Interest-bearing Debt



Equity ratio	30.6%	29.7%	31.5%	31.8%	34.3%	39.9%	40.3%

* The tentative accounting policy applied to calculation of 2017 financial results due to consolidation of former SGL GE Holding GmbH has been finalized. Accordingly, some of the amounts for Dec. 31, 2017 have been retroactively changed.

(Reference) Summary

CQ2 (Apr.1 – Jun.30), 2018 vs. CQ3 (Jul.1 – Sept.30), 2018

(Unit: Billions of Yen)

	CQ2, 2018	CQ3, 2018	Increase/ decrease
Net Sales	241.2	269.1	27.9
Operating Income	43.6	56.6	13.0
Non-operating income and expenses, net	1.3	-0	-1.3
Interest/Dividends income and expenses	-0.2	-0.3	-0.1
Equity in earnings of affiliates	0	0.4	0.3
Foreign exchange gains or losses	1.9	0.7	-1.3
Other	-0.5	-0.8	-0.3
Ordinary Income	44.9	56.6	11.7
Extraordinary Profit	0.5	0	-0.5
Extraordinary Loss	-1.1	-1.1	0.1
Income before income taxes	44.3	55.6	11.3
Income taxes	-9.5	-12.7	-3.2
Profit	34.8	42.9	8.1
Net income attributable to non-controlling interests	-1.5	-1.6	-0.1
Net income attributable to owners of the parent	33.3	41.3	8.0

(note) The tentative accounting policy applied to calculation of 2017 financial results due to consolidation of former SGL GE Holding GmbH has been finalized. Accordingly, some of the amounts above have been retroactively changed due partly to changes in depreciation costs for respective terms.

(Reference) Consolidated Sales by Segment

CQ2 (Apr.1 – Jun.30), 2018 vs. CQ3 (Jul.1 – Sept.30), 2018

(Unit: Billions of Yen)

	CQ2, 2018	CQ3, 2018	Increase/ decrease	
Petrochemicals	61.6	76.2	14.6	【Olefins】sales increased (shipment volumes up after shutdown maintenance) 【Organic chemicals】sales increased (vinyl acetate, ethyl acetate: shipment volumes up) 【SunAllomer Ltd.】sales slightly increased
Chemicals	38.6	40.5	1.9	【Industrial gases】sales increased (shipment volumes up: seasonal) 【Electronic chemicals】sales slightly increased 【Basic chemicals】【Functional chemicals】sales maintained at the CQ2 level
Electronics	26.6	27.1	0.5	【HDs】sales increased (shipment volumes up) 【Compound semiconductors】【Rare earths】sales decreased (shipment volumes down) 【LIB materials】sales slightly decreased
Inorganics	65.0	75.7	10.6	【Ceramics】sales maintained at the CQ2 level 【Graphite electrodes】sales increased (market prices up)
Aluminum	28.4	27.8	-0.7	【High-purity foil for capacitors】【Aluminum cans】sales maintained at the CQ2 level 【Aluminum specialty components】sales decreased (shipment volumes down)
Others	35.3	36.0	0.7	【SHOKO Co., Ltd.】sales increased 【SiC epitaxial wafers】sales increased (shipment volumes up)
Adjustments	-14.5	-14.1	0.4	
Total	241.2	269.1	27.9	

(Reference) Consolidated Operating Income by Segment

CQ2 (Apr.1 – Jun.30), 2018 vs. CQ3 (Jul.1 – Sept.30), 2018

(Unit: Billions of Yen)

	CQ2, 2018	CQ3, 2018	Increase/ decrease	
Petrochemicals	4.1	8.1	4.0	【Olefins】profit increased (shipment volumes up after shutdown maintenance) 【Organic chemicals】profit increased (vinyl acetate, ethyl acetate: shipment volumes up) 【SunAllomer Ltd.】profit slightly decreased (time lag between the rise in raw material prices and that in sales prices)
Chemicals	4.1	4.9	0.7	【Industrial gases】profit increased (shipment volumes up: seasonal) 【Electronic chemicals】profit increased (shipment volumes of high-purity gases for electronics up) 【Basic chemicals】profit slightly decreased 【Functional chemicals】profit increased
Electronics	2.8	4.5	1.7	【HDs】profit increased (shipment volumes up) 【Compound semiconductors】profit slightly decreased, 【Rare earths】profit slightly increased 【LIB materials】profit maintained at the CQ2 level
Inorganics	33.3	39.8	6.4	【Ceramics】profit slightly increased (shipment volumes for electronic materials up) 【Graphite electrodes】profit increased (market prices up)
Aluminum	1.4	1.4	0	【High-purity foil for capacitors】【Aluminum cans】profit maintained at the CQ2 level 【Aluminum specialty components】profit slightly decreased
Others	0.5	0.8	0.3	【SHOKO Co., Ltd.】profit maintained at the CQ2 level 【SiC epitaxial wafers】profit increased
Adjustments	-2.5	-2.7	-0.2	
Total	43.6	56.6	13.0	

(note) The tentative accounting policy applied to calculation of 2017 financial results due to consolidation of former SGL GE Holding GmbH has been finalized. Accordingly, some of the amounts above have been retroactively changed due partly to changes in depreciation costs for respective terms.

(Reference) Quarterly Summary 2018

(Unit: Billions of Yen)

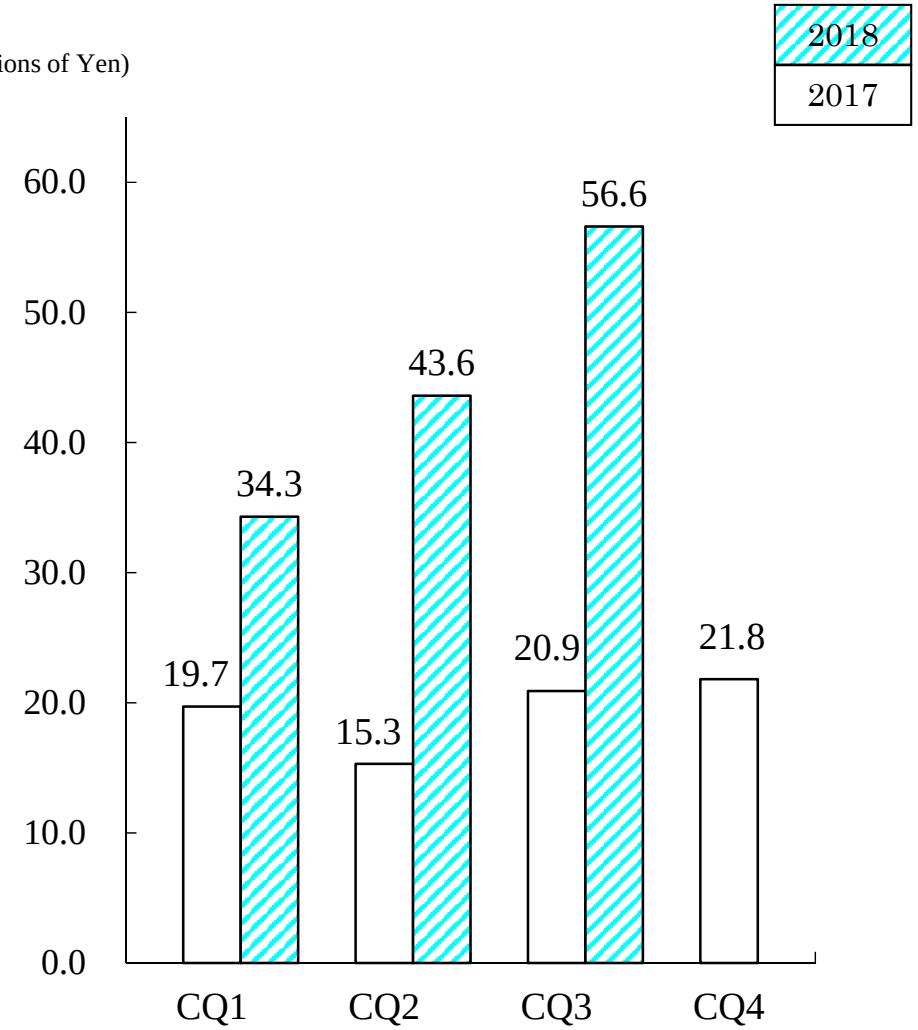
	CQ1, 2018	CQ2, 2018	CQ3, 2018	Jan.－Sept. 2018	2018 Forecast*
Net Sales	214.7	241.2	269.1	724.9	985.0
Operating Income	34.3	43.6	56.6	134.5	170.0
Net income attributable to owners of the parent	24.7	33.3	41.3	99.3	115.0

*Forecast was revised on August 8, 2018.

(note)The tentative accounting policy applied to calculation of 2017 financial results due to consolidation of former SGL GE Holding GmbH has been finalized.
Accordingly, some of the amounts above have been retroactively changed due partly to changes in depreciation costs for respective terms.

(Reference) Quarterly Operating Income

(Unit: Billions of Yen)



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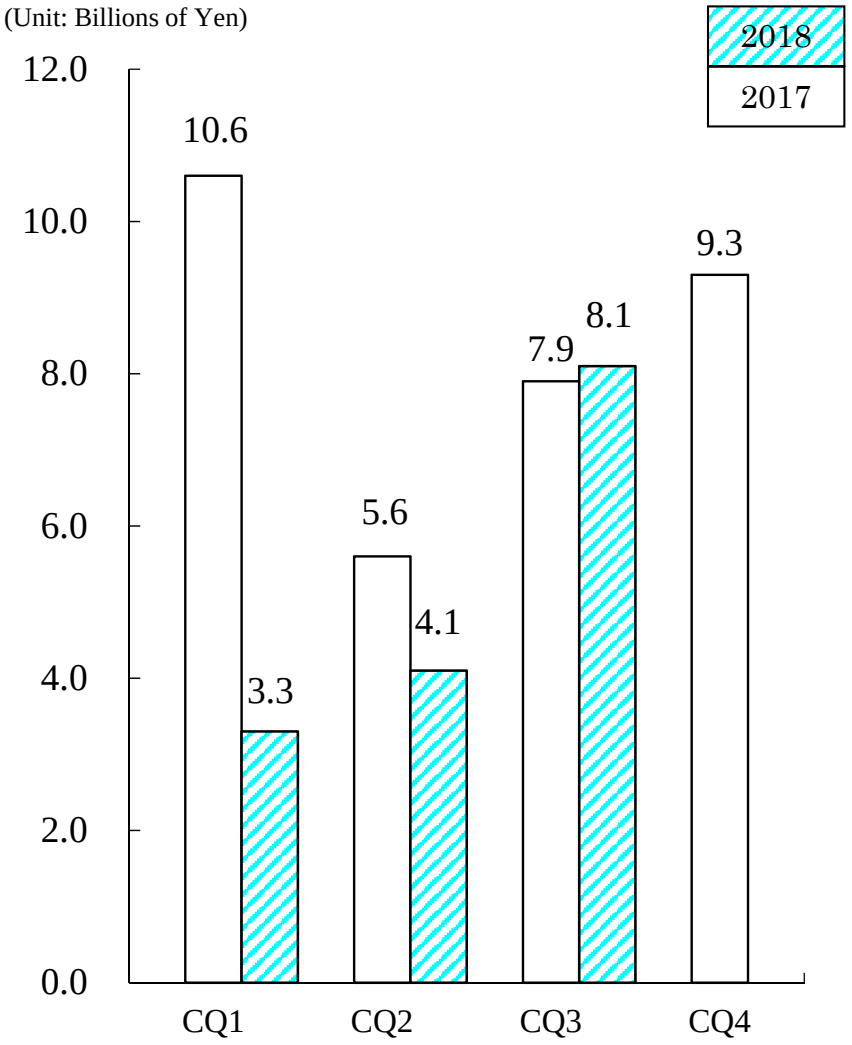
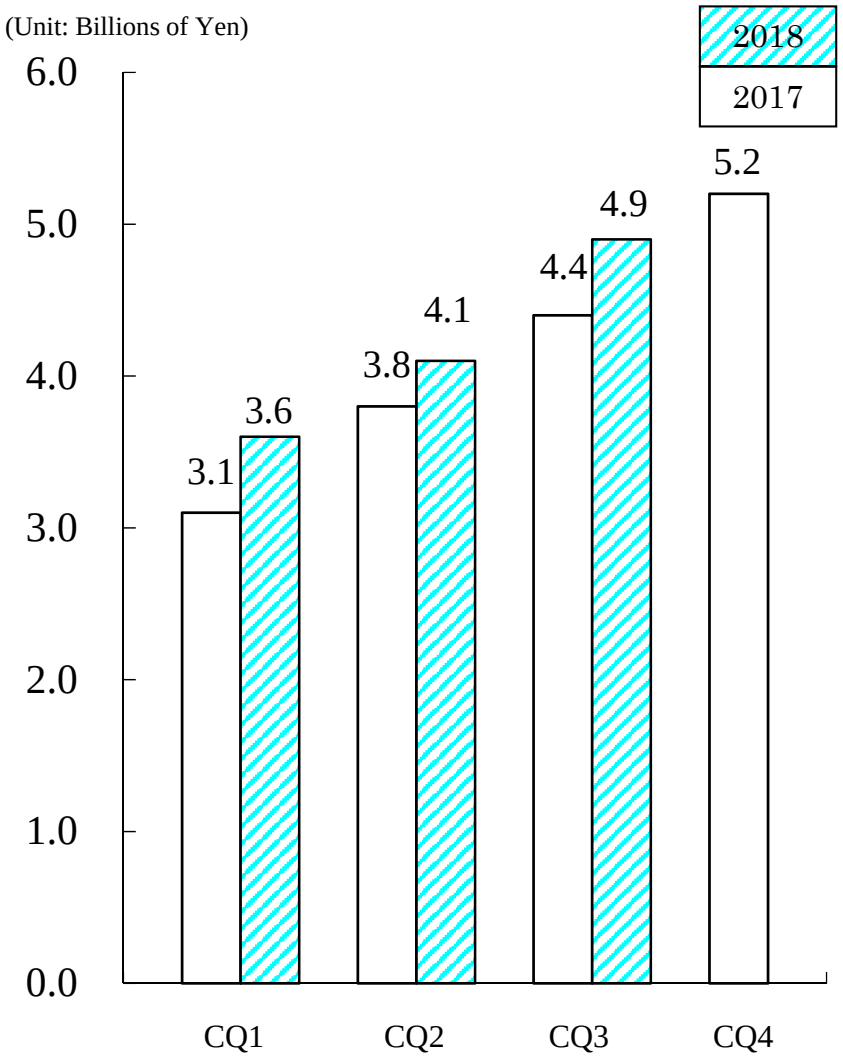
(Reference) Quarterly Operating Income by Segment

《Petrochemicals》



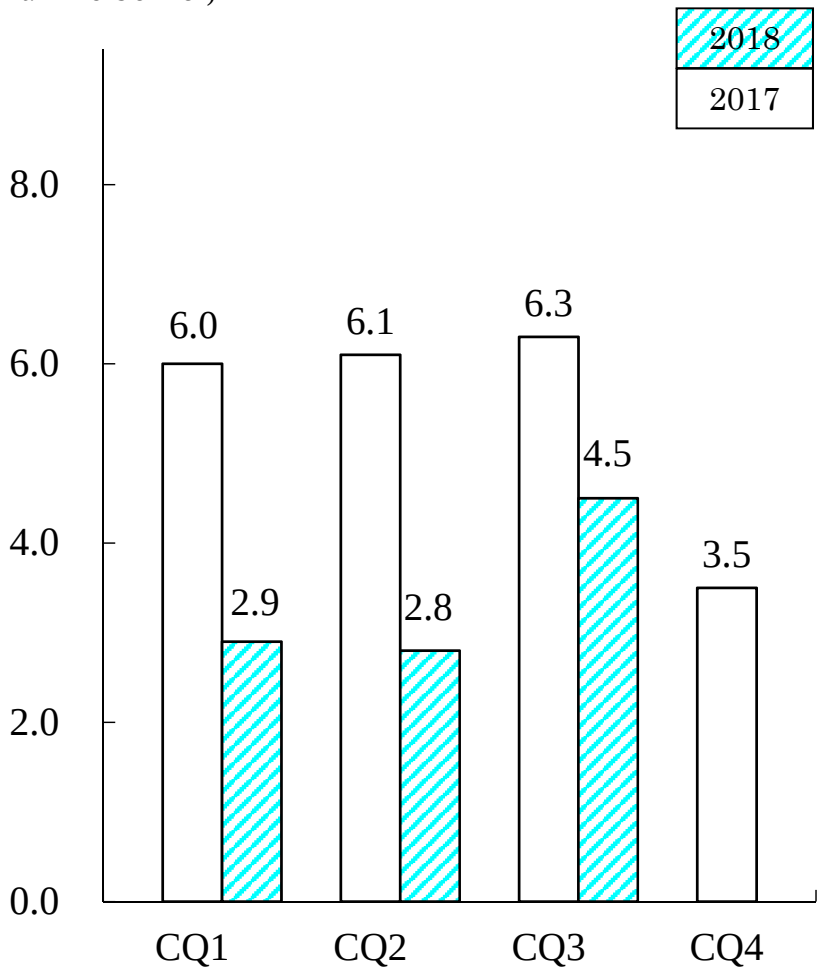
《Chemicals》



(Reference) Quarterly Operating Income by Segment

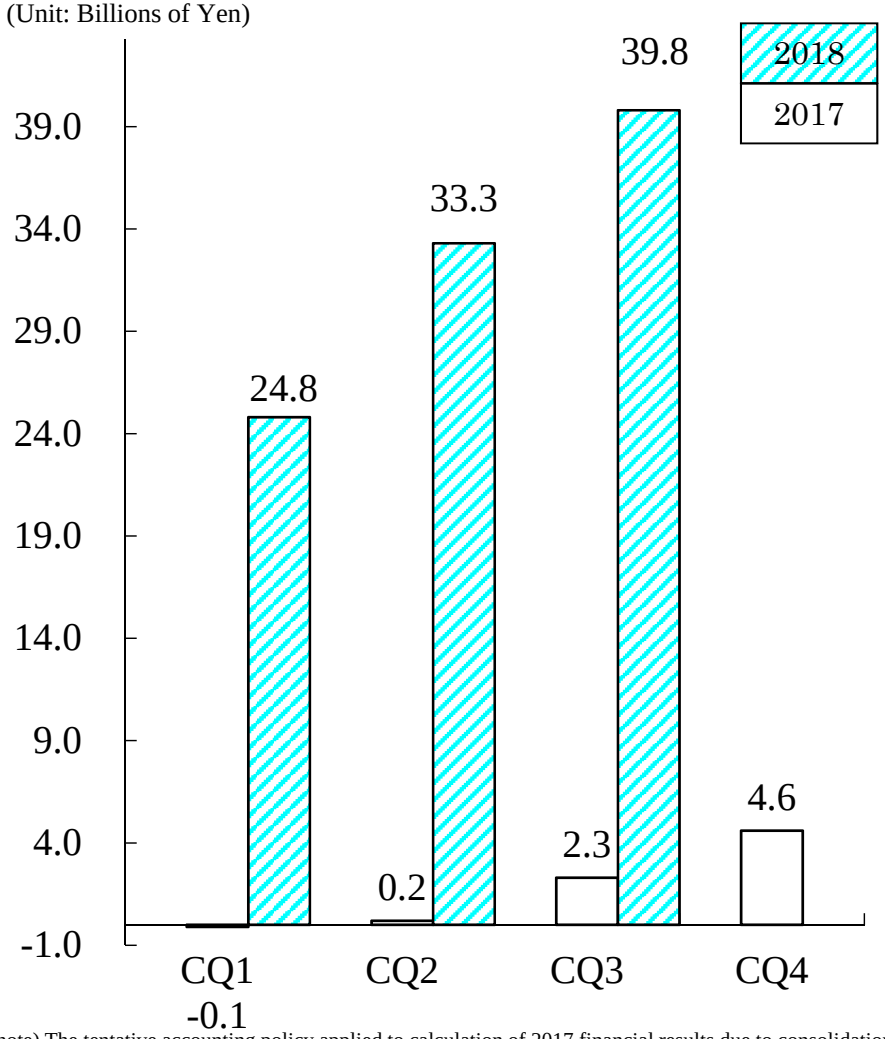
《Electronics》

(Unit: Billions of Yen)



《Inorganics》

(Unit: Billions of Yen)



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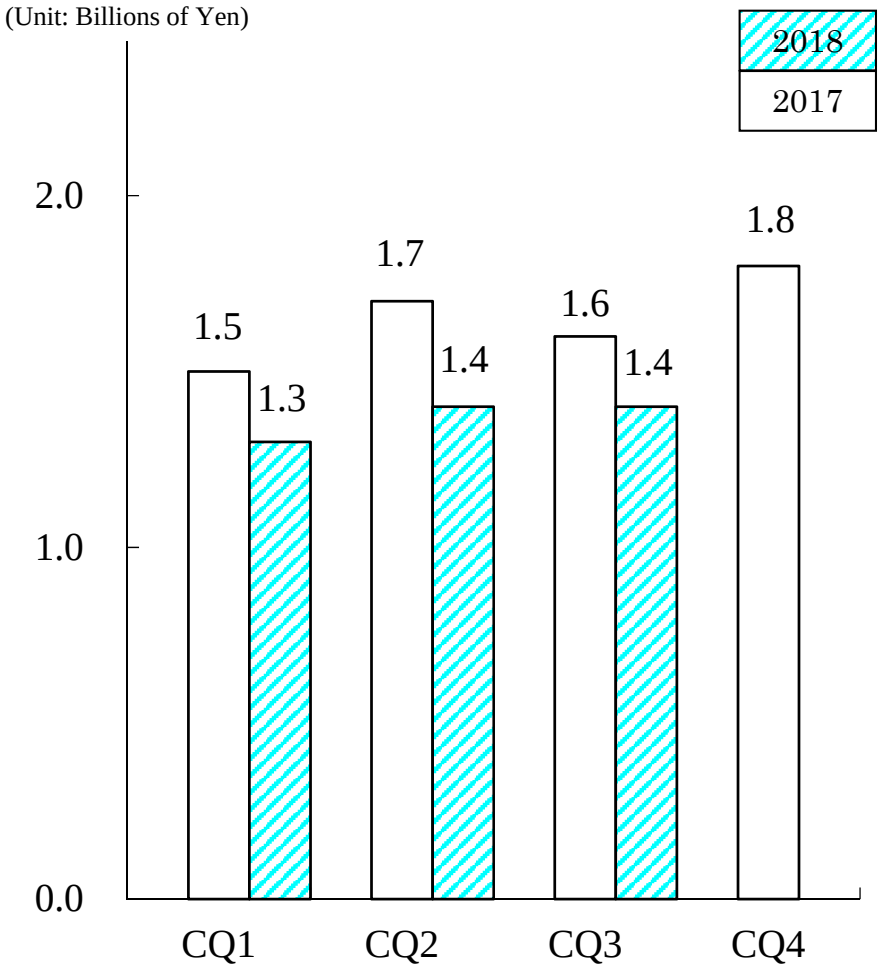
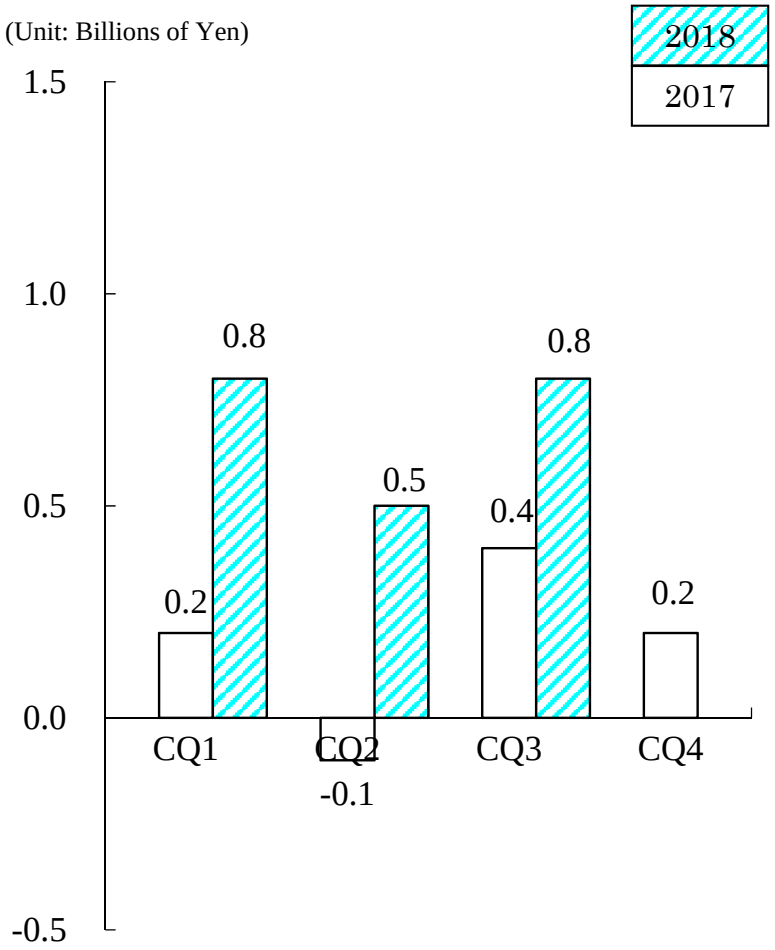
(Reference) Quarterly Operating Income by Segment

《Aluminum》



《Others》



Topics

[General]

- **Incorporated into 3 ESG investment indexes for 2 straight years**

  In July 2018, SDK was incorporated continuously for two straight years into three ESG indexes for investment: “FTSE Blossom Japan Index” provided by FTSE International Limited and Frank Russel Company (FTSE Russel, a member of London Stock Exchange Group); “MSCI Japan ESG Select Leaders Index” and “MSCI Japan Empowering Women Index” provided by MSCI Incorporated (MSCI). FTSE and MSCI are world-famous index providers. Government Pension Investment Fund (GPIF) selected these three stock price indexes and started full-scale “ESG conscious investment” in 2017. FTSE Blossom Japan Index is designed to provide market participants with a tool to identify and measure the performance of Japanese companies that demonstrate strong environment, social and governance (ESG) practices. MSCI Japan ESG Select Leaders Index is constructed using the MSCI Japan IMI Top 500 Index (parent index) and targets best ESG performers among issues included in the parent index. MSCI Japan Empowering Women Index evaluates companies promoting and maintaining gender diversity. In addition to these three ESG indexes, SDK has been included in the “Morningstar Socially Responsible Investment Index (MS-SRI),” which is provided by Morningstar Japan K.K., for five consecutive years and the “SNAM Sustainability Index,” which is provided by Sompo Japan Nipponkoa Asset Management Co., Ltd. (SNAM), for seven consecutive years.

Topics

[General]

- **Implemented early repayment of subordinated loan**

  In October 2018, SDK made early repayment of ¥24 billion that it raised in a subordinated loan (the Subordinated Loan) in April 2014. The Subordinated Loan, with a 75% equity credit acknowledged by Japan Credit Rating Agency, Ltd. has contributed to improvement of SDK's financial strength. Since the financing through the Subordinated Loan, SDK has advanced structural reform and expanded its individualized businesses, resulting in stronger business foundation and higher profitability, and also achieved financial level targeted in its medium-term business plan. These accomplishments led to SDK's conclusion that it has completed the important task of enhancing its financial standing with the Subordinated Loan. SDK made an early repayment of the Subordinated Loan based on its judgment that the early repayment reduces financial costs and makes its financial strategy more flexible, which will increase shareholder value.

Topics

[General]

- SDK and Cinnamon starts to develop database system equipped with AI to utilize technical documents

  SDK and Cinnamon Inc. (Cinnamon) decided to jointly develop a database system equipped with artificial intelligence (AI) to utilize technical documents. SDK and Cinnamon will promote the development of a database system with the object of utilizing technical documents, in which the system will be equipped with AI-based automatic OCR technology to accurately digitize data on paper containing handwritten characters and highly convenient data search function. The two parties will aim to create an intensely practical database system through close cooperation between Cinnamon which has deep expertise and programming technology on AI and image analysis, and SDK which holds abundant real data (technical documents) that contain expertise in many fields including petrochemical, carbon, and aluminum products. This development program has been accredited as a project to be subsidized by the New Energy and Technology Development Organization (NEDO) as a part of NEDO's "Program to Support Joint Development of AI Systems."

Topics

[General]

- **Acquired naming rights to athletic facilities of Oita Sports Park**

  In October 2018, SDK acquired the naming rights to athletic facilities of Oita Sports Park, located in Oita City, from Oita Prefecture. The naming rights are valid for five years, from March 1, 2019 to February 29, 2024. The rights cover 7 athletic facilities including the main multipurpose stadium, tennis courts and a baseball stadium. SDK will nickname these 7 facilities with names which include the name of the Company, “Showa Denko.” For example, SDK will nickname the main multipurpose stadium “Showa Denko Dome Oita.” SDK started operation of its Oita Petrochemical Complex in 1969 and has continued to aim for a harmonious relationship with the regional community for 50 years. Oita Sports Park is a symbolic facility of Oita Prefecture, and its athletic facilities are used for various sports events including football games of J. LEAGUE. A part of the fee for the naming rights SDK will pay to Oita Prefecture is to be used for promotion of sports and regional development. It is our pleasure to contribute to promotion of sports and regional development in Oita Prefecture in this way, and SDK aims to enhance its CSR activities further.

Topics

[Petrochemicals segment]

- JXTG Energy and SDK receive subsidy for project to strengthen bases of petroleum complexes in Oita Complex Area

  A joint project of SDK and JXTG Nippon Oil & Energy Corporation (JXTG Energy) to strengthen cooperation between oil refinery and petrochemical complex in Oita complex area (Oita City) has been adopted as a subject for the “2018 Subsidy Program to Support Projects to Enhance Resilience of Oil Supply System” (a program to subsidize projects to strengthen business bases of petroleum complexes among programs to enhance productivity and resilience of petroleum complexes) to which Consortium for Resilient Oil Supply System (CROS) organized public invitation. Details of the project are “increasing the number of propylene rectifying towers” and “establishment of an ethane holder.” By interchanging and utilizing products through pipelines, the two parties gain advantages. “Subsidy Program to Support Projects to Enhance Resilience of Oil Supply System” is institutionalized by the Agency of Natural Resources and Energy. The program aims to improve productivity of Japanese petroleum complexes which form the core of oil products supply system, secure business bases of those complexes which are essential for the sustainability of domestic oil supply network, and establish sustainable and stable oil products supply system in Japan. Through this joint project, SDK and JXTG Energy will make the most of strong points of facilities in the oil refinery and the petrochemical complex in Oita complex area, and make these complexes prosper with global competitiveness.

Topics

[Others segment]

- Decided to start the third time expansion of high-grade SiC epitaxial-wafer production facilities in the last 2 years

SDK decided to farther expand its capacity to produce high-quality-grade silicon carbide (SiC) epitaxial wafers for power semiconductors, which have already been marketed under the trade name of “High-Grade Epi” (HGE), in addition to currently conducted expansion work of the HGE production facilities. SDK has been gradually expanding its capacity to produce HGE, which was 3,000 wafers* per month in 2017 before these expansion works. After the additional expansion work decided this time, which is to be finished in February 2019, SDK’s HGE production capacity will be 9,000 wafers per month, which is three times as much as that in 2017. SDK’s SiC epitaxial wafer business has been acclaimed by power semiconductor manufacturers for the lowest incidence of crystal defects and the highest homogeneity of wafers in the world. SDK decided this time again to farther expand the HGE production facilities in order to respond to the growing need of our customers for HGE resulting from rapid growth of the market for SiC-based power semiconductors. When compared with the currently mainstream silicon-based semiconductors, SiC-based power semiconductors can operate under high-temperature, high-voltage, and high-current conditions, while conserving energy. These features enable device manufacturers to produce smaller, lighter, and more energy-efficient next-generation power control modules. In addition to the use in power modules for dispersion type power sources to utilize new energy sources, power modules for servers in data centers, and inverter modules for railcars, SiC-based power semiconductors are now replacing conventional silicon-based semiconductors for use in on-board battery chargers and rapid charging stations for EVs, in parallel with rapid expansion of the EV market. SDK will continue improving the quality of its SiC epitaxial wafer products and supplying them to the rapidly growing SiC power semiconductor market in timely and stable manner, while securing top-level market share.

*This number is based on a conversion into SiC epitaxial wafers for power devices having withstanding voltage of 1,200 V.

PROJECT 2020+

