kuraray

Kuraray Report 2019
Financial Section

For the year ended December 31, 2018

Financial Review

Kuraray Co., Ltd. and its consolidated subsidiaries / Year ended December 31, 2018

Business Environment

In the fiscal year ended December 31, 2018 (“fiscal 2018”), the world economy entered a downward trend. This was largely attributable to intensifying tensions due to U.S. trade policies and credit insecurity arising from the outflow of capital from emerging economies countering stable growth mainly centered in the United States and Europe. In the chemicals industry, corporate profits were held down, reflecting, in part, increases in raw material and fuel costs throughout the year. Amid this situation, although Kuraray's performance went according to plan in the cumulative consolidated third quarter, results ultimately ended up lower than the previous fiscal year by the fourth quarter.

The Kuraray Group launched the medium-term management plan “PROUD 2020” from fiscal 2018. It aims to achieve its long-term vision of becoming a “Specialty Chemical Company, growing sustainably by incorporating new foundational platforms into its own technologies.” We will steadily take specific measures related to the key management strategies underlined in the plan. We launched efforts to establish a new business portfolio from a medium- to long-term perspective.

Sales

(Billions of yen, rounded to the nearest hundred million)

	Fiscal 2018	Fiscal 2017	Change
Net Sales	**¥603.0**	¥518.4	+84.6
Operating Income	**65.8**	76.4	-10.6
Ordinary Income	**61.2**	74.2	-13.0
Net Income Attributable to Owners of the Parent	**33.6**	54.5	-20.9

Consequently, cumulative consolidated operating results for fiscal 2018 are as follows: net sales rose by ¥84,553 million, or 16.3%, compared with the previous fiscal year to ¥602,996 million; operating income declined by ¥10,557 million, or 13.8%, to ¥65,794 million; ordinary income decreased by ¥13,067 million, or 17.6%, to ¥61,167 million; and net income attributable to owners of the parent fell by ¥20,898 million, or 38.4%, to ¥33,560 million.

Furthermore, from fiscal 2018, we unified our method of evaluating products, raw materials, and work in process accounted for under inventories to the first-in, first-out method. Retroactively applying the new method, we have recalculated the previous year’s results to facilitate comparisons with the previous year’s business performance. In addition, from fiscal 2018, we changed the depreciation method and estimated useful lives used for tangible fixed assets as well as the method of allocating corporate costs to each segment.

In the previous fiscal year, the Clarino business was included in the Functional Materials segment. However, due to the organizational reforms carried out on January 1, 2018, the Company decided to move this business to the Fibers and Textiles segment. Comparisons and analyses for fiscal 2018 are based on the segmentation following this change.

In addition, the acquisition of Calgon Carbon Corporation was completed on March 9, 2018, and said company has been included in the scope of consolidation from fiscal 2018.

Results by Business Segment

(Billions of yen, rounded to the nearest hundred million)

	Net Sale		Operating Income	
	Fiscal 2018	Fiscal 2017	**Fiscal 2018**	Fiscal 2017
Vinyl Acetate	**¥ 279.4**	¥ 266.9	**¥ 54.7**	¥ 61.6
Isoprene	**57.2**	56.4	**7.3**	9.0
Functional Materials	**131.5**	55.2	**4.4**	6.7
Fibers and Textiles	**64.7**	66.4	**6.3**	7.6
Trading	**138.8**	131.7	**4.2**	3.9
Other Business	**58.0**	51.4	**1.2**	3.0
Elimination & Corporate	**(126.7)**	(109.5)	**(12.3)**	(15.4)
Total	**¥ 603.0**	¥ 518.4	**¥ 65.8**	¥ 76.4

Vinyl Acetate

Sales in this segment increased by 4.7% year on year to ¥279,379 million, and segment income fell by 11.2% year on year to ¥54,739 million. In addition, the aforementioned changes to the depreciation method and estimated useful lives used for tangible fixed assets as well as the method for allocating corporate costs negatively impacted segment income.

(1) As for PVA resin, results remained firm due to an increase in high-value added products, despite a decrease in sales volume. At the same time, sales of optical-use poval film rose due to a favorable expansion in demand. In addition, to respond to the growing display market and needs for larger panels, in the consolidated first quarter we decided to invest in new facilities at the Kurashiki Plant with operations expected to begin at the end of 2019. The sales volume of water-soluble PVA film and PVB film expanded but were impacted by the higher raw material and fuel prices.

(2) Sales of *EVAL* ethylene vinyl alcohol copolymer (EVOH resin) were affected by shutdown maintenance and a fire in May 2018 at the U.S. plant.

Isoprene

Sales in this segment increased by 1.5% year on year to ¥57,207 million, and segment income fell by 19.3% year on year to ¥7,272 million. In addition, Kuraray made an investment decision in the fourth quarter to construct a plant to produce butadiene derivatives in Thailand.

(1) Regarding isoprene chemicals and *SEPTON* thermoplastic elastomer, sales were affected by higher raw material and fuel costs throughout the year. In addition, deliveries declined from the latter half of the year, resulting in sales roughly equal to the previous year.

(2) The sales volume of *GENESTAR* heat-resistant polyamide resin expanded, especially for automotive and connector applications, but was impacted by higher raw material and fuel prices.

Functional Materials

Sales in this segment jumped by 138.3% year on year to ¥131,533 million, and segment income fell by 34.0% year on year to ¥4,396 million. From fiscal 2018 forward, Calgon Carbon Corporation results are included in consolidation.

(1) In the methacrylic resin business, sales were favorable due to an expansion in sales of high-value added products in addition to continuing healthy market conditions.

(2) In the medical business, sales were favorable, especially for cosmetic and restorative dentistry products.

(3) The performance of the Calgon Carbon business was affected by goodwill and other depreciation expenses, which were finalized in the fourth quarter. In the Carbon Materials business, the sales volume of general purpose applications decreased.

Fibers and Textiles

Sales of *CLARINO* man-made leather for use in sports shoes declined. In consumer goods and materials, sales of high-value-added *KURAFLEX* products expanded. However, sales of PVA fiber were negatively affected by lower exports and higher raw material and fuel costs. As a result, sales in this segment fell by 2.5% year on year to ¥64,716 million while segment income decreased by 16.8% year on year to ¥6,279 million.

Trading

In fiber-related businesses, clothing sales remained firm for sportswear and uniforms and sales of overseas sewn products also expanded. In addition, sales of resins and chemicals, particularly exports, were favorable. As a result, segment sales increased by 5.4% year on year to ¥138,848 million, and segment income climbed by 7.4% to ¥4,215 million.

Other Business

In other businesses, segment sales grew by 12.9% year on year to ¥58,025 million, and segment income fell by 61.0% to ¥1,178 million due to increased R&D and other costs.

Outlook for the Fiscal Year Ending December 31, 2019

In the next year, the outlook for the global economy is expected to grow significantly unclear, due mainly to the persistence of the trade war between the United States and China, political and economic upheaval in Europe arising mainly from BREXIT, and instability in crude oil prices caused by rising geopolitical risks in the Middle East. However, the global economy is expected to continue gradually expanding, driven by ongoing consumer-led economic growth in the United States, and healthy employment figures around the world.

Based on these circumstances, the forecast of operating results for fiscal 2019 is as shown below.

(Billions of yen, rounded to the nearest hundred million)

	Fiscal 2018	**Forecast for Fiscal 2019**	Change
Net Sales	¥603.0	**¥608.0**	+0.8%
Operating Income	65.8	**69.5**	+5.6%
Ordinary Income	61.2	**65.0**	+6.3%
Net Income Attributable to Owners of the Parent	33.6	**40.0**	+19.2%

[Reference] Forecast of Results by Segment for Fiscal 2019

(Billions of yen, rounded to the nearest hundred million)

	Net Sale		Operating Income	
	Fiscal 2018	**Forecast for Fiscal 2019**	Fiscal 2018	**Forecast for Fiscal 2019**
Vinyl Acetate	¥ 279.4	**¥ 283.0**	¥ 54.7	**¥ 56.5**
Isoprene	57.2	**58.0**	7.3	**7.5**
Functional Materials	131.5	**133.0**	4.4	**4.5**
Fibers and Textiles	64.7	**66.0**	6.3	**7.0**
Trading	138.8	**145.0**	4.2	**4.5**
Other Business	58.0	**57.0**	1.2	**1.5**
Elimination & Corporate	(126.7)	**(134.0)**	(12.3)	**(12.0)**
Total	¥ 603.0	**¥ 608.0**	¥ 65.8	**¥ 69.5**

Consolidated Balance Sheet

Kuraray Co., Ltd. and its consolidated subsidiaries / Year ended December 31, 2018

	Millions of yen		Thousands of U.S. dollars
	Fiscal 2018 (December 31, 2018)	Fiscal 2017 (December 31, 2017)	**Fiscal 2018 (December 31, 2018)**
ASSETS			
I Current assets:			
1 Cash and deposits	¥ 67,022	¥ 60,904	$ 603,801
2 Notes and accounts receivable—trade[*8]	128,107	113,876	1,154,117
3 Short-term investment securities	32,921	38,296	296,585
4 Merchandise and finished goods	101,081	86,041	910,639
5 Work-in-process	15,221	14,699	137,126
6 Raw materials and supplies	36,667	28,235	330,333
7 Deferred tax assets	3,794	7,198	34,180
8 Other	14,315	11,652	128,963
9 Allowance for doubtful accounts	(426)	(436)	(3,837)
Total current assets	398,705	360,468	3,591,936
II Noncurrent assets:			
1 Tangible fixed assets:			
(1) Buildings and structures, net[*2 and 7]	74,182	59,267	668,306
(2) Machinery, equipment and vehicles, net[*2]	204,215	164,803	1,839,774
(3) Land[*2 and 7]	22,707	19,671	204,567
(4) Construction in progress	49,468	38,187	445,657
(5) Other, net[*2]	6,837	5,266	61,594
Total tangible fixed assets[*1]	357,411	287,196	3,219,918
2 Intangible fixed assets:			
(1) Goodwill	66,485	24,567	598,963
(2) Customer-related assets	36,263	26,070	326,693
(3) Other	41,400	26,387	372,972
Total intangible fixed assets	144,150	77,024	1,298,648
3 Investments and other assets:			
(1) Investment securities[*3 and 7]	29,509	35,420	265,846
(2) Long-term loans receivable	218	229	1,963
(3) Net defined benefit assets	1,101	1,963	9,918
(4) Deferred tax assets	9,220	6,739	83,063
(5) Other	6,840	7,734	61,621
(6) Allowance for doubtful accounts	(40)	(42)	(360)
Total investments and other assets	46,849	52,045	422,063
Total noncurrent assets	548,411	416,266	4,940,639
TOTAL ASSETS	¥ 947,116	¥ 776,735	$ 8,532,576

The accompanying notes are an integral part of the financial information.

Consolidated Balance Sheet

Kuraray Co., Ltd. and its consolidated subsidiaries / Year ended December 31, 2018

	Millions of yen		Thousands of U.S. dollars
	Fiscal 2018 (December 31, 2018)	Fiscal 2017 (December 31, 2017)	**Fiscal 2018 (December 31, 2018)**
LIABILITIES			
I Current liabilities:			
1 Notes and accounts payable—trade[*8]	¥ 45,408	¥ 39,864	$ 409,081
2 Short-term loans payable[*7]	46,540	7,864	419,279
3 Accrued expenses	12,201	13,090	109,918
4 Income taxes payable	8,474	13,594	76,342
5 Provision for bonuses	6,681	6,000	60,189
6 Other provisions	266	8	2,396
7 Other[*8]	25,212	27,631	227,135
Total current liabilities	144,785	108,053	1,304,369
II Noncurrent liabilities:			
1 Bonds payable	50,000	10,000	450,450
2 Long-term loans payable[*7]	120,049	42,099	1,081,522
3 Deferred tax liabilities	24,972	15,251	224,972
4 Provision for directors' retirement benefits	237	224	2,135
5 Provision for environmental measures	5,716	6,184	51,495
6 Net defined benefit liabilities	18,065	14,597	162,747
7 Asset retirement obligations	5,070	4,469	45,675
8 Other	11,185	10,367	100,765
Total noncurrent liabilities	235,297	103,193	2,119,792
TOTAL LIABILITIES	380,083	211,247	3,424,171
NET ASSETS			
I Shareholders' equity:			
1 Capital stock	88,955	88,955	801,396
2 Capital surplus	87,207	87,219	785,648
3 Retained earnings	364,841	344,653	3,286,855
4 Treasury stock	(9,746)	(6,110)	(87,801)
Total shareholders' equity	531,257	514,718	4,786,099
II Accumulated other comprehensive income:			
1 Valuation difference on available-for-sale securities	7,822	13,007	70,468
2 Deferred gains or losses on hedges	1	(603)	9
3 Foreign currency translation adjustment	20,382	33,681	183,621
4 Remeasurements of defined benefit plans	(4,025)	(3,836)	(36,261)
Total accumulated other comprehensive income	24,181	42,248	217,846
III Subscription rights to shares	587	539	5,288
IV Noncontrolling interests	11,007	7,980	99,162
TOTAL NET ASSETS	567,033	565,487	5,108,405
TOTAL LIABILITIES AND NET ASSETS	¥ 947,116	¥ 776,735	$ 8,532,576

The accompanying notes are an integral part of the financial information.

Consolidated Statement of Income and Consolidated Statement of Comprehensive Income

Kuraray Co., Ltd. and its consolidated subsidiaries / Year ended December 31, 2018

Consolidated Statement of Income

	Millions of yen		Thousands of U.S. dollars
	Fiscal 2018 (January 1, 2018 to December 31, 2018)	Fiscal 2017 (January 1, 2017 to December 31, 2017)	**Fiscal 2018 (January 1, 2018 to December 31, 2018)**
I **Net sales**	**¥ 602,996**	¥ 518,442	**$ 5,432,396**
II **Cost of sales**[*2]	**410,453**	338,601	**3,697,774**
Gross profit	**192,542**	179,840	**1,734,612**
III **Selling, general and administrative expenses:**			
1 Selling expenses	**34,150**	28,236	**307,657**
2 General and administrative expenses[*2]	**92,598**	75,251	**834,216**
Total selling, general and administrative expenses[*1]	**126,748**	103,488	**1,141,873**
Operating income	**65,794**	76,351	**592,738**
IV **Non-operating income:**			
1 Interest income	**388**	266	**3,495**
2 Dividend income	**1,382**	1,541	**12,450**
3 Equity in earnings of affiliates	**333**	4	**3,000**
4 Other	**1,678**	1,409	**15,117**
Total non-operating income	**3,783**	3,221	**34,081**
V **Non-operating expenses:**			
1 Interest expenses	**1,280**	729	**11,531**
2 Foreign exchange losses	**2,139**	1,369	**19,270**
3 Loss on disposal of tangible fixed assets	**1,038**	558	**9,351**
4 Other	**3,951**	2,680	**35,594**
Total non-operating expenses	**8,409**	5,338	**75,756**
Ordinary income	**61,167**	74,235	**551,054**
VI **Extraordinary income:**			
1 Compensation income	**336**	—	**3,027**
2 Gain on transfer of know-how	**—**	2,500	**—**
3 Gain on sale of investment securities	**—**	1,352	**—**
Total extraordinary income	**336**	3,852	**3,027**
VII **Extraordinary loss:**			
1 Impairment loss[*3]	**6,662**	1,674	**60,018**
2 Loss on disaster [*4]	**1,877**	523	**16,909**
3 Costs related to the suspension of operations[*5]	**1,224**	—	**11,027**
4 Acquisition related expenses[*6]	**1,039**	1,465	**9,360**
5 Loss on disposal of tangible fixed assets[*7]	**657**	323	**5,918**
6 Provision for environmental measures	**—**	3,146	**—**
7 Loss on antitrust act[*8]	**—**	1,019	**—**
8 Loss on valuation of investment securities	**—**	556	**—**
Total extraordinary loss	**11,461**	8,709	**103,252**
Income before income taxes	**50,041**	69,377	**450,819**
Income taxes—current	**19,361**	21,047	**174,423**
Income taxes—deferred	**(3,919)**	(7,006)	**(35,306)**
Total income taxes	**15,441**	14,040	**139,108**
Net income	**34,599**	55,336	**311,702**
Net income attributable to noncontrolling interests	**1,038**	876	**9,351**
Net income attributable to owners of the parent	**¥ 33,560**	¥ 54,459	**$ 302,342**

Consolidated Statement of Income and Consolidated Statement of Comprehensive Income

Kuraray Co., Ltd. and its consolidated subsidiaries / Year ended December 31, 2018

Consolidated Statement of Comprehensive Income

	Millions of yen		Thousands of U.S. dollars
	Fiscal 2018 (January 1, 2018 to December 31, 2018)	Fiscal 2017 (January 1, 2017 to December 31, 2017)	**Fiscal 2018 (January 1, 2018 to December 31, 2018)**
I Net income	**¥ 34,599**	¥ 55,336	**$ 311,702**
II Other comprehensive income:			
1 Valuation difference on available-for-sale securities	**(5,186)**	2,094	**(46,720)**
2 Deferred gains or losses on hedges	**604**	(484)	**5,441**
3 Foreign currency translation adjustment	**(13,544)**	3,375	**(122,018)**
4 Remeasurements of defined benefit plans	**(188)**	500	**(1,693)**
Total other comprehensive income[*1]	**(18,314)**	5,485	**(164,990)**
III Comprehensive income	**16,285**	60,822	**146,711**
Comprehensive income attributable to			
1 Owners of the parent	**15,247**	59,936	**137,603**
2 Minority interests	**1,037**	885	**9,342**

The accompanying notes are an integral part of the financial information.

Consolidated Statement of Changes in Net Assets

Kuraray Co., Ltd. and its consolidated subsidiaries / Year ended December 31, 2018

	Millions of yen				
	Shareholders' equity				
Fiscal 2018 (January 1, 2018 to December 31, 2018)	Capital stock	Capital surplus	Retained earnings	Treasury stock	Total shareholders' equity
Balance at January 1, 2018	¥88,955	¥87,219	¥344,653	¥(6,110)	¥514,718
Changes of items during the period					
Cash dividends			(14,691)		(14,691)
Net income attributable to owners of the parent			33,560		33,560
Changes resulting from newly consolidated subsidiaries			14		14
Change in scope of equity method			1,303		1,303
Purchase of treasury stock				(3,735)	(3,735)
Disposal of treasury stock		(12)		98	86
Other		(0)			(0)
Net changes of items other than shareholders' equity					—
Total changes of items during the period	—	(12)	20,187	(3,636)	16,539
Balance at December 31, 2018	¥88,955	¥87,207	¥364,841	¥(9,746)	¥531,257

	Millions of yen							
	Accumulated other comprehensive income							
	Valuation difference on available-for-sale securities	Deferred gains or losses on hedges	Foreign currency translation adjustment	Remeasurements of defined benefit plans	Total accumulated other comprehensive income	Subscription rights to shares	Noncontrolling interests	Total net assets
Balance at January 1, 2018	¥13,007	¥(603)	¥33,681	¥(3,836)	¥42,248	¥539	¥7,980	¥565,487
Changes of items during the period								
Cash dividends					—			(14,691)
Net income attributable to owners of the parent					—			33,560
Changes resulting from newly consolidated subsidiaries					—			14
Change in scope of equity method					—			1,303
Purchase of treasury stock					—			(3,735)
Disposal of treasury stock					—			86
Other					—			(0)
Net changes of items other than shareholders' equity	(5,184)	604	(13,299)	(188)	(18,067)	47	3,026	(14,993)
Total changes of items during the period	(5,184)	604	(13,299)	(188)	(18,067)	47	3,026	1,545
Balance at December 31, 2018	¥7,822	¥1	¥20,382	¥(4,025)	¥24,181	¥587	¥11,007	¥567,033

The accompanying notes are an integral part of the financial information.

Consolidated Statement of Changes in Net Assets

Kuraray Co., Ltd. and its consolidated subsidiaries / Year ended December 31, 2018

	Thousands of U.S. dollars				
	Shareholders' equity				
Fiscal 2018 (January 1, 2018 to December 31, 2018)	Capital stock	Capital surplus	Retained earnings	Treasury stock	Total shareholders' equity
Balance at January 1, 2018	$ 801,396	$ 785,756	$ 3,104,981	$ (55,045)	$ 4,637,099
Changes of items during the period					
Cash dividends			(132,351)		(132,351)
Net income attributable to owners of the parent			302,342		302,342
Changes resulting from newly consolidated subsidiaries			126		126
Change in scope of equity method			11,738		11,738
Purchase of treasury stock				(33,648)	(33,648)
Disposal of treasury stock		(108)		882	774
Other		0			0
Net changes of items other than shareholders' equity					—
Total changes of items during the period		(108)	181,864	(32,756)	149,000
Balance at December 31, 2018	$ 801,396	$ 785,648	$ 3,286,855	$ (87,801)	$ 4,786,099

	Thousands of U.S. dollars							
	Accumulated other comprehensive income							
	Valuation difference on available-for-sale securities	Deferred gains or losses on hedges	Foreign currency translation adjustment	Remeasurements of defined benefit plans	Total accumulated other comprehensive income	Subscription rights to shares	Noncontrolling interests	Total net assets
Balance at January 1, 2018	$ 117,180	$ (5,432)	$ 303,432	$ (34,558)	$ 380,612	$ 4,855	$ 71,891	$ 5,094,477
Changes of items during the period								
Cash dividends					—			(132,351)
Net income attributable to owners of the parent					—			302,342
Changes resulting from newly consolidated subsidiaries					—			126
Changes in scope of equity method					—			11,738
Purchase of treasury stock					—			(33,648)
Disposal of treasury stock					—			774
Other					—			(0)
Net changes of items other than shareholders' equity	(46,702)	5,441	(119,810)	(1,693)	(162,765)	423	27,261	(135,072)
Total changes of items during the period	(46,702)	5,441	(119,810)	(1,693)	(162,765)	423	27,261	13,918
Balance at December 31, 2018	$ 70,468	$ 9	$ 183,621	$ (36,261)	$ 217,846	$ 5,288	$ 99,162	$ 5,108,405

The accompanying notes are an integral part of the financial information.

Consolidated Statement of Changes in Net Assets

Kuraray Co., Ltd. and its consolidated subsidiaries / Year ended December 31, 2018

	Millions of yen				
	Shareholders' equity				
Fiscal 2017 (January 1, 2017 to December 31, 2017)	Capital stock	Capital surplus	Retained earnings	Treasury stock	Total shareholders' equity
Balance at January 1, 2017	¥88,955	¥87,178	¥304,277	¥(3,972)	¥476,439
Cumulative effect of changes in accounting policies			129		129
Restated balance	88,955	87,178	304,407	(3,972)	476,568
Changes of items during the period					
Cash dividends			(14,420)		(14,420)
Net income attributable to owners of the parent			54,459		54,459
Changes of scope of consolidation			172		172
Purchase of treasury stock				(2,892)	(2,892)
Disposal of treasury stock		64		754	819
Changes in equity due to transactions with noncontrolling interests		0			0
Other		(23)	33		10
Net changes of items other than shareholders' equity					—
Total changes of items during the period	—	41	40,246	(2,137)	38,149
Balance at December 31, 2017	¥88,955	¥87,219	¥344,653	¥(6,110)	¥514,718

	Millions of yen							
	Accumulated other comprehensive income							
	Valuation difference on available-for-sale securities	Deferred gains or losses on hedges	Foreign currency translation adjustment	Remeasurements of defined benefit plans	Total accumulated other comprehensive income	Subscription rights to shares	Noncontrolling interests	Total net assets
Balance at January 1, 2017	¥10,913	¥(110)	¥30,054	¥(4,336)	¥36,520	¥ 719	¥7,300	¥520,978
Cumulative effect of changes in accounting policies					—		22	152
Restated balance	10,913	(110)	30,054	(4,336)	36,520	719	7,322	521,130
Changes of items during the period								
Cash dividends					—			(14,420)
Net income attributable to owners of the parent					—			54,459
Changes of scope of consolidation					—			172
Purchase of treasury stock					—			(2,892)
Disposal of treasury stock					—			819
Changes in equity due to transactions with noncontrolling interests					—			0
Other					—			10
Net changes of items other than shareholders' equity	2,094	(492)	3,627	500	5,728	(179)	658	6,207
Total changes of items during the period	2,094	(492)	3,627	500	5,728	(179)	658	44,356
Balance at December 31, 2017	¥13,007	¥(603)	¥33,681	¥(3,836)	¥42,248	¥539	¥7,980	¥565,487

The accompanying notes are an integral part of the financial information

Consolidated Statement of Cash Flows

Kuraray Co., Ltd. and its consolidated subsidiaries / Year ended December 31, 2018

		Millions of yen		Thousands of U.S. dollars
		Fiscal 2018 (January 1, 2018 to December 31, 2018)	Fiscal 2017 (January 1, 2017 to December 31, 2017)	**Fiscal 2018** (January 1, 2018 to December 31, 2018)
I	**Net cash provided by (used in) operating activities:**			
1	Income before income taxes	¥ 50,041	¥ 69,377	$ 450,819
2	Depreciation and amortization	56,698	42,965	510,792
3	Increase (decrease) in allowance for doubtful accounts	(207)	(17)	(1,864)
4	Loss on disposal of tangible fixed assets	657	323	5,918
5	Impairment loss	6,662	1,674	60,018
6	Provision for environmental measures	—	3,146	—
7	Foreign exchange losses (gains)	704	1,145	6,342
8	Interest and dividends income	(1,771)	(1,807)	(15,954)
9	Interest expenses	1,280	729	11,531
10	Decrease (increase) in notes and accounts receivable—trade	(1,001)	(7,294)	(9,018)
11	Decrease (increase) in inventories	(9,096)	(14,835)	(81,945)
12	Increase (decrease) in notes and accounts payable—trade	(2,082)	3,031	(18,756)
13	Loss (gain) on valuation of investment securities	—	556	—
14	Loss (gain) on sale of investment securities	—	(1,352)	—
15	Increase (decrease) in provision for bonuses	181	659	1,630
16	Increase (decrease) in net defined benefit liabilities	(737)	1,727	(6,639)
17	Decrease (increase) in net defined benefit assets	(259)	(285)	(2,333)
18	Other, net	(4,831)	1,473	(43,522)
	Sub-total	96,238	101,217	867,009
19	Interest and dividends income received	1,936	1,794	17,441
20	Interest expenses paid	(1,199)	(729)	(10,801)
21	Income taxes (paid) refund	(21,804)	(17,675)	(196,432)
	Net cash provided by (used in) operating activities	75,171	84,606	677,216
II	**Net cash provided by (used in) investment activities:**			
1	Net decrease (increase) in time deposits	1,709	(4,459)	15,396
2	Net decrease (increase) in short-term investment securities	(1,345)	(17,456)	(12,117)
3	Purchase of investment securities	(150)	(1,036)	(1,351)
4	Proceeds from sales and redemption of investment securities	625	1,561	5,630
5	Purchase of tangible fixed assets and intangible fixed assets	(65,957)	(55,419)	(594,207)
6	Payments for disposal of tangible fixed assets and intangible fixed assets	(1,525)	(1,047)	(13,738)
7	Proceeds from sales of tangible fixed assets and intangible fixed assets	99	59	891
8	Purchase of stocks of subsidiaries resulting in change in scope of consolidation[*2]	(119,814)	—	(1,079,405)
9	Other, net	(624)	(2,097)	(5,621)
	Net cash provided by (used in) investment activities	(186,982)	(79,896)	(1,684,522)
III	**Net cash provided by (used in) financing activities:**			
1	Net increase(decrease) in short-term loans payable	26,715	232	240,675
2	Proceeds from long-term loans payable	90,000	—	810,810
3	Repayment of long-term loans payable	(25,860)	(85)	(232,972)
4	Proceeds from issuance of bonds	40,000	—	360,360
5	Purchase of treasury stock	(3,735)	(2,892)	(33,648)
6	Proceeds from sales of treasury stock	59	529	531
7	Cash dividends paid	(14,691)	(14,420)	(132,351)
8	Proceeds from stock issuance to noncontrolling interests	2,254	—	20,306
9	Cash dividends paid to noncontrolling interests	(265)	(227)	(2,387)
10	Other, net	(388)	(312)	(3,495)
	Net cash provided by (used in) financing activities	114,088	(17,176)	1,027,819
IV	**Effect of exchange rate changes on cash and cash equivalents**	(1,210)	(882)	(10,900)
V	**Net increase (decrease) in cash and cash equivalents**	1,065	(13,349)	9,594
VI	**Cash and cash equivalents, beginning of year**	70,234	83,389	632,738
VII	**Increase in cash and cash equivalents from newly consolidated subsidiaries**	45	193	405
VIII	**Cash and cash equivalents, end of year**[*1]	¥ 71,345	¥ 70,234	$ 642,747

The accompanying notes are an integral part of the financial information.

1 Significant Accounting Policies

1. Basis of presenting consolidated financial statements

The accompanying consolidated financial statements of Kuraray Co., Ltd. (the "Company") and its consolidated subsidiaries are prepared on the basis of accounting principles generally accepted in Japan, which are different in certain respects as to application and disclosure requirements of International Financial Reporting Standards, and are filed with the Japanese Ministry of Finance (the "MOF") as required by the Financial Instruments Exchange Law of Japan. The accompanying consolidated financial statements are translations of those filed with the MOF.

Each amount in the consolidated financial statements and notes is rounded down to the nearest 1 million yen (in the case of the translation into the United States dollars, they have been rounded down to the nearest 1 thousand dollars).

The United States dollar amounts included herein are provided solely for the convenience of readers outside Japan and are stated, at the rate of ¥111=$1, the approximate exchange rate prevailing on December 31, 2018. The translations should not be construed as representations that the Japanese yen amounts have been, could have been, or could in the future be, converted into the United States dollars at this or any other rate.

2. Scope of consolidation

(1) Number of consolidated subsidiaries

	Fiscal 2018	Fiscal 2017
Number of consolidated subsidiaries	77	39

(Major consolidated subsidiaries)

KURARAY TRADING Co., LTD., Kuraray Plastics Co., Ltd., KURARAY ENGINEERING CO., LTD., Kuraray Techno Co., Ltd., KURARAYKURAFLEX CO., LTD., KURARAY AQUA CO., LTD., TECHNO SOFT CO., LTD., Kuraray Travel Service Corporation, KURARAY SAIJO CO., LTD., KURARAY TAMASHIMA COMPANY, LIMITED, Iruma Country Club Co., Ltd., KURASHIKI KOKUSAI HOTEL LTD., KURARAY FASTENING CO., LTD., Kuraray Noritake Dental Inc., OKAYAMA RINKOH CO., LTD., Kuraray Holdings U.S.A., Inc., Kuraray America, Inc., MonoSol Holdings, Inc., MonoSol, LLC, Calgon Carbon Corporation, Kuraray Europe GmbH, EVAL Europe N.V., Kuraray Hong Kong Co., Ltd., Kuraray Asia Pacific Pte. Ltd., Kuraray (Shanghai) Co., Ltd., Kuraray China Co., Ltd., Kuraray Korea Ltd., Plantic Technologies Limited and 49 other consolidated subsidiaries.

In the fiscal year ended December 31, 2018 (fiscal 2018), the Company purchased all the shares of Calgon Carbon Corporation. As a result, Calgon Carbon Corporation and its 34 subsidiaries were added to the scope of consolidation. Moreover, newly established subsidiaries, which are Kuraray SC (Thailand) Co., Ltd., Kuraray Advanced Chemicals (Thailand) Co., Ltd. and Kuraray GC Advanced Materials Co., Ltd. were added to the scope of consolidation. In addition, Kuraray Specialities (Thailand) Co., Ltd. was added to the scope of consolidation due to its increased significance.

In the fiscal 2018, the Company's consolidated subsidiary KURARAY TRADING Co., LTD. merged the Company's another consolidated subsidiary KURARAY LIVING CO., LTD., which was removed from the scope of consolidation.

(2) Names of major unconsolidated subsidiaries

(Major unconsolidated subsidiaries)

Kuraray Okayama Spinning Co., Ltd.

Kuraray South America Ltda.

(Reasons for excluding from the scope of consolidation)

The total assets, total sales and net income and loss (amount corresponding to the owned interest) and retained earnings (amount corresponding to the owned interest) of the unconsolidated subsidiaries have no material effect on the consolidated financial statements.

3. Scope of application of equity method affiliates and subsidiaries

(1) Number of unconsolidated subsidiaries accounted for using the equity method

	Fiscal 2018	Fiscal 2017
Number of unconsolidated subsidiaries accounted for using the equity method	**1**	1

(Name of unconsolidated subsidiaries, etc.)

Kuraray Okayama Spinning Co., Ltd.

(2) Number of affiliates accounted for using the equity method

	Fiscal 2018	Fiscal 2017
Number of affiliates accounted for using the equity method	**2**	0

(Name of major unconsolidated subsidiaries, etc.)

Hexin Kuraray Micro Fiber Leather (Jiaxing) Co., Ltd. and the other

In the fiscal 2018, Hexin Kuraray Micro Fiber Leather (Jiaxing) Co., Ltd. was added to the scope of application of equity method due to its increased significance. Moreover, due to the purchase of all shares of Calgon Carbon Corporation, its affiliate Calgon Carbon (Thailand) Co., Ltd. was added to the scope of application of equity method.

(3) Unconsolidated subsidiaries and affiliates (Kuraray South America Ltda. and Cenapro Chemical Corporation) have not been accounted for using the equity method, because their net income and loss and retained earnings (amount corresponding to the owned interest) have no material effect on the consolidated financial statements.

4. Fiscal years of consolidated subsidiaries

The closing date of the consolidated subsidiaries is the same as the consolidated closing date.

5. Accounting policies

(1) Valuation standards and methods for significant assets

a) Investment securities

Available-for-sale securities for which a market price is available are stated at fair value at the year-end. (Net unrealized gains or losses on these securities are recorded as a separate component in "Net assets," net of tax amount. The cost of securities sold is determined based on the moving-average cost of all such securities held at the time of sale.) Other securities for which a market price is not available are stated at cost determined by the moving-average method.

b) Derivative financial instruments

All derivatives are stated at fair value.

c) Inventories

Finished goods, raw materials, and work-in-process are principally stated at the lower of cost determined by the first-in, first-out method or net realizable value.

Supplies are principally stated at the lower of cost determined by the moving-average method or net realizable value.

(2) Depreciation method of significant depreciable assets

a) Tangible fixed assets (excluding lease assets)

Depreciation is primarily computed using the straight-line method.

The estimated useful lives of assets are primarily as follows:

- Buildings and structures…… 31 to 50 years
- Machinery, equipment and vehicles…..... 4 to 10 years

b) Intangible assets (excluding lease assets)

Amortization is primarily computed using the straight-line method.

The numbers of years for amortization are primarily as follows:

- Goodwill……. 15 to 20 years
- Customer-related assets……... 9 to 20 years

However, all minor amounts are charged or credited to income directly in the year of acquisition.

c) Lease assets

Amortization is primarily computed using the straight-line method that adopts the lease terms as the useful lives with the residual value being zero.

(3) Accounting for significant allowance

a) Allowance for doubtful accounts

The Company and its consolidated subsidiaries provide for doubtful accounts principally at an amount computed based on the historical bad debt ratio during a certain reference period plus an estimated uncollectible amount based on the analysis of certain individual accounts.

b) Provision for bonuses

Provision for bonuses is stated at the estimated amount of the bonuses to be paid to employees based on services provided for the fiscal year.

c) Provision for directors' retirement benefits

Some of the consolidated subsidiaries accrue the liabilities for their retirement benefits for directors and corporate auditors, which is, in general, based upon the amounts required by the subsidiaries' internal regulations.

d) Provision for environmental measures

In order to provide for payments on disposal of polychlorinated biphenyl (PCB) wastes removed from the noncurrent assets and stored, and for expenditure on soil remediation work, a provision is made based on the estimated disposal cost.

(4) Accounting treatment of retirement benefit plan

a) Method for attributing estimated retirement benefits to individual periods of service

In calculating benefit obligation, the benefit formula basis was used to attribute estimated retirement benefits to periods up to December 31, 2018.

b) Calculation of net actuarial gain or loss and prior service cost

Prior service cost is amortized on a straight-line basis over a certain period (mainly 15 years), which falls within the average remaining years of service of the eligible employees. Actuarial gains or losses are amortized on a straight-line basis over a certain period (mainly 15 years), which falls within the average remaining years of service of the eligible employees, allocated proportionately commencing the year following the year in which each respective gain or loss occurred.

c) Use of simplified method among small companies

Certain consolidated subsidiaries calculate retirement benefit liabilities and expenses using the simplified method that assumes their benefit obligation is equal to the benefits payable if all employees voluntarily retired at fiscal year-end.

(5) Significant hedge accounting

a) Hedge accounting

The Company and its consolidated subsidiaries adopt the method for hedging instruments whereby any gains or losses are deferred over the period of the hedging contract and are offset against the deferred losses or gains on the related hedged items, which include forward foreign exchange contracts associated with planned transactions denominated in foreign currencies and commodity swaps associated with raw materials. However, deferral hedge accounting is applied to forward foreign exchange contracts used to hedge foreign currency denominated loans, and when an interest rate swap contract meets certain conditions, the net amount to be paid or received under the contract is added to or deducted from the interest on the hedged items.

b) Hedging instruments and hedged items

Hedging instruments	Hedged items
Forward foreign exchange contracts	Foreign currency-denominated loans Future transactions in foreign currency
Interest rate swap contracts	Interest expenses
Commodity swap contracts	Raw materials

c) Hedging policy

The Company and its consolidated subsidiaries use financial instruments to hedge interest rate fluctuation, exchange fluctuation risks and price fluctuation risks in accordance with their internal policies and procedures.

d) Assessment method for hedge accounting

The Company identifies and confirms the material conditions and measures the effectiveness of forward foreign exchange contracts associated with planned transactions denominated in foreign currencies and commodity swaps associated with raw materials.

Subsequent measurement of hedge effectiveness is not considered necessary for forward foreign exchange contracts that meet the requirements for deferral hedge accounting and interest rate swaps that meet the requirements for special accounting because the Company identifies and confirms the material conditions at the time of transaction.

(6) Amortization of goodwill

The Company amortizes goodwill using the straight-line method over the estimated period of benefit with the exception of minor amounts, which are charged or credited to income directly in the year of acquisition.

(7) Cash and cash equivalents

Cash and cash equivalents include all highly liquid investments with a maturity of three months or less, that are readily convertible to known amounts of cash which are subject to an insignificant risk of changes in value.

(8) Other accounting policies

Accounting for consumption tax

Consumption tax and local consumption tax on goods and services are not included in the revenue and expenses amounts.

2 Changes in Accounting Policies, etc.

1. Changes in accounting policies

Changes in inventories evaluation method

Previously, the Company and some of its consolidated subsidiaries principally applied the weighted average method to evaluate finished goods, raw materials and work-in-process under inventories. However, they have principally applied first-in, first-out (FIFO) method from fiscal 2018. Such change in the accounting policies has been retroactively applied and the consolidated financial statements for the previous fiscal year have been restated accordingly.

Due to accelerating global business expansion over the last few years, the Company's overseas inventories and net sales ratios have been growing. This prompted the Company to reconsider its inventories evaluation method from perspectives of appropriate inventories evaluation, proper calculation of profit and loss, and Group-wide unification of accounting policies, which is why the Company carried out the change. As a result, the Company concluded that adopting the FIFO method is reasonable in terms of appropriate inventories evaluation and proper calculation of profit and loss, and reflects the Group's actual business condition more suitably, because the method better fits with the flow of inventories owned by the Company and some of its consolidated subsidiaries.

Because of this change, operating income in the previous fiscal year increased by ¥1,234 million and ordinary income and income before income taxes in the previous fiscal year increased by ¥1,236 million compared to the figures before the retroactive application. In addition, due to the cumulative effect of the change in the accounting policies on the book value of net assets at the beginning of the previous fiscal year, the balance of retained earnings at the beginning of the previous fiscal year increased by ¥129 million after the retroactive application.

In the Consolidated Statement of Cash Flows in the previous fiscal year, under net cash provided by (used in) operating activities, income before income taxes increased by ¥1,236 million, decrease (increase) in inventories decreased by ¥1,234 million, and other, net decreased by ¥1 million.

Reflecting the retroactive application of the cumulative

effect on net assets at the beginning of the previous fiscal year, retained earnings at the beginning of that fiscal year in the Consolidated Statement of Changes in Net Assets increased by ¥129 million and noncontrolling interests increased by ¥22 million.

The impact on per share information is detailed in the corresponding section.

2. Changes of accounting estimates and changes in accounting policies that are difficult to differentiate from changes of accounting estimates

Changes in depreciation method and estimated useful lives of tangible fixed assets

In principle, the Company and its domestic consolidated subsidiaries originally used the declining-balance method to depreciate tangible fixed assets (excluding lease assets), except for buildings, and structures purchased on and after April 1, 2016. However, they have applied the straight-line method from fiscal 2018.

Due to accelerating global business expansion over the last few years, the Company's overseas production facilities ratio has been growing. This prompted the Company to reconsider the depreciation method used for tangible fixed assets from perspectives of proper calculation of profit and loss and Group-wide unification of accounting policies, which is why the Company carried out the change. As a result, the Company concluded that adopting the straight-line method as a means to depreciate tangible fixed assets is reasonable in terms of calculation of profit and loss, and reflects the Group's actual business condition more suitably, because the tangible fixed assets owned by the Company and its consolidated subsidiaries are running stably, which means their depreciation amounts will also be steady.

In addition, the Group depreciated machinery and equipment on the basis of estimated useful lives of between 4 and 20 years. However, the Group has switched the estimated useful lives to 10 years in general.

The aforementioned changes in the business environment prompted the Company to reconsider the estimated useful lives of machinery and equipment from perspectives of proper calculation of profit and loss and Group-wide unification of accounting policies, and to estimate a financially viable period that incorporates actual usage conditions based on the global supply structure, which is why the Company carried out the change. As a result, the Company concluded that the general 10-year depreciation is reasonable in terms of calculation of profit and loss, and reflects the Group's actual business condition more suitably.

The abovementioned changes resulted in increases of ¥2,215 million (US$19,954 thousand) in operating income, ordinary income, and income before income taxes, respectively, compared with the figures under the previous methods.

3 Accounting Standards Issued but Not Yet Applied

The Company and its domestic subsidiaries and affiliates

· "Accounting Standard for Revenue Recognition" (ASBJ Statement No. 29, March 30, 2018)

· "Implementation Guidance on Accounting Standard for Revenue Recognition" (ASBJ Guidance No. 30, March 30, 2018)

(1) Outline

These are comprehensive accounting standards for revenue recognition. Revenue is recognized by applying the following five steps:

Step 1: Identify the contract with a customer.

Step 2: Identify the performance obligations in the contract.

Step 3: Determine the transaction price.

Step 4: Allocate the transaction price to the performance obligations in the contract.

Step 5: Recognize revenue when or immediately after the entity satisfies each performance obligation.

(2) Expected Application Date

The timing of introduction is currently under consideration.

(3) Effect of Applying the Accounting Standard

The impact is being evaluated at the time of preparation of these consolidated financial statements.

Overseas subsidiaries and affiliates

Newly established or amended major accounting standards that were announced before December 31, 2018 and not applied, are as follows. The impact on the consolidated financial statements from the application of these accounting standards, etc. is being evaluated at the time of preparation of these consolidated financial statements.

Name of accounting standard	Outline	Expected application date
"Leases" (IFRS 16)	Revised accounting treatments of lease accounting	To be applied from the fiscal year ending December 31, 2019
"Leases" (FASB ASU 2016-02)	Revised accounting treatments of lease accounting	To be applied from the fiscal year ending December 31, 2020

4 Changes in Presentation

From fiscal 2018, "Personnel expenses for seconded employees" under "Non-operating expenses," which was separately presented in the previous fiscal year, is included in "Other" because its amount is not more than 10/100 of total non-operating expenses. The financial statements for the previous fiscal year have been restated to reflect this change in presentation method.

As a result, ¥625 million presented as "Personnel expenses for seconded employees" under "Non-operating expenses" and ¥2,055 million presented as "Other" in the Consolidated Statement of Income for the previous fiscal year, were reclassified as ¥2,680 million in "Other."

5 Notes to Consolidated Balance Sheet

*1. Accumulated depreciation of tangible fixed assets

	Millions of yen		Thousands of U.S. dollars
	Fiscal 2018	Fiscal 2017	**Fiscal 2018**
Accumulated depreciation of tangible fixed assets	**¥795,391**	¥722,484	**$7,165,684**

*2. Accumulated amount of reduced-value entry as a result of receiving government subsidies, and so on that are subtracted from the acquisition price of tangible fixed assets

	Millions of yen		Thousands of U.S. dollars
	Fiscal 2018	Fiscal 2017	**Fiscal 2018**
Buildings and structures	**¥2,394**	¥2,065	**$21,567**
Machinery, equipment and vehicles	**1,675**	1,511	**15,090**
Land	**1,257**	1,257	**11,324**
Other	**22**	30	**198**

*3. Investments in unconsolidated subsidiaries and affiliates

	Millions of yen		Thousands of U.S. dollars
	Fiscal 2018	Fiscal 2017	**Fiscal 2018**
Investment securities (equity)	**¥6,076**	¥4,696	**$54,738**

*4. Commitments and contingencies

The Company is contingently liable for guarantees for bank loans of unconsolidated subsidiaries, affiliates and others.

The company names and the guarantees of their liabilities are as follows:

	Millions of yen		Thousands of U.S. dollars
	Fiscal 2018	Fiscal 2017	**Fiscal 2018**
Social welfare corporation Ishii Kinen Aizenen	**¥789**	¥920	**$7,108**
Kuraray India Private Limited	**47**	—	**423**
Total	**¥836**	¥920	**$7,531**

*5. Additional payment under share purchase agreement

The acquisition of Plantic Technologies Limited and subsidiaries includes an earn-out provision, whereby, based on specified performance targets, up to an additional $86.7 million may be required to be paid.

*6. Lawsuit due to a fire accident

In connection with a fire accident that occurred at the Company's subsidiary in the United States, a lawsuit to pay compensation for the damages was filed against several companies including the said subsidiary in the United States. Regarding the claims for the damages, it is difficult to reasonably estimate the likelihood and amount at the present time.

*7. Assets pledged as collateral and secured liabilities

	Millions of yen		Thousands of U.S. dollars
	Fiscal 2018	Fiscal 2017	**Fiscal 2018**
Investment securities [Note]	**¥46**	¥46	**$414**
Buildings	**682**	729	**6,144**
Land	**1,001**	1,001	**9,018**
Total	**¥1,730**	¥1,776	**$15,585**

	Millions of yen		Thousands of U.S. dollars
	Fiscal 2018	Fiscal 2017	**Fiscal 2018**
Collateral for short-term loans	**¥170**	¥170	**$1,531**
Collateral for long-term loans	**—**	4	**—**
Total	**¥170**	¥174	**$1,531**

Note: The above investment securities have been provided as collateral for loans of Mizushima Eco-works Co., Ltd.

*8. Accounting for notes with maturity dates at fiscal year-end

Notes with maturity dates at fiscal year-end and fixed-date cash settlements (a method of cash settlement on the same terms as notes) are accounted for and settled as of the date of maturity. As the fiscal year-end fell on a bank holiday, the following amounts of notes and accounts receivable and payable with maturity dates at fiscal year-end were accounted for and settled as of the date of maturity.

	Millions of yen		Thousands of U.S. dollars
	Fiscal 2018	Fiscal 2017	**Fiscal 2018**
Notes and accounts receivable—trade	**¥6,455**	¥5,686	**$58,153**
Notes and accounts payable—trade	**4,100**	3,744	**36,936**
Other (Current liabilities)	**521**	510	**4,693**

6 Notes to Consolidated Statement of Income

*1. Major items and the amounts under “Selling, general and administrative expenses” are as follows:

	Millions of yen		Thousands of U.S. dollars
	Fiscal 2018	Fiscal 2017	**Fiscal 2018**
Freight and storage	**¥24,247**	¥20,218	**$218,441**
Research and development	**19,833**	19,661	**178,675**
Salaries and legal welfare expense	**26,283**	19,478	**236,783**
Provision for bonuses	**6,195**	5,725	**55,810**
Retirement benefit expenses	**1,537**	1,483	**13,846**
Provision for directors’ retirement benefits	**4**	5	**36**

*2. Research and development expenses included in general, administrative and current manufacturing expenses

	Millions of yen		Thousands of U.S. dollars
	Fiscal 2018	Fiscal 2017	**Fiscal 2018**
	¥21,160	¥20,961	**$190,630**

*3. Impairment loss

The significant component of impairment loss is as follows:

Fiscal 2018

Location	Assets	Usage	Type	Impairment loss	
				Millions of yen	Thousands of U.S. dollars
Australia	Business assets	Assets related to films using biomass	Goodwill, etc.	**¥4,986**	**$44,918**
U.S.A.	Business assets	Result of research and development activities related to industrial-use film	In-process research and development	**1,325**	**11,936**

Fiscal 2017

Location	Assets	Usage	Type	Impairment loss
				Millions of yen
Tainai City, Niigata Prefecture	Business assets	Thermoplastic resin manufacturing equipment	Machinery and equipment	¥1,256
U.S.A.	Business assets	Result of research and development activities related to industrial-use film	In-process research and development	224

(Identifying the cash-generating unit to which an asset belongs)

As a minimum unit for generating cash flow, business assets are grouped into sections used for management accounting, and leased assets, idle assets, and assets associated with discontinued or reorganized businesses are assessed individually. Other head office and research facilities are assessed as shared assets.

(Method for calculating the recoverable amount)

After separately examining the indications for impairment with respect to those businesses whose income from operations continues to be negative, for businesses whose recoverable amount falls short of the book value, the book value is to be reduced to the recoverable amount. The recoverable amount is measured based on the value in use, and is calculated by discounting expected future cash flows at a rate of 3%.

*4. Loss on disaster

For the previous fiscal year, disaster losses were due mainly to hurricanes in the United States, and for fiscal 2018, disaster losses were due mainly to the fire accident in the United States.

*5. Costs related to the suspension of operations

The costs related to the suspension of operations are mainly the amounts equivalent to fixed costs during the period of the suspension of production.

*6. Acquisition related expenses

Costs incurred in acquiring Calgon Carbon Corporation

*7. Loss on disposal of tangible fixed assets

Expense for removing equipment rendered unnecessary by business closure, etc.

*8. Loss on antitrust act

Expenditure related to antitrust violation in the bidding of specific PVA fiber products

7 Notes to Consolidated Statement of Comprehensive Income

Reclassification adjustments and tax effect adjustments relating to other comprehensive income (loss) for the fiscal years ended December 31, 2018 and December 31, 2017, are as follows:

	Millions of yen		Thousands of U.S. dollars
	Fiscal 2018	Fiscal 2017	**Fiscal 2018**
Valuation difference on available-for-sale securities			
Amount recorded during the period	**¥(7,554)**	¥2,450	**$(68,054)**
Reclassification adjustments	**316**	225	**2,846**
Before tax effect adjustments	**(7,238)**	2,675	**(65,207)**
Tax effect	**2,052**	(581)	**18,486**
Valuation difference on available-for-sale securities	**(5,186)**	2,094	**(46,720)**
Deferred gains or losses on hedges			
Amount recorded during the period	**245**	(782)	**2,207**
Reclassification adjustments	**636**	89	**5,729**
Before tax effect adjustments	**882**	(693)	**7,945**
Tax effect	**(277)**	208	**(2,495)**
Deferred gains or losses on hedges	**604**	(484)	**5,441**
Foreign currency translation adjustment			
Amount recorded during the period	**(13,544)**	3,375	**(122,018)**
Reclassification adjustments	**—**	—	**—**
Before tax effect adjustments	**(13,544)**	3,375	**(122,018)**
Tax effect	**—**	—	**—**
Foreign currency translation adjustment	**(13,544)**	3,375	**(122,018)**
Remeasurements of defined benefit plans			
Amount recorded during the period	**(1,077)**	(298)	**(9,702)**
Reclassification adjustments	**774**	1,100	**6,972**
Before tax effect adjustments	**(302)**	802	**(2,720)**
Tax effect	**114**	(302)	**1,027**
Remeasurements of defined benefit plans	**(188)**	500	**(1,693)**
Total other comprehensive income	**¥ (18,314)**	¥5,485	**$(164,990)**

8 Notes to Consolidated Statement of Changes in Net Assets

Fiscal 2018

1. Type and number of issued shares of common stock and treasury stock

	Number of shares as of December 31, 2017 (Thousands of shares)	Increase in the number of shares (Thousands of shares)	Decrease in the number of shares (Thousands of shares)	Number of shares as of December 31, 2018 (Thousands of shares)
Number of outstanding shares				
Common stock	354,863	—	—	354,863
Total	354,863	—	—	354,863
Number of outstanding shares				
Common stock (Notes 1, 2)	4,040	2,203	64	6,179
Total	4,040	2,203	64	6,179

Notes: 1. The increase in treasury stock (common stock) is attributable to the acquisition of treasury stock by resolution of the Board of Directors (2,200 thousand shares) and the purchase of less-than-one unit shares (3 thousand shares).
2. The decrease in treasury stock (common stock) is attributable to a transfer of shares upon the exercise of subscription rights (64 thousand shares) and the sale of less-than-one unit shares by the shareholders (0 thousand shares).

2. Subscription rights to shares

The Company granted its directors, executive officers, employees, and directors and employees of its subsidiaries subscription rights to the Company shares as stock options. The balance of the subscription rights to shares as of December 31, 2018 is ¥587 million (US$5,288 thousand).

3. Dividends

(1) Amount of dividends paid

Resolution	Type of share	Amount of dividends (Millions of yen)	Dividend per share (Yen)	Record date	Effective date
General shareholders' meeting held on March 23, 2018	Common stock	¥7,718 (US$69,531 thousand)	¥22.00 (US$0.19)	December 31, 2017	March 26, 2018
Board of directors' meeting held on August 9, 2018 and August 23, 2018	Common stock	¥6,973 (US$62,819 thousand)	¥20.00 (US$0.18)	June 30, 2018	September 3, 2018

(2) Dividends whose effective date is after the end of Fiscal 2018 and record date is included in Fiscal 2018.

Resolution	Type of share	Amount of dividends (Millions of yen)	Source of dividends	Dividend per share (Yen)	Record date	Effective date
General shareholders' meeting held on March 27, 2019	Common stock	¥7,671 (US$69,108 thousand)	Retained earnings	¥22.00 (US$0.19)	December 31, 2018	March 28, 2019

Fiscal 2017

1. Type and number of issued shares of common stock and treasury stock

	Number of shares as of December 31, 2016 (Thousands of shares)	Increase in the number of shares (Thousands of shares)	Decrease in the number of shares (Thousands of shares)	Number of shares as of December 31, 2017 (Thousands of shares)
Number of outstanding shares				
Common stock	354,863	—	—	354,863
Total	354,863	—	—	354,863
Number of outstanding shares				
Common stock (Notes 1, 2)	3,363	1,304	628	4,040
Total	3,363	1,304	628	4,040

Notes: 1. The increase in treasury stock (common stock) is attributable to the acquisition of treasury stock by resolution of the Board of Directors (1,300 thousand shares) and the purchase of less-than-one unit shares (4 thousand shares).
2. The decrease in treasury stock (common stock) is attributable to a transfer of shares upon the exercise of subscription rights (628 thousand shares) and the sale of less-than-one unit shares by the shareholders (0 thousand shares).

2. Subscription rights to shares

The Company granted its directors, executive officers, employees, and directors and employees of its subsidiaries subscription rights to the Company shares as stock options. The balance of the subscription rights to shares as of December 31, 2017 is ¥539 million.

3. Dividends

(1) Amount of dividends paid

Resolution	Type of share	Amount of dividends (Millions of yen)	Dividend per share (Yen)	Record date	Effective date
General shareholders' meeting held on March 24, 2017	Common stock	¥7,381	¥21.00	December 31, 2016	March 27, 2017
Board of directors' meeting held on August 9, 2017	Common stock	¥7,038	¥20.00	June 30, 2017	September 1, 2017

(2) Dividends whose effective date is after the end of Fiscal 2017 and record date is included in Fiscal 2017.

Resolution	Type of share	Amount of dividends (Millions of yen)	Source of dividends	Dividend per share (Yen)	Record date	Effective date
General shareholders' meeting held on March 23, 2018	Common stock	¥7,718	Retained earnings	¥22.00	December 31, 2017	March 26, 2018

9 Notes to Consolidated Statement of Cash Flows

*1. Cash and cash equivalents at December 31, 2018 and December 31, 2017 are reconciled to the accounts reported in the consolidated balance sheet as follows:

	Millions of yen		Thousands of U.S. dollars
	Fiscal 2018	Fiscal 2017	**Fiscal 2018**
Cash on hand and in banks	**¥67,022**	¥60,904	**$603,801**
Time deposits with a deposit period of 3 months or more	**(3,800)**	(5,509)	**(34,234)**
Marketable securities with original maturities of 3 months or less	**8,123**	14,839	**73,180**
Total	**¥71,345**	¥70,234	**$642,717**

*2. Assets and liabilities of companies which newly became consolidated subsidiaries due to purchase of shares

Fiscal 2018

Described below are assets and liabilities at the time of consolidation due to consolidation of Calgon Carbon Corporation and its subsidiaries as a result of the purchase of shares and the relationship between the purchase price of the shares of Calgon Carbon Corporation and the expenditure for the purchase:

	Millions of yen	Thousands of U.S. dollars
Current assets	¥ 39,420	$ 355,135
Noncurrent assets	96,850	872,522
Goodwill	50,511	455,054
Current liabilities	(17,045)	(153,558)
Noncurrent liabilities	(46,240)	(416,576)
Purchase price	123,497	1,112,585
Cash and cash equivalents	(3,683)	(33,180)
Expenditure for the purchase	¥119,814	$ 1,079,405

Fiscal 2017

Not applicable.

10 Leases

1. Finance lease transactions

(1) Lease transactions as a lessee

Finance leases without transfer of ownership

1) Details of lease assets

a) Tangible fixed assets

Mainly vehicles used at plants, including forklifts, buildings and equipment, etc., related to manufacturing ("Machinery and Equipment", "Buildings and Structures"), OA equipment, including personal computers and printers, and servers ("Other").

b) Intangible fixed assets

Software ("Other")

2) Depreciation method of lease assets

As described in the basis of presenting consolidated financial statements "1. Significant Accounting Policies, 5. Accounting policies (2) Depreciation method of significant depreciable assets"

(2) Lease transactions as a lessor

Finance lease transactions without transfer of ownership that commenced on or before March 31, 2008 are accounted for on a basis similar to operating leases. The details of such transactions are as follows.

Disclosure of finance lease transactions which commenced on or after April 1, 2008 is omitted due to less materiality.

1) Lease acquisition costs, accumulated depreciation and net book value as of December 31, 2018 and December 31, 2017 are as follows:

December 31, 2018

	Millions of yen		
	Acquisition cost	Accumulated depreciation	Net book value
Buildings and structures	**¥197**	**¥108**	**¥88**
Total	**¥197**	**¥108**	**¥88**

	Thousands of U.S. dollars		
	Acquisition cost	Accumulated depreciation	Net book value
Buildings and structures	**$1,774**	**$972**	**$792**
Total	**$1,774**	**$972**	**$792**

December 31, 2017

	Millions of yen		
	Acquisition cost	Accumulated depreciation	Net book value
Buildings and structures	¥197	¥105	¥92
Total	¥197	¥105	¥92

2) Future lease payment obligations at December 31, 2018 and December 31, 2017 are as follows:

	Millions of yen		Thousands of U.S. dollars
	Fiscal 2018	Fiscal 2017	**Fiscal 2018**
Due within one year	**¥13**	¥13	**$117**
Due after one year	**29**	42	**261**
Total	**¥43**	¥56	**$387**

Note: As the proportion of total balance of future lease payment obligations and estimated residual value of leased property to the balance of notes and accounts receivables—trade at the balance sheet date is immaterial, interest income is included in the amount of future lease payment obligations.

3) Lease revenue and depreciation expense for the years ended December 31, 2018 and December 31, 2017 are as follows:

	Millions of yen		Thousands of U.S. dollars
	Fiscal 2018	Fiscal 2017	**Fiscal 2018**
Lease revenue	**¥13**	¥13	**$117**
Depreciation expense	**3**	3	**27**

2. Operating leases

Lease transactions as a lessee:

Future lease payment obligations under operating leases at December 31, 2018 and December 31, 2017 are as follows:

	Millions of yen		Thousands of U.S. dollars
	Fiscal 2018	Fiscal 2017	**Fiscal 2018**
Due within one year	**¥ 3,131**	¥ 2,225	**$ 28,207**
Due after one year	**13,126**	9,011	**118,252**
Total	**¥16,258**	¥11,237	**$146,468**

11 Financial Instruments

1. Outline of financial instruments

(1) Policy for financial instruments

The Group raises funds necessary to conduct its business mainly through bank loans or issuance of bonds. Temporary cash surpluses, if any, are invested in low risk financial assets. Derivatives are used, not for speculative purposes, but to manage exposure to financial risks as described below.

(2) Nature and extent of risks arising from financial instruments

Receivables such as notes and accounts receivable–trade are exposed to customer credit risk. Trade receivables denominated in foreign currencies are exposed to foreign currency exchange fluctuation risk.

Short-term investment securities and investment securities, mainly consisting of beneficiary securities on investment trusts, certificates of deposit and others held for management of capital surpluses and stocks in companies with which the Company has a business relationship are exposed to the risk of market price fluctuations.

Payment terms of payables, such as notes and accounts payable–trade, are mostly less than one year. Payables in foreign currencies incurred mainly from import of raw materials are exposed to foreign currency exchange fluctuation risk. Those risks are mostly offset by receivable balances denominated in the same foreign currency.

Loans, bonds and lease obligations related to finance lease transactions, used to raise funds for working capital and capital expenditures, have maturities of at the longest 28 years from the balance sheet date. The debts bearing floating interest rates are exposed to interest rate fluctuation risk, although a part of the exposure is hedged through use of derivatives (interest rate swaps).

Derivative transactions include forward foreign currency contracts and currency swaps for the purpose of hedging foreign currency

exchange fluctuation risk resulting from receivables and payables denominated in foreign currencies, interest rate swaps for the purpose of hedging interest rate fluctuation risk resulting from variable interest expenses on debts and commodity swaps for the purpose of hedging price fluctuation risk resulting from raw materials. Please refer to "(5) Significant hedge accounting" under "1. Significant Accounting Policies, 5. Accounting policies" for a description of the Company's accounting policy relating to hedging activities.

(3) Risk management for financial instruments

a. *Credit Risk Management (customers' default risk)*

The Company manages and mitigates customer credit risk from trade receivables on the basis of internal rules concerning credit management, which include monitoring of payment terms and balances of customers to identify default risk at an early stage.

With respect to loan receivables and liability guarantee agreements, the Company manages its exposure to credit risk by periodically identifying the financial position of the debtors. With respect to financial assets held for managing capital surplus, its credit risk is minimal because the investments are limited to issuers with high credit ratings in accordance with internal rules concerning fund management. The Company enters into derivative transactions only with financial institutions that have high credit ratings in order to mitigate counterparty risks.

b. *Market Risk Management (foreign currency exchange and interest rate fluctuation risks)*

The Company and certain consolidated subsidiaries principally use forward foreign exchange contracts to hedge foreign currency exchange fluctuation risk exposure in connection with trade receivables and payables denominated in foreign currencies. Depending on foreign currency exchange rate conditions, trade receivables and payables denominated in foreign currencies that are expected to be generated based on export and import forecasts are hedged using forward foreign exchange contracts with limited contract periods of around half a year. The Company also hedges certain scheduled nontrading transactions denominated in foreign currencies that it expects to generate.

In addition, the Company uses currency swap and interest rate swap contracts to mitigate foreign currency exchange fluctuation risk exposure in connection with long-term loans receivable in foreign currencies and interest rate fluctuation risk exposure in connection with long-term loans payable.

Some consolidated subsidiaries use commodity swaps to control price fluctuation risks in connection with raw materials.

With respect to short-term investment securities and investment securities, the Company periodically monitors fair values or financial status of the related issuers. With respect to stocks in companies with which the Company has a business relationship, the Company continuously checks the necessity for holding them, taking into account the business relationship.

The Company manages derivative transactions in accordance with internal rules that regulate delegation of authority concerning derivative transactions.

c. *Liquidity Risk Management on Fund Raising*

Liquidity risk comprises the risk that the Group cannot meet its contractual obligations in full at the respective maturity dates. The Group manages its liquidity risk by diversifying its fund raising instruments, obtaining commitment lines from several financial institutions and adjusting short-term and long-term funding balances in consideration of market environments.

(4) Supplementary explanation concerning fair values of financial instruments

Fair values of financial instruments comprise values determined based on market prices and values determined reasonably when there is no market price. Since variable factors are incorporated in computing the relevant fair values, such fair values may vary depending on the different assumptions. The notional amounts and other information described in Note 13. "Derivative Financial Instruments" are not indicative of market risk exposure to derivative transactions.

2. Fair values of financial instruments

Carrying amount, fair value and unrealized gain/loss of the financial instruments as of December 31, 2018 and December 31, 2017 are as follows:

Financial instruments whose fair values are not readily determinable are excluded from the following table:

Fiscal 2018

	Millions of yen		
	Carrying amount	Fair value	Unrealized gain (loss)
(1) Cash and deposits	¥ 67,022	¥ 67,022	¥ —
(2) Notes and accounts receivable—trade	128,107		
Allowance for doubtful accounts	(426)		
	127,681	127,681	—
(3) Short-term investment securities and investment securities Available-for-sale securities	53,710	53,710	—
Total assets	248,413	248,413	—
(1) Notes and accounts payable—trade	45,408	45,408	—
(2) Bonds	50,000	50,515	515
(3) Long-term loans payable (*1)	132,099	133,820	1,720
Total liabilities	227,508	229,744	2,236
Derivative transactions (*2)	708	708	—

	Thousands of U.S. dollars		
	Carrying amount	Fair value	Unrealized gain (loss)
(1) Cash and deposits	$ 603,801	$ 603,801	$ —
(2) Notes and accounts receivable—trade	1,154,117		
Allowance for doubtful accounts	(3,837)		
	1,150,279	1,150,279	—
(3) Short-term investment securities and investment securities Available-for-sale securities	483,873	483,873	—
Total assets	2,237,954	2,237,954	—
(1) Notes and accounts payable—trade	409,081	409,081	—
(2) Bonds	450,450	455,090	4,639
(3) Long-term loans payable (*1)	1,190,081	1,205,585	15,495
Total liabilities	2,049,621	2,069,765	20,144
Derivative transactions (*2)	6,378	6,378	—

Fiscal 2017

	Millions of yen		
	Carrying amount	Fair value	Unrealized gain (loss)
(1) Cash and deposits	¥ 60,904	¥ 60,904	¥ —
(2) Notes and accounts receivable—trade	113,876		
Allowance for doubtful accounts	(436)		
	113,440	113,440	—
(3) Short-term investment securities and investment securities Available-for-sale securities	66,381	66,381	—
Total assets	240,726	240,726	—
(1) Notes and accounts payable—trade	39,864	39,864	—
(2) Bonds	10,000	10,479	479
(3) Long-term loans payable (*1)	42,172	43,544	1,372
Total liabilities	92,037	93,889	1,852
Derivative transactions (*2)	(2,649)	(2,649)	—

(*1) Long-term loans payable include the current portion of long-term loans payable.

(*2) Receivables and payables incurred as a result of derivative transactions are presented on a net basis. Net payables are presented in parentheses.

Notes: 1. Calculation method of fair values of financial instruments and securities and derivative transactions

Assets:

(1) Cash and deposits and (2) Notes and accounts receivable—trade

These assets are recorded using book values because fair values approximate book values because of their short-term maturities.

(3) Short-term investment securities and investment securities

The fair values of these assets are determined using the quoted market price on applicable stock exchanges. Other instruments are determined using the quoted price obtained from financial institutions.

Liabilities:

(1) Notes and accounts payable–trade

These payables are recorded using book values because fair values approximate book values because of their short-term maturities.

(2) Bonds

The fair value of bonds is determined at the present value that is calculated by discounting the aggregated values of the principal and interest using an interest rate reflecting the remaining terms of the Company’s bonds and the credit risk.

(3) Long-term loans payable

The fair values of long-term loans payable are determined by discounting the aggregated values of the principal and interest using an assumed interest rate based on the interest rate that would be applied to a new loan of a similar nature.

Long-term loans payable bearing floating interest rates are hedged using interest rate swap contracts and the fair values of these loans payable are determined by discounting the aggregated values of the principal and interest accounted for together with the related interest rate swap contracts using a reasonably estimated interest rate based on the interest rate that would be applied to a new loan of a similar nature.

Derivative financial instruments:

Please see Note 13. “Derivative Financial Instruments.”

2. Financial instruments whose fair values are not readily determinable

Category	Millions of yen		Thousands of U.S. dollars
	Carrying amount		Carrying amount
	Fiscal 2018 (December 31, 2018)	Fiscal 2017 (December 31, 2017)	**Fiscal 2018**
Unlisted equity securities	**¥8,720**	¥7,331	**$78,558**

These items are not included in "(3) Short-term investment securities and investment securities," because there is no market price, future cash flows cannot be estimated and it is very difficult to identify fair values.

3. Redemption schedule of monetary assets and securities with contractual maturities

Fiscal 2018

	Millions of yen			
	Within one year	One to five years	Five to ten years	Over ten years
Cash and deposits	**¥ 67,022**	**¥—**	**¥—**	**¥—**
Notes and accounts receivable—trade	**128,107**	**—**	**—**	**—**
Short-term investment securities and investment securities:				
o/w Securities with contractual maturities:				
(1) Bonds (Corporate)	**7,800**	**—**	**—**	**—**
(2) Bonds (Others)	**4,000**	**—**	**—**	**—**
(3) Others	**21,123**	**—**	**—**	**—**
Total	**¥228,052**	**¥—**	**¥—**	**¥—**

	Thousands of U.S. dollars			
	Within one year	One to five years	Five to ten years	Over ten years
Cash and deposits	**$603,801**	**$—**	**$—**	**$—**
Notes and accounts receivable—trade	**1,154,117**	**—**	**—**	**—**
Short-term investment securities and investment securities:				
o/w Securities with contractual maturities:				
(1) Bonds (Corporate)	**70,270**	**—**	**—**	**—**
(2) Bonds (Others)	**36,036**	**—**	**—**	**—**
(3) Others	**190,297**	**—**	**—**	**—**
Total	**$2,054,522**	**$—**	**$—**	**$—**

Fiscal 2017

	Millions of yen			
	Within one year	One to five years	Five to ten years	Over ten years
Cash and deposits	¥ 60,904	¥—	¥—	¥—
Notes and accounts receivable—trade	113,876	—	—	—
Short-term investment securities and investment securities:				
o/w Securities with contractual maturities:				
(1) Bonds (Corporate)	2,999	—	—	—
(2) Bonds (Others)	—	—	—	—
(3) Others	35,296	—	—	—
Total	¥213,076	¥—	¥—	¥—

4. Redemption schedule of bonds, long-term loans payable and lease obligations after the balance sheet date:

Fiscal 2018

	Millions of yen					
	Within one year	One to two years	Two to three years	Three to four years	Four to five years	Over five years
Bonds	¥ —	¥ —	¥20,000	¥ —	¥10,000	¥20,000
Long-term loans payable	12,050	33	15	25,000	19,600	75,400
Lease obligations	433	383	306	232	168	407
Total	¥12,483	¥416	¥20,322	¥25,232	¥29,768	¥95,807

	Thousands of U.S. dollars					
	Within one year	One to two years	Two to three years	Three to four years	Four to five years	Over five years
Bonds	$ —	$ —	$180,180	$ —	$90,090	$180,180
Long-term loans payable	108,558	297	135	225,225	176,576	679,279
Lease obligations	3,900	3,450	2,756	2,090	1,513	3,666
Total	$112,459	$3,747	$183,081	$227,315	$268,180	$863,126

Fiscal 2017

	Millions of yen					
	Within one year	One to two years	Two to three years	Three to four years	Four to five years	Over five years
Bonds	¥ —	¥ —	¥ —	¥10,000	¥ —	¥ —
Long-term loans payable	72	12,050	33	15	10,000	20,000
Lease obligations	394	347	299	223	161	526
Total	¥467	¥12,397	¥333	¥10,239	¥10,161	¥20,526

12 Securities

1. Available-for-sale securities with market value

Fiscal 2018

	Millions of yen			Thousands of U.S. dollars		
	Book value (estimated fair value)	Cost	Net	Book value (estimated fair value)	Cost	Net
Securities with book value exceeding their acquisition cost						
Equity securities	¥20,289	¥ 9,612	¥10,677	$182,783	$86,594	$96,189
Bonds						
Government and municipal	—	—	—	—	—	—
Corporate	—	—	—	—	—	—
Others	3,000	2,999	0	27,027	27,018	0
Others	—	—	—	—	—	—
Subtotal	23,290	12,611	10,678	209,819	113,612	96,198
Securities with book value not exceeding their acquisition cost						
Equity securities	499	754	(254)	4,495	6,792	(2,288)
Bonds						
Government and municipal	—	—	—	—	—	—
Corporate	7,796	7,800	(3)	70,234	70,270	(27)
Others	1,001	1,002	(1)	9,018	9,027	(9)
Others	21,123	21,123	—	190,297	190,297	—
Subtotal	30,420	30,679	(259)	274,054	276,387	(2,333)
Total	¥53,710	¥43,291	¥10,418	$483,873	$390,009	$93,855

Note: Unlisted equity securities amounting to ¥2,644 million (US$23,819 thousand) are excluded from the above table, because there is no market price and it is very difficult to identify fair values.

Fiscal 2017

	Millions of yen		
	Book value (estimated fair value)	Cost	Net
Securities with book value exceeding their acquisition cost			
Equity securities	¥27,744	¥ 9,969	¥17,774
Bonds			
Government and municipal	—	—	—
Corporate	—	—	—
Others	—	—	—
Others	—	—	—
Subtotal	27,744	9,969	17,774
Securities with book value not exceeding their acquisition cost			
Equity securities	341	461	(120)
Bonds			
Government and municipal	—	—	—
Corporate	2,999	2,999	—
Others	—	—	—
Others	35,296	35,296	—
Subtotal	38,637	38,757	(120)
Total	¥66,381	¥48,727	¥17,654

Note: Unlisted equity securities amounting to ¥2,635 million are excluded from the above table, because there is no market price and it is very difficult to identify fair values.

2. Available-for-sale securities sold during the fiscal year

Fiscal 2018

	Millions of yen			Thousands of U.S. dollars		
	Proceeds from sales	Total gain	Total loss	Proceeds from sales	Total gain	Total loss
Others	**¥403**	**¥316**	**¥(0)**	**$3,630**	**$2,846**	**$(0)**
Total	**¥403**	**¥316**	**¥(0)**	**$3,630**	**$2,846**	**$(0)**

Notes: 1. Attributable to sale of stock.

2. Securities for which it is difficult to identify fair value are excluded from the above table.

Fiscal 2017

	Millions of yen		
	Proceeds from sales	Total gain	Total loss
Others	¥931	¥782	¥—
Total	¥931	¥782	¥—

Notes: 1. Attributable to sale of stock.

2. Securities for which it is difficult to identify fair value are excluded from the above table.

3. Impairment loss on securities

The Company recognized impairment loss on securities of ¥155 million (US$1,396 thousand) in fiscal 2018 and ¥610 million in fiscal 2017.

As for the available-for-sale securities for which market prices are available, the Company recognizes impairment loss when the fair value of such securities as of the fiscal year end declines to less than 50% of acquisition cost. When the fair value declines to between 30% and 50% of the acquisition cost, the Company considers the recoverability of each security and recognizes impairment for the amount deemed necessary. As for the available-for-sale securities for which market prices are not available, the Company recognizes impairment loss in the amount deemed necessary when the fair value of such securities declines significantly.

13 Derivative Financial Instruments

1. Derivative transactions to which hedge accounting is not applied

(1) Currencies

Fiscal 2018

Category	Classification	Millions of yen			
		Nominal amount	Nominal amount due after one year	Market value	Unrealized gain (loss)
Transactions other than market transactions	Forward foreign exchange contracts:				
	Receipts in Yen/Payments in U.S. dollar	¥66,763	¥—	¥260	¥260
	Receipts in Yen/Payments in Euro	14,666	—	201	201
	Receipts in Yen/Payments in Australian dollar	5,417	—	240	240
	Receipts in U.S. dollar/Payments in Yuan	1,208	—	4	4
	Receipts in Euro/Payments in U.S. dollar	1,472	—	(11)	(11)
	Receipts in Singapore dollar/Payments in U.S. dollar	1,168	—	(8)	(8)
	Other	2,015	—	3	3
	Non-deliverable forward foreign exchange transaction:				
	Receipts in Yen/Payments in Won	4,413	—	1	1
Total		¥97,125	¥—	¥692	¥692

Category	Classification	Thousands of U.S. dollars			
		Nominal amount	Nominal amount due after one year	Market value	Unrealized gain (loss)
Transactions other than market transactions	Forward foreign exchange contracts:				
	Receipts in Yen/Payments in U.S. dollar	$601,468	$—	$2,342	$2,342
	Receipts in Yen/Payments in Euro	132,126	—	1,810	1,810
	Receipts in Yen/Payments in Australian dollar	48,801	—	2,162	2,162
	Receipts in U.S. dollar/Payments in Yuan	10,882	—	36	36
	Receipts in Euro/Payments in U.S. dollar	13,261	—	(99)	(99)
	Receipts in Singapore dollar/Payments in U.S. dollar	10,522	—	(72)	(72)
	Other	18,153	—	27	27
	Non-deliverable forward foreign exchange transaction:				
	Receipts in Yen/Payments in Won	39,756	—	9	9
Total		$875,000	$—	$6,234	$6,234

Notes: 1. Market values of forward foreign exchange contracts and non-deliverable forward foreign exchange transaction at the end of the fiscal year are calculated using forward exchange rates.

2. The forward foreign exchange contracts and non-deliverable forward foreign exchange transaction above are mainly those set with claims and liabilities to consolidated subsidiaries as the hedged items.

Fiscal 2017

Category	Classification	Millions of yen			
		Nominal amount	Nominal amount due after one year	Market value	Unrealized gain (loss)
Transactions other than market transactions	Forward foreign exchange contracts:				
	Receipts in Yen/Payments in U.S. dollar	¥32,373	¥ —	¥(882)	¥(882)
	Receipts in Yen/Payments in Euro	19,680	735	(488)	(488)
	Receipts in Yen/Payments in Yuan	169	—	(5)	(5)
	Receipts in Yen/Payments in Australian dollar	4,637	167	(202)	(202)
	Receipts in U.S. dollar/Payments in Yen	824	—	(7)	(7)
	Receipts in U.S. dollar/Payments in Australian dollar	0	—	(0)	(0)
	Receipts in Euro/Payments in Yen	143	—	2	2
	Receipts in Euro/Payments in Australian dollar	37	—	(0)	(0)
	Non-deliverable forward foreign exchange transaction:				
	Receipts in Yen/Payments in Won	3,378	—	(194)	(194)
Total		¥61,247	¥902	¥(1,779)	¥(1,779)

Notes: 1. Market values of forward foreign exchange contracts and non-deliverable forward foreign exchange transaction at the end of the fiscal year are calculated using forward exchange rates.
2. The forward foreign exchange contracts and non-deliverable forward foreign exchange transaction above are mainly those set with claims and liabilities to consolidated subsidiaries as the hedged items.

2. Derivative transactions to which hedge accounting is applied

(1) Currencies

Fiscal 2018

Hedge accounting method	Classification	Major hedged items	Fiscal 2018 (As of December 31, 2018)					
			Millions of yen			Thousands of U.S. dollars		
			Nominal amount	Nominal amount over one year	Market value	Nominal amount	Nominal amount over one year	Market value
Allocation method	Forward foreign exchange contracts:							
	Receipts in Yen/ Payments in U.S. dollar	Accounts receivable—trade	¥ 528	¥—	Note	$4,756	$—	Note
	Receipts in Yen/ Payments in Baht	Loans receivable	153	—	Note	1,378	—	Note
	Receipts in U.S. dollar/ Payments in Yen	Accounts payable—trade	115	—	Note	1,036	—	Note
	Other	Accounts receivable—trade	35	—	Note	315	—	Note
Total			¥833	¥—		$7,504	$—	

Note: With respect to forward foreign exchange contracts whose exchange rates are used for translating accounts receivable—trade, loans receivable or accounts payable—trade, market values of forward foreign exchange contracts are included in the market values of the relevant accounts receivable—trade, loans receivable or accounts payable—trade, since they are used for recording accounts receivable—trade, loans receivable or accounts payable-trade as hedged items.

Hedge accounting method	Classification	Major hedged items	Fiscal 2018 (As of December 31, 2018) Millions of yen Nominal amount	Millions of yen Nominal amount over one year	Millions of yen Market value	Thousands of U.S. dollars Nominal amount	Thousands of U.S. dollars Nominal amount over one year	Thousands of U.S. dollars Market value
Deferred hedge method	Forward foreign exchange contracts:							
	Receipts in Yen/ Payments in U.S. dollar	Forecasted transactions in foreign currencies	¥2,381	¥—	¥ 1	$21,450	$—	$9
	Receipts in Yen/ Payments in Euro	Forecasted transactions in foreign currencies	1,286	—	0	11,585	—	$0
	Receipts in U.S. dollar/Payments in Euro	Forecasted transactions in foreign currencies	1,176	177	32	10,594	1,594	288
	Other	Forecasted transactions in foreign currencies	1,010	—	(11)	9,099	—	(99)
Total			¥5,854	¥177	¥22	$52,738	$1,594	$198

Note: Market values of forward foreign exchange contracts at the end of the fiscal year are calculated using forward exchange rates.

Fiscal 2017

Hedge accounting method	Classification	Major hedged items	Fiscal 2017 (As of December 31, 2017) Millions of yen Nominal amount	Millions of yen Nominal amount over one year	Millions of yen Market value
Allocation method	Forward foreign exchange contracts:				
	Receipts in Yen/ Payments in U.S. dollar	Accounts receivable—trade	¥ 706	¥—	Note
	Receipts in Yen/ Payments in Euro	Accounts receivable—trade	15	—	Note
	Receipts in Yen/ Payments in Baht	Loans receivable	172	—	Note
	Receipts in U.S. dollar/ Payments in Yen	Accounts payable—trade	133	—	Note
Total			¥1,028	¥—	

Note: With respect to forward foreign exchange contracts whose exchange rates are used for translating accounts receivable—trade, loans receivable or accounts payable—trade, market values of forward foreign exchange contracts are included in the market values of the relevant accounts receivable-trade, loans receivable or accounts payable—trade, since they are used for recording accounts receivable—trade, loans receivable or accounts payable-trade as hedged items.

Hedge accounting method	Classification	Major hedged items	Fiscal 2017 (As of December 31, 2017) Millions of yen Nominal amount	Nominal amount over one year	Market value
Deferred hedge method	Forward foreign exchange contracts:				
	Receipts in Yen/ Payments in U.S. dollar	Forecasted transactions in foreign currencies	¥ 1,813	¥—	¥2
	Receipts in Yen/ Payments in Euro	Forecasted transactions in foreign currencies	1,221	—	(1)
	Receipts in Yen/ Payments in Yuan	Forecasted transactions in foreign currencies	57	—	(0)
	Receipts in U.S. dollar/Payments in Yen	Forecasted transactions in foreign currencies (Note 2)	125,824	—	(870)
Total			¥128,916	¥—	¥(870)

Notes: 1. Market values of forward foreign exchange contracts at the end of the fiscal year are calculated using forward exchange rates.

2. Forecasted transactions in foreign currencies represent primarily foreign exchange contracts related to acquisition funds.

(2) Interest rate

Fiscal 2018

Hedge accounting method	Classification	Major hedged items	Millions of yen		
			Nominal amount	Nominal amount over one year	Market value
Special treatment For interest rate swaps	Interest rate swaps: Floating rate into fixed rate	Long-term loans payable	**¥26,000**	**¥26,000**	**Note**

Hedge accounting method	Classification	Major hedged items	Thousands of U.S. dollars		
			Nominal amount	Nominal amount over one year	Market value
Special treatment For interest rate swaps	Interest rate swaps: Floating rate into fixed rate	Long-term loans payable	**$234,234**	**$234,234**	**Note**

Note: With respect to interest rate swap contracts which meet certain conditions, market values of the interest rate swap contracts are included in the market values of the relevant long-term loans payable, since they are used for recording long-term loans payable as hedged items.

Fiscal 2017

Hedge accounting method	Classification	Major hedged items	Millions of yen		
			Nominal amount	Nominal amount over one year	Market value
Special treatment For interest rate swaps	Interest rate swaps: Floating rate into fixed rate	Long-term loans payable	¥26,000	¥26,000	Note

Note: With respect to interest rate swap contracts which meet certain conditions, market values of the interest rate swap contracts are included in the market values of the relevant long-term loans payable, since they are used for recording long-term loans payable as hedged items.

(3) Commodity

Fiscal 2018

Hedge accounting method	Classification	Major hedged items	Millions of yen		
			Nominal amount	Nominal amount over one year	Market value
Deferred hedge method	Commodity swaps: Floating rate into fixed rate	Raw material	**¥110**	**¥20**	**¥(6)**

Hedge accounting method	Classification	Major hedged items	Thousands of U.S. dollars		
			Nominal amount	Nominal amount over one year	Market value
Deferred hedge method	Commodity swaps: Floating rate into fixed rate	Raw material	**$990**	**$180**	**$(54)**

Note: Market values are calculated based on the prices provided by financial institutions the Company entered into the contracts with.

Fiscal 2017

Not applicable.

14 Retirement Benefits

1. Summary of retirement benefit plan

The Company and certain consolidated subsidiaries provide retirement benefits to employees with funded and unfunded defined benefits plans and a defined contribution plan. Certain consolidated subsidiaries participate in a multi-employer plan and account for their contributions to this fund as a retirement benefit expense because the plan assets that correspond to the contribution of each participant cannot be reasonably calculated.

The funded defined benefits plan provides a lump sum payment or a pension primarily based on qualifications and length of service. The Company and certain consolidated subsidiaries are introducing a cash-balance plan to the defined benefits plan. The cash-balance plan establishes hypothetical individual employee accounts representing each employee's share of plan funding and assets. Interest credits based on money market rate movements and credits primarily based on qualifications and length of service accumulate in the hypothetical individual employee accounts.

The unfunded retirement benefit plan is a lump sum retirement plan. It functions as a retirement savings plan because the Company has established a retirement benefits trust for it. This plan provides lump sum retirement benefits primarily based on qualifications and length of service.

Certain consolidated subsidiaries use a simplified method to calculate liabilities and expenses associated with their defined benefit and lump sum plans.

2. Defined benefit plan

(1) Reconciliations of beginning and ending balance of retirement benefit plan (excluding simplified method)

	Millions of yen		Thousands of U.S. dollars
	Fiscal 2018	Fiscal 2017	**Fiscal 2018**
Retirement benefit obligations at beginning of year	**¥46,270**	¥44,621	**$416,846**
Service costs	**2,796**	2,322	**25,189**
Interest costs	**1,137**	547	**10,243**
Actuarial gain or loss	**(1,957)**	635	**(17,630)**
Prior service costs recorded during the period	**76**	—	**684**
Benefits paid	**(2,803)**	(1,967)	**(25,252)**
Amount received from new consolidation	**18,710**	—	**168,558**
Decrease due to termination and transfer of retirement benefit plans	**(380)**	—	**(3,423)**
Other	**(754)**	109	**(6,792)**
Retirement benefit obligations at end of year	**¥63,096**	¥46,270	**$568,432**

Note: "Other" mainly consists of foreign currency translation adjustment (change due to effects of foreign currency translation).

(2) Reconciliations of beginning and ending balance of plan assets (excluding simplified method)

	Millions of yen		Thousands of U.S. dollars
	Fiscal 2018	Fiscal 2017	**Fiscal 2018**
Plan assets at beginning of year	**¥35,296**	¥35,483	**$317,981**
Expected return on plan assets	**1,529**	776	**13,774**
Actuarial gain or loss	**(2,958)**	337	**(26,648)**
Contribution from entrepreneur	**3,462**	803	**31,189**
Benefits paid	**(2,995)**	(2,069)	**(26,981)**
Amount received from new consolidation	**14,343**	—	**129,216**
Decrease due to termination and transfer of retirement benefit plans	**(328)**	—	**(2,954)**
Other	**(460)**	(33)	**(4,144)**
Plan assets at end of year	**¥47,889**	¥35,296	**$431,432**

Note: A major item in "Other" includes foreign currency translation adjustment (changes due to effects of foreign currency translation).

(3) Reconciliations of beginning and ending net defined benefit liabilities using the simplified method

	Millions of yen		Thousands of U.S. dollars
	Fiscal 2018	Fiscal 2017	**Fiscal 2018**
Net defined benefit liabilities at beginning of year	**¥1,660**	¥1,576	**$14,954**
Retirement benefit expenses	**369**	375	**3,324**
Benefits paid	**(126)**	(107)	**(1,135)**
Contribution to plan assets	**(138)**	(196)	**(1,243)**
Other	**(7)**	11	**(63)**
Net defined benefit liabilities at end of year	**¥1,758**	¥1,660	**$15,837**

(4) Reconciliations of net amount of retirement benefit liabilities and plan assets and net amount of net defined benefit obligation and net defined benefit asset recognized on the consolidated balance sheet

	Millions of yen		Thousands of U.S. dollars
	Fiscal 2018	Fiscal 2017	**Fiscal 2018**
Installment type retirement benefit obligation	**¥57,160**	¥38,974	**$514,954**
Plan assets	**(48,749)**	(36,053)	**(439,180)**
	8,411	2,920	**75,774**
Non installment type retirement benefit obligation	**8,553**	9,713	**77,054**
Net amount of net defined benefit obligation and net defined benefit asset recognized on the consolidated balance sheet	**16,964**	12,633	**152,828**
Net defined benefit obligation	**18,065**	14,597	**162,747**
Net defined benefit asset	**(1,101)**	(1,963)	**(9,918)**
Net amount of net defined benefit obligation and net defined benefit asset recognized on the consolidated balance sheet	**¥16,964**	¥12,633	**$152,828**

Note: Includes plan that uses the simplified method.

(5) The components of retirement benefit expenses

	Millions of yen		Thousands of U.S. dollars
	Fiscal 2018	Fiscal 2017	**Fiscal 2018**
Service costs	**¥2,796**	¥2,322	**$25,189**
Interest costs	**1,137**	547	**10,243**
Expected return on plan assets	**(1,529)**	(776)	**(13,774)**
Amortization of actuarial gains or losses	**716**	1,087	**6,450**
Amortization of prior service costs	**58**	12	**522**
Retirement benefit expenses calculated by simplified method	**369**	375	**3,324**
Other	**—**	(21)	**—**
Retirement benefit expense pertaining to defined benefit plan	**3,548**	¥3,548	**31,963**
Proceeds from termination of retirement benefit plans (Note)	**¥(52)**	—	**$(468)**

Note: Recorded in Other (Non-operating income).

(6) Remeasurements of defined benefit plans (Consolidated comprehensive income)

The following is a breakdown of remeasurements of defined benefit plans (before deductions for the effect of income taxes)

	Millions of yen		Thousands of U.S. dollars
	Fiscal 2018	Fiscal 2017	**Fiscal 2018**
Prior service costs	**¥(18)**	¥12	**$(162)**
Actuarial gain or loss	**(284)**	789	**(2,558)**
Total	**¥(302)**	¥802	**$(2,720)**

(7) Remeasurements of defined benefit plans (Consolidated balance sheet)

The following is a breakdown of items recorded in cumulative remeasurements of defined benefit plans (before deductions for the effect of income taxes).

	Millions of yen		Thousands of U.S. dollars
	Fiscal 2018	Fiscal 2017	**Fiscal 2018**
Unrecognized prior service costs	**¥(342)**	¥(323)	**$(3,081)**
Unrecognized actuarial gain or loss	**(5,650)**	(5,365)	**(50,900)**
Total	**¥(5,992)**	¥(5,689)	**$(53,981)**

(8) Plan assets

a. The components of plan assets

	Fiscal 2018	Fiscal 2017
Debt securities	**40%**	40%
Equity securities	**14**	14
Life insurance company general accounts (Note 1)	**15**	20
Cash and deposits	**2**	3
Other assets	**29**	24
Total (Note 2)	**100%**	100%

Notes: 1. Life insurance companies manage the assets in, assume the asset management risk for, and guarantee a fixed return to policyholders for life insurance general accounts.
2. Total retirement plan assets for the years ended December 31, 2018 and 2017 include 35% and 50%, respectively, of the retirement benefits trust established for the lump sum retirement plan.

b. Determination of long-term expected rate of return on plan assets

The long-term expected rate of return on plan assets is determined with due consideration of current and future distribution of plan assets and current and expected returns on the various types of plan assets.

(9) Actuarial assumptions

	Fiscal 2018	Fiscal 2017
Discount rate	**Mainly 0.7% to 4.3%**	Mainly 0.7% or 0.8%
Long-term expected rate of return	**Mainly 1.0% to 6.4%**	Mainly 1.0% or 3.3%

3. Defined contribution plan

The amounts of required contribution to the defined contribution plan of the Company and its consolidated subsidiaries for the years ended December 31, 2018 and 2017 are as follows:

	Millions of yen		Thousands of U.S. dollars
	Fiscal 2018	Fiscal 2017	**Fiscal 2018**
Defined contribution plan	**¥1,107**	¥595	**$9,972**

4. Multi-employer plan

The contribution to the multi-employer plan, which is accounted for in the same manner as the defined contribution plan for the years ended December 31, 2018 and 2017, totaled ¥76 million (US$684 thousand) and ¥110 million, respectively.

Multi-employer plan in which overseas consolidated subsidiaries participate

(1) Accumulated funds for the plan

	Millions of yen		Thousands of U.S. dollars
	Fiscal 2018 (As of June 30, 2018)	Fiscal 2017 (As of June 30, 2017)	**Fiscal 2018 (As of June 30, 2018)**
Plan assets	**¥54,374**	¥53,234	**$489,855**
Total of actuarial pension liabilities and plan's minimum reserve	**56,801**	56,651	**511,720**
Difference	**¥(2,426)**	¥(3,416)	**$(21,855)**

(2) Ratio of total salaries of the consolidated subsidiary to total funds of the plan

Fiscal 2018 (As of June 30, 2018)	Fiscal 2017 (As of June 30, 2017)
3.5%	3.1%

The ratio in the above (2) does not match with the ratio of the actual burden of the consolidated subsidiary.

15 Stock-Based Compensation Plans

1. Item and amount of expenses for stock options

	Millions of yen		Thousands of U.S. dollars
	Fiscal 2018	Fiscal 2017	**Fiscal 2018**
Selling, general and administrative expenses	**¥79**	¥116	**$711**

2. Details including size and changes of stock options

(1) Stock options plans

	Stock options October 2010	Stock options May 2011
Resolution date	June 24, 2010	April 27, 2011
Number of eligible persons by position	Directors, etc. of the Company: 25 Employees of the Company: 3,924 Directors or employees, etc. of the Company's subsidiaries: 2,010	Directors of the Company: 10 Executive officers of the Company (excluding those who concurrently serve as directors of the Company and those working overseas): 14
Total number and type of stocks granted	4,074,500 shares of common stock	89,500 shares of common stock
Grant date	October 1, 2010	May 19, 2011
Prerequisite to be vested	(Note 1)	No vesting conditions are set.
Required service period	From October 1, 2010 to June 24, 2012	There is no provision for a required service period.
Exercise period	From June 25, 2012 to June 24, 2020	From May 19, 2011 to May 18, 2026; provided that, if the final date of the exercise period is a holiday for the Company, the final date should be the business date immediately preceding the date. A holder of subscription rights to shares may exercise the subscription rights to shares within 10 days from one day after the day he/she loses his or her position as a director or an executive officer (the "Rights Commencement Date"). Notwithstanding the above, if the holder of subscription rights to shares fails to reach the Rights Commencement Date by April 19, 2026, he/she may exercise his or her rights from the following business day to the date of expiration of the above exercise period of the subscription rights to shares.
Number of subscription rights to shares (units) (Note 4)	2,644 [2,621]	3
Type, content and number of shares subject to subscription rights to shares (Note 4)	1,322,000 [1,310,500] shares of common stock	1,500 shares of common stock
Amount paid at the time of exercise of subscription rights to shares (yen) (Note 4)	¥1,078/share (US$9.71)	¥1/share (US$0.00)
Issue price of shares and amount to be incorporated into stated capital when issuing shares through exercise of subscription rights to shares (yen) (Note 4)	Issue price: ¥1,078 (US$9.71) Amount to be incorporated into stated capital (i) The amount of increase in capital stock in cases where shares are issued through exercise of subscription rights to shares shall be half of the maximum amount of increase in stated capital, which is calculated in accordance with Paragraph 1, Article 17 of the Regulation on Corporate Accounting, and any fraction of less than ¥1 resulting from the calculation shall be rounded up. (ii) The amount of increase in capital in cases where shares are issued through exercise of subscription rights to shares shall be obtained by subtracting the amount of capital to be increased specified in (i) above from the maximum amount of increase in stated capital mentioned in (i) above.	Issue price: ¥1,175 (US$10.59) Amount to be incorporated into stated capital: ¥588 (US$5.30)
Conditions for exercising subscription rights to shares (Note 4)	(Note 1)	(Note 2)
Matters related to transfer of subscription rights to shares (Note 4)	Acquisition of subscription rights to shares by transfer shall require the approval by resolution of the Board of Directors of the Company.	
Matters related to delivery of subscription rights to shares in association with reorganization (Note 4)	—	(Note 3)

	Stock options May 2012	Stock options May 2013
Resolution date	April 26, 2012	April 25, 2013
Number of eligible persons by position	Directors of the Company:10 Executive officers of the Company (excluding those who concurrently serve as directors of the Company and those working overseas):13	Directors of the Company:10 Executive officers of the Company (excluding those who concurrently serve as directors of the Company and those working overseas):17
Total number and type of stocks granted	86,500 shares of common stock	88,000 shares of common stock
Grant date	May 17, 2012	May 15, 2013
Prerequisite to be vested	No vesting conditions are set.	No vesting conditions are set.
Required service period	There is no provision for a required service period.	There is no provision for a required service period.
Exercise period	From May 17, 2012 to May 16, 2027; provided that, if the final date of the exercise period is a holiday for the Company, the final date should be the business date immediately preceding the date. A holder of subscription rights to shares may exercise the subscription rights to shares within 10 days from one day after the day he/she loses his or her position as a director or an executive officer (the "Rights Commencement Date"). Notwithstanding the above, if the holder of subscription rights to shares fails to reach the Rights Commencement Date by April 17, 2027, he/she may exercise his or her rights from the following business day to the date of expiration of the above exercise period of the subscription rights to shares.	From May 15, 2013 to May 14, 2028; provided that, if the final date of the exercise period is a holiday for the Company, the final date should be the business date immediately preceding the date. A holder of subscription rights to shares may exercise the subscription rights to shares within 10 days from one day after the day he/she loses his or her position as a director or an executive officer (the "Rights Commencement Date"). Notwithstanding the above, if the holder of subscription rights to shares fails to reach the Rights Commencement Date by April 15, 2028, he/she may exercise his or her rights from the following business day to the date of expiration of the above exercise period of the subscription rights to shares.
Number of subscription rights to shares (units) (Note 4)	4	21
Type, content and number of shares subject to subscription rights to shares (Note 4)	2,000 shares of common stock	10,500 shares of common stock
Amount paid at the time of exercise of subscription rights to shares (yen) (Note 4)	¥1/share (US$0.00)	¥1/share (US$0.00)
Issue price of shares and amount to be incorporated into stated capital when issuing shares through exercise of subscription rights to shares (yen) (Note 4)	Issue price: ¥1,047 (US$9.43) Amount to be incorporated into stated capital: ¥524 (US$4.72)	Issue price: ¥1,483 (US$13.36) Amount to be incorporated into stated capital: ¥742 (US$6.68)
Conditions for exercising subscription rights to shares (Note 4)	(Note 2)	
Matters related to transfer of subscription rights to shares (Note 4)	Acquisition of the subscription rights to shares by transfer shall require the approval by resolution of the Board of Directors of the Company.	
Matters related to delivery of subscription rights to shares in association with reorganization (Note 4)	(Note 3)	

	Stock options May 2014	Stock options February 2015
Resolution date	April 25, 2014	January 21, 2015
Number of eligible persons by position	Directors of the Company: 10 Executive officers of the Company (excluding those who concurrently serve as directors of the Company and those working overseas): 17	Directors of the Company:12 Executive officers of the Company (excluding those who concurrently serve as directors of the Company and those working overseas): 11
Total number and type of stocks granted	78,500 shares of common stock	59,500 shares of common stock
Grant date	May 15, 2014	February 17, 2015
Prerequisite to be vested	No vesting conditions are set.	No vesting conditions are set.
Required service period	There is no provision for a required service period.	There is no provision for a required service period.
Exercise period	From May 15, 2014 to May 14, 2029; provided that, if the final date of the exercise period is a holiday for the Company, the final date should be the business date immediately preceding the date. A holder of subscription rights to shares may exercise the subscription rights to shares within 10 days from one day after the day he/she loses his or her position as a director or an executive officer (the "Rights Commencement Date"). Notwithstanding the above, if the holder of subscription rights to shares fails to reach the Rights Commencement Date by April 15, 2029, he/she may exercise his or her rights from the following business day to the date of expiration of the above exercise period of the subscription rights to shares.	From February 17, 2015 to February 16, 2030; provided that, if the final date of the exercise period is a holiday for the Company, the final date should be the business date immediately preceding the date. A holder of subscription rights to shares may exercise the subscription rights to shares within 10 days from one day after the day he/she loses his or her position as a director or an executive officer (the "Rights Commencement Date"). Notwithstanding the above, if the holder of subscription rights to shares fails to reach the Rights Commencement Date by January 17, 2030, he/she may exercise his or her rights from the following business day to the date of expiration of the above exercise period of the subscription rights to shares.
Number of subscription rights to shares (units) (Note 4)	38	40
Type, content and number of shares subject to subscription rights to shares (Note 4)	19,000 shares of common stock	20,000 shares of common stock
Amount paid at the time of exercise of subscription rights to shares (yen) (Note 4)	¥1/share (US$0.00)	¥1/share (US$0.00)
Issue price of shares and amount to be incorporated into stated capital when issuing shares through exercise of subscription rights to shares (yen) (Note 4)	Issue price: ¥1,120 (US$10.09) Amount to be incorporated into stated capital: ¥560 (US$5.05)	Issue price: ¥1,353 (US$12.19) Amount to be incorporated into stated capital: ¥677 (US$6.10)
Conditions for exercising subscription rights to shares (Note 4)	(Note 2)	
Matters related to transfer of subscription rights to shares (Note 4)	Acquisition of the subscription rights to shares by transfer shall require the approval by resolution of the Board of Directors of the Company.	
Matters related to delivery of subscription rights to shares in association with reorganization (Note 4)	(Note 3)	

	Stock options February 2016	Stock options February 2017
Resolution date	January 20, 2016	January 18, 2017
Number of eligible persons by position	Directors of the Company: 12 Executive officers of the Company (excluding those who concurrently serve as directors of the Company and those working overseas): 10	Directors of the Company: 12 Executive officers of the Company (excluding those who concurrently serve as directors of the Company and those working overseas): 11
Total number and type of stocks granted	69,000 shares of common stock	75,500 shares of common stock
Grant date	February 10, 2016	February 9, 2017
Prerequisite to be vested	No vesting conditions are set.	No vesting conditions are set.
Required service period	There is no provision for a required service period.	There is no provision for a required service period.
Exercise period	From February 10, 2016 to February 9, 2031; provided that, if the final date of the exercise period is a holiday for the Company, the final date should be the business date immediately preceding the date. A holder of subscription rights to shares may exercise the subscription rights to shares within 10 days from one day after the day he/she loses his or her position as a director or an executive officer (the "Rights Commencement Date"). Notwithstanding the above, if the holder of subscription rights to shares fails to reach the Rights Commencement Date by January 10, 2031, he/she may exercise his or her rights from the following business day to the date of expiration of the above exercise period of the subscription rights to shares.	From February 9, 2017 to February 8, 2032; provided that, if the final date of the exercise period is a holiday for the Company, the final date should be the business date immediately preceding the date. A holder of subscription rights to shares may exercise the subscription rights to shares within 10 days from one day after the day he/she loses his or her position as a director or an executive officer (the "Rights Commencement Date"). Notwithstanding the above, if the holder of subscription rights to shares fails to reach the Rights Commencement Date by January 9, 2032, he/she may exercise his or her rights from the following business day to the date of expiration of the above exercise period of the subscription rights to shares.
Number of subscription rights to shares (units) (Note 4)	60	108
Type, content and number of shares subject to subscription rights to shares (Note 4)	30,000 shares of common stock	54,000 shares of common stock
Amount paid at the time of exercise of subscription rights to shares (yen) (Note 4)	¥1/share (US$0.00)	¥1/share (US$0.00)
Issue price of shares and amount to be incorporated into stated capital when issuing shares through exercise of subscription rights to shares (yen) (Note 4)	Issue price: ¥1,201 (US$10.82) Amount to be incorporated into stated capital: ¥601 (US$5.41)	Issue price: ¥1,539 (US$13.86) Amount to be incorporated into stated capital: ¥770 (US$6.94)
Conditions for exercising subscription rights to shares (Note 4)	(Note 2)	
Matters related to transfer of subscription rights to shares (Note 4)	Acquisition of the subscription rights to shares by transfer shall require the approval by resolution of the Board of Directors of the Company.	
Matters related to delivery of subscription rights to shares in association with reorganization (Note 4)	(Note 3)	

	Stock options February 2018	Stock options February 2019 (Note 5)
Resolution date	January 17, 2018	January 16, 2019
Number of eligible persons by position	Directors of the Company: 10 Executive officers of the Company (excluding those who concurrently serve as directors of the Company and those working overseas): 12	Directors of the Company: 9 Executive officers of the Company (excluding those who concurrently serve as directors of the Company and those working overseas): 13
Total number and type of stocks granted	45,000 shares of common stock	64,500 shares of common stock
Grant date	February 15, 2018	February 14, 2019
Prerequisite to be vested	No vesting conditions are set.	No vesting conditions are set.
Required service period	There is no provision for a required service period.	There is no provision for a required service period.
Exercise period	From February 15, 2018 to February 14, 2033; provided that, if the final date of the exercise period is a holiday for the Company, the final date should be the business date immediately preceding the date. A holder of subscription rights to shares may exercise the subscription rights to shares within 10 days from one day after the day he/she loses his or her position as a director or an executive officer (the "Rights Commencement Date"). Notwithstanding the above, if the holder of subscription rights to shares fails to reach the Rights Commencement Date by January 15, 2033, he/she may exercise his or her rights from the following business day to the date of expiration of the above exercise period of the subscription rights to shares.	From February 14, 2019 to February 13, 2034; provided that, if the final date of the exercise period is a holiday for the Company, the final date should be the business date immediately preceding the date. A holder of subscription rights to shares may exercise the subscription rights to shares within 10 days from one day after the day he/she loses his or her position as a director or an executive officer (the "Rights Commencement Date"). Notwithstanding the above, if the holder of subscription rights to shares fails to reach the Rights Commencement Date by January 14, 2034, he/she may exercise his or her rights from the following business day to the date of expiration of the above exercise period of the subscription rights to shares.
Number of subscription rights to shares (units) (Note 4)	84	129
Class, content and number of shares subject to subscription rights to shares (Note 4)	42,000 shares of common stock	64,500 shares of common stock
Amount paid at the time of exercise of subscription rights to shares (yen) (Note 4)	¥1/share (US$0.00)	¥1/share (US$0.00)
Issue price of shares and amount to be incorporated into stated capital when issuing shares through exercise of subscription rights to shares (yen) (Note 4)	Issue price: ¥1,762 (US$15.87) Amount to be incorporated into stated capital: ¥881 (US$7.94)	Issue price: ¥1,467 (US$13.22) Amount to be incorporated into stated capital: ¥734 (US$6.61)
Conditions for exercising subscription rights to shares (Note 4)	(Note 2)	
Matters related to transfer of subscription rights to shares (Note 4)	Acquisition of the subscription rights to shares by transfer shall require the approval by resolution of the Board of Directors of the Company.	
Matters related to delivery of subscription rights to shares in association with reorganization (Note 4)	(Note 3)	

Notes: 1. Prerequisite to be vested with and conditions for exercising subscription rights to shares

(i) Eligible persons shall be directors, executive officers, counselors, full-time consultants or employees of the Company or the Companies' subsidiaries at the time of exercise. However, those who were directors, executive officers or associate executive officers of the Company or presidents of the significant subsidiaries of the Company (Kuraray Engineering Co., Ltd., Kuraray Chemical Co., Ltd., Kuraray Trading Co., Ltd., Kuraray Plastics Co., Ltd., Kuraray Techno Co., Ltd., Kuraray America, Inc., Kuraray Europe GmbH and EVAL Europe N.V.) can exercise even after retirement.

(ii) Other conditions are prescribed in the "Contracts on Subscription Rights to Shares" to be entered between the Company and eligible persons who were granted subscription rights to shares.

2. Conditions for exercising subscription rights to shares

(i) If the Company decides to acquire the subscription rights to shares without contribution by resolution of a shareholders' meeting or a Board of Directors' meeting (Note 2-1), a holder of the subscription rights to shares may exercise the subscription rights to shares for a period that is prior to the date of such gratis acquisition and is separately determined by the Board of Directors.

(ii) If a holder of the subscription rights to shares is deceased, his or her heir may exercise the subscription rights to shares pursuant to the conditions specified in the "Contracts on Subscription Rights to Shares" listed in (iii) below.

(iii) The other exercise conditions are prescribed in the "Contracts on Subscription Rights to Shares" to be concluded between the Company and a holder of the subscription rights to shares.

2-1. If a proposal for approval of a merger agreement in which the Company will be a non-surviving company, an absorption-type split agreement or an incorporation-type company split plan in which the Company will be a split company, or a share exchange agreement or a share transfer plan in which the Company will be a wholly-owned subsidiary, is approved at the shareholders' meeting of the Company (if the resolution of the shareholders' meeting is not required, a resolution at the Board of Directors of the Company that approves these proposals), the Company may acquire all the remaining subscription rights to shares without consideration, as of the date separately determined by the Board of Directors.

3. Matters related to delivery of subscription rights to shares in association with reorganization

When the Company carries out a merger (only where the Company becomes a non-surviving company), absorption-type split, incorporation-type company split, share exchange or share transfer (collectively the "Reorganizational Acts"), the subscription rights to shares of a stock company listed in (a) to (e) in Paragraphs 1-8, Article 236 of the Companies Act ("Reorganized Company") shall be delivered to a holder of the subscription rights to shares who holds the remaining subscription rights to shares at the effective timing of the Reorganizational Acts ("Remaining Subscription Rights to Shares"), for each case, based on the conditions described below. In this case, Remaining Subscription Rights to Shares shall be extinguished, and the Reorganized Company shall newly deliver subscription rights to shares. However, the foregoing is limited to a case that a provision to deliver subscription rights to shares of the Reorganized Company pursuant to the following conditions is stipulated in an absorption-type merger agreement, an incorporation-type merger agreement, an absorption-type split agreement, an incorporation-type company split plan, a share exchange agreement or a share transfer plan.

(i) Number of Reorganized Company's subscription rights to shares to be delivered

The same number as that of Remaining Subscription Rights to Shares held by the holders of the subscription rights to shares shall be delivered, respectively.

(ii) Type of shares of the Reorganized Company underlying the subscription rights to shares

Common stock of the Reorganized Company.

(iii) Number of shares of the Reorganized Company underlying the subscription rights to shares

Determined in consideration for conditions of the Reorganizational Acts and other factors.

(iv) Value of assets to be contributed upon exercise of the subscription rights to shares

Post-reorganization paid-in amount shall be ¥1 per share of the Reorganized Company upon exercise of the subscription rights to shares. The value of assets to be contributed shall be calculated by multiplying the amount with the number of shares of the Reorganized Company determined according to (iii) above.

(v) Exercise period of the subscription rights to shares

From the starting day of the period for exercisable subscription rights to shares or the day when the Reorganization Action comes into effect, whichever comes later, to the expiration date of the exercise period of the subscription rights to shares above.

(vi) Amount of capital to be increased when shares are issued upon exercise of the subscription rights to shares

Half of the maximum amount of increase in stated capital calculated in accordance with Paragraph 1, Article 17 of the Regulation on Corporate Accounting, and any fraction of less than ¥1 resulting from the calculation shall be rounded up.

(vii) Restriction on acquisition of the subscription rights to shares by transfer

Acquisition of the subscription rights to shares by transfer requires the approval of the Board of Directors of the Reorganized Company.

(viii) Acquisition provision of the subscription rights to shares

Determined according to Note 2-1 above.

(ix) Other conditions for exercise of the subscription rights to shares

Determined according to "Exercise period of the subscription rights to shares" (v) and (Note 2) above.

4. Stated are details as of the end of fiscal 2018. For matters that were changed between the end of fiscal 2018 and the end of the month preceding the month that the filing date of the securities report belongs to (February 28, 2019), details as of the end of the previous month of the filing date are described in [ ]. For the others, there are no changes from the details as of the end of fiscal 2018.

5. The resolution on January 16, 2019 is the resolution to grant the subscription rights to shares after fiscal 2018, and the details described are as of the end of the month preceding the month that the filing date of the securities report belongs to (February 28, 2019).

(2) Size and changes of stock options

Stock options that existed in current fiscal years were converted into shares.

1) Number of stock options

	Stock options October 2010	Stock options May 2011	Stock options May 2012	Stock options May 2013	Stock options May 2014
Unvested stock options (shares)					
At the beginning of the fiscal year	—	—	—	—	—
Granted	—	—	—	—	—
Forfeited	—	—	—	—	—
Vested	—	—	—	—	—
At the end of the fiscal year	—	—	—	—	—
Vested stock options (shares)					
At the beginning of the fiscal year	1,395,500	1,500	2,000	10,500	19,000
Vested	—	—	—	—	—
Exercised	55,000	—	—	—	—
Forfeited	18,500	—	—	—	—
At the end of the fiscal year	1,322,000	1,500	2,000	10,500	19,000

	Stock options February 2015	Stock options February 2016	Stock options February 2017	Stock options February 2018
Unvested stock options (shares)				
At the beginning of the fiscal year	—	—	—	—
Granted	—	—	—	45,000
Forfeited	—	—	—	—
Vested	—	—	—	45,000

At the end of the fiscal year	—	—	—	—
Vested stock options (shares)				
At the beginning of the fiscal year	21,000	32,000	57,000	—
Vested	—	—	—	45,000
Exercised	1,000	2,000	3,000	3,000
Forfeited	—	—	—	—
At the end of the fiscal year	20,000	30,000	54,000	42,000

2) Price information

	Yen				
	Stock options October 2010	Stock options May 2011	Stock options May 2012	Stock options May 2013	Stock options May 2014
Exercise prices	¥1,078	¥ 1	¥ 1	¥ 1	¥ 1
Weighted-average exercise date stock price	1,785	—	—	—	—
Fair value at the grant date	247	1,174	1,046	1,482	1,119

	Yen			
	Stock options February 2015	Stock options February 2016	Stock options February 2017	Stock options February 2018
Exercise prices	¥ 1	¥ 1	¥ 1	¥ 1
Weighted-average exercise date stock price	1,782	1,782	1,782	1,782
Fair value at the grant date	1,352	1,200	1,538	1,761

	U.S. dollars				
	Stock options October 2010	Stock options May 2011	Stock options May 2012	Stock options May 2013	Stock options May 2014
Exercise prices	$9.71	$0.00	$0.00	$0.00	$0.00
Weighted-average exercise date stock price	16.08	—	—	—	—
Fair value at the grant date	2.22	10.57	9.42	13.35	10.08

	U.S. dollars			
	Stock options February 2015	Stock options February 2016	Stock options February 2017	Stock options February 2018
Exercise prices	$0.00	$0.00	$0.00	$0.00
Weighted-average exercise date stock price	16.05	16.05	16.05	16.05
Fair value at the grant date	12.18	10.81	13.85	15.86

3. Method to estimate fair value of stock options

The fair value of the February 2018 stock options, which were granted in fiscal 2018 are estimated as follows:

(1) Valuing method: Black-Scholes model

(2) Major basic figures and estimating method

	February 2018 stock options
Stock price volatility (Note 1)	23.5%
Expected remaining life (Note 2)	1.9 year
Expected dividend (Note 3)	¥42/share (US$0.378)
Risk-free interest rate (Note 4)	-0.14%

Notes: 1. Calculated weekly based on the weekly stock price information over a period from the week that contains March 14, 2016 to the week that contains February 5, 2018.
2. Calculated by subtracting the average period of service of directors and executive officers who are currently in office as of the day of grant from the past average period of service of directors and executive officers.
3. Based on the dividend paid for the fiscal year ended December 2017.
4. Government bond yield over a period corresponding to the expected remaining life.

4. Method to estimate number of vested stock options

Stock options February 2018

The number of vested stock options is the same as the number of stock options granted, since the stock options were vested on the day following the day of the grant.

16 Income Taxes

1. Significant components of deferred tax assets and liabilities at December 31, 2018 and December 31, 2017

	Millions of yen		Thousands of U.S. dollars
	Fiscal 2018	Fiscal 2017	**Fiscal 2018**
Deferred tax assets:			
Net defined benefit liabilities	**¥9,268**	¥ 8,409	**$83,495**
Impairment loss	**2,439**	2,650	**21,972**
Loss (gain) on valuation of investment securities	**1,908**	2,138	**17,189**
Provision for environmental measures	**1,719**	1,879	**15,486**
Unrealized gain on inventories	**1,428**	1,871	**12,864**
Depreciation and amortization	**2,349**	1,651	**21,162**
Provision for bonuses	**1,128**	1,120	**10,162**
Asset retirement obligations	**1,070**	1,074	**9,639**
Accrued expenses	**1,761**	787	**15,864**
Write-down of inventories	**1,598**	781	**14,396**
Tax loss carry forward	**4,554**	7,055	**41,027**
Other	**3,408**	4,235	**30,702**
Subtotal deferred tax assets	**32,636**	33,656	**294,018**
Valuation allowance	**(10,152)**	(9,292)	**(91,459)**
Total deferred tax assets	**22,483**	24,364	**202,549**
Deferred tax liabilities:			
Depreciation and amortization	**(12,468)**	(10,941)	**(112,324)**
Adjustment to book value of assets stated at fair value	**(16,146)**	(6,057)	**(145,459)**
Unrealized gain on revaluation of securities	**(2,593)**	(4,645)	**(23,360)**
Reserve for reduction entry	**(1,139)**	(1,199)	**(10,261)**
Other	**(2,094)**	(2,831)	**(18,864)**
Total deferred tax liabilities	**(34,441)**	(25,676)	**(310,279)**
Net deferred tax assets (liabilities)	**¥(11,957)**	¥ (1,312)	**$(107,720)**

Net deferred tax assets are included in the following items in the consolidated balance sheet:

	Millions of yen		Thousands of U.S. dollars
	Fiscal 2018	Fiscal 2017	**Fiscal 2018**
Current assets:			
Deferred tax assets	**¥ 3,794**	¥ 7,198	**$34,180**
Noncurrent assets:			
Deferred tax assets	**9,220**	6,739	**83,063**
Noncurrent liabilities:			
Deferred tax liabilities	**(24,972)**	(15,251)	**(224,972)**

2. Reconciliation of the differences between the normal effective tax rate and the income tax rate in the accompanying consolidated statement of income at December 31, 2018 and December 31, 2017

	Fiscal 2018	Fiscal 2017
Normal effective tax rate	—	30.7%
(Adjustment)		
Non-taxable income for income tax purposes	—	(0.3)
Non-deductible expenses for income tax purposes	—	0.4
Tax credit primarily for research and development expenses	—	(3.1)
Decrease in deferred tax assets (liabilities) at fiscal year-end due to change in tax rate	—	(10.9)
Amortization of goodwill	—	0.6
Effect of income tax rates change	—	0.8
Undistributed earnings of overseas subsidiaries	—	0.3
Other	—	1.8
Income tax rate per the consolidated statement of income	—	20.2%

(Note) For fiscal 2018, the note is omitted as the difference between the normal effective tax rate and the income tax rate per the consolidated statement of income was not more than 5/100 of the normal effective tax rate.

17 Business Combinations

Business combination through acquisition

The Company and Calgon Carbon Corporation (Headquarters: Pennsylvania, USA) signed an agreement on September 21, 2017, whereby the Company will acquire all the shares of Calgon Carbon (“the Purchase”), making it a wholly owned subsidiary.
In line with the agreement, the Company acquired all the shares of Calgon Carbon Corporation on March 9, 2018.

1. Summary of the business combination

(1) Name and business description of acquired company

Company name: Calgon Carbon Corporation

Description of acquired business: Manufacture and sale of activated carbon and water processing equipment

(2) Main reason for the business combination

The Company is developing its activated carbon business, focusing on high-performance activated carbon for such applications as energy, water resources, and air purification.
Calgon Carbon Corporation is a global leader in activated carbon with production bases in 7 countries worldwide and sales bases in 16 countries, providing cutting-edge solutions for a wide variety of applications and industries.
After the Purchase, the Company will position the activated carbon business as one of its future core businesses and steadily implement

a raft of strategic measures, including further expanding its business by leveraging Calgon Carbon Corporation's solid worldwide business base, accelerating the technological revolution by bringing together both companies' technical and developmental capabilities, and paring down costs by optimizing production systems. Through its supply of high-performance activated carbon materials, the Company will continue to contribute to people's health and comfort as well as the sustainability of the planet's environment and resources.

(3) Date of the business combination

January 1, 2018 (Recognized date)

(4) Legal form of business combination

Cash purchase of shares

(5) Name of the company after the business combination

No change

(6) Percentage of voting rights acquired

100%

(7) Structure of acquisition

The Company acquired 100% of the voting rights through the acquisition of shares in exchange for cash payment

2. Period of the acquired business's results included in the consolidated financial statements

January 1, 2018 to December 31, 2018

3. Acquisition cost of the acquired companies and its breakdown by type of consideration

Amount of the consideration	Cash	¥123,497 million	(US$1,093 million)
Acquisition cost		¥123,497 million	(US$1,093 million)

4. Detail and amount of main expenses related to the acquisition

Advisory expenses of ¥1,387 million (US$12,274 thousand)

5. Amount of goodwill, reason for its recognition, amortization method and amortization period

(1) Amount of goodwill

¥50,511 million (US$447 million)

(2) Reason for its recognition

Projected excess earnings in the future

(3) Amortization method and amortization period

Amortized for 20 years by straight-line method

6. Assets and liabilities accepted on the day of the business combination

Current assets	¥39,420 million	(US$348 million)
Noncurrent assets	¥96,850 million	(US$857 million)
Total assets	¥136,271 million	(US$1,205 million)
Current liabilities	¥17,045 million	(US$150 million)
Noncurrent liabilities	¥46,240 million	(US$409 million)
Total liabilities	¥63,285 million	(US$560 million)

18 Asset Retirement Obligations

Asset retirement obligations recorded in the consolidated balance sheet are as follows:

Overview of asset retirement obligations

Some tangible fixed assets of the Company and certain consolidated subsidiaries include assets containing asbestos and PCB which must be treated in the manner stipulated by the laws and ordinances when they are scrapped or removed. Accordingly, asset retirement obligations are recognized based on the estimated disposal costs, excluding removal costs for aforementioned toxic substances incurred through the repair and maintenance activities in the normal service of the tangible fixed assets, and based on recovery expenses on rental agreements. The grounds laws, ordinances and agreements are as follows:

Disposal costs for asbestos	The Ordinance on Prevention of Asbestos Hazards
Disposal costs for equipment containing PCB	The Law concerning Special Measures for Promotion of Proper Treatment of PCB Wastes (PCB Special Measures Law)
Recovery expenses on rental properties	Rental agreements

Calculation method for the amount of asset retirement obligations

The Company

The Company recognizes asset retirement obligations for tangible fixed assets planned to be removed or assets, which have been removed, but not scrapped yet. Tangible fixed assets planned to be removed mainly consist of assets, which are in use for the reason that they are still usable although useful lives have elapsed and assets, which need immaterial time to remove. Since the payment terms for disposal of these assets are considered to have matured, removal costs, which are reasonably estimated without discounting future cash flows, are recorded as asset retirement obligations.

Consolidated subsidiaries

Consolidated subsidiaries determine the amounts of asset retirement obligations using discount rates ranging from 1.5% to 5.0% for the net cash flows, estimating the period of use to be 20 to 40 years after acquisition.

Increase or decrease of the total amount of asset retirement obligations during the fiscal years ended December 31, 2018 and December 31, 2017:

	Millions of yen		Thousands of U.S. dollars
	Fiscal 2018	Fiscal 2017	**Fiscal 2018**
Beginning balance	**¥4,474**	¥4,197	**$40,306**
Increase due to decisions to remove	**462**	99	**4,162**
Adjustments due to the elapse of time	**72**	74	**648**
Decrease due to payment for the obligations	**(83)**	(198)	**(747)**
Increase due to new consolidation	**540**	—	**4,864**
Other increase (decrease)	**(277)**	301	**(2,495)**
Ending balance	**¥5,189**	¥4,474	**$46,747**

19 Segment Information

Segment information

1. Segment overview

The business segments reported by Kuraray are the business units for which the Company is able to obtain respective financial information separately in order for the Board of Directors to conduct periodic investigations to determine distribution of management resources and evaluate their business results.

Kuraray adopts an in-house company system where each in-house company conducts business activities and establishes its own comprehensive strategy, both for Japan and for overseas markets, for the products it handles. In addition, among Kuraray subsidiaries, Kuraray Trading Co., Ltd. independently conducts propriety planning and sales activities, including the processing and sale of Kuraray Group products as well as other companies' products.

Consequently, Kuraray has created five business segments for reporting—"Vinyl Acetate," "Isoprene," "Functional Materials," "Fibers and Textiles" and "Trading"—categorized by product group based on the respective in-house companies and the Trading segment.

The Vinyl Acetate segment manufactures and markets functional resins and film, including *PVA*, *PVB* and *EVAL*. The Isoprene segment manufactures and markets *SEPTON* and *KURARITY* thermoplastic elastomers, isoprene-related products and *GENESTAR*. The Functional Materials segment manufactures and markets methacrylic resin, medical products and carbon materials. The Fibers and Textiles segment manufactures and sells synthetic fibers and textiles, *CLARINO* man-made leather, non-woven fabrics and others. The Trading segment mainly processes and sells synthetic fibers and man-made leather, and conducts planning and marketing for other products produced by the Kuraray Group and other companies.

Matters related to changes in reporting segments

From fiscal 2018, the *CLARINO* business was reclassified into the Fibers and Textiles segment from its original place in the Functional Materials segment following organizational revisions. The segment information for the previous fiscal year has been restated to reflect the change in classification.

2. Methods for calculating reporting segment net sales, income and loss, assets, liabilities and other items

The accounting method applied to reported business segments is the same as that stated in "Significant Matters That Form the Basis for Preparation of Consolidated Financial Statements." Profits from reported segments are operating income, and intersegment sales and transfers are based on the prevailing market prices.

Changes in inventories evaluation method

As mentioned in the Changes in Accounting Policies section, the Company and some of its consolidated subsidiaries principally applied the weighted average method to evaluate finished goods, raw materials and work-in-process under inventories. However, they have principally applied first-in, first-out method from fiscal 2018. The retroactive application of the method resulted in increasing previous fiscal year's segment income for Vinyl Acetate, Isoprene, Functional Materials, and Fibers and Textiles by ¥298 million, ¥660 million, ¥378 million and ¥341 million, respectively, and previous fiscal year's decreased segment income for Other Business by ¥265 million.

Changes in depreciation method and estimated useful lives of tangible fixed assets

As described in "Changes of accounting estimates and changes in accounting policies that are difficult to differentiate from changes of accounting estimates," the Company and its domestic consolidated subsidiaries originally used the declining-balance method, in principle, to depreciate tangible fixed assets (excluding lease assets), except for buildings, and structures purchased on and after April 1, 2016. However, they have applied the straight-line method from fiscal 2018. In addition, the Group depreciated machinery and equipment on the basis of

estimated useful lives of between 4 and 20 years. However, the Group has switched the estimated useful lives to 10 years in general.

These changes resulted in decreasing segment income in fiscal 2018 for Vinyl Acetate by ¥2,508 million (US$22,594 thousand), and increasing segment income in fiscal 2018 for Isoprene, Functional Materials, Fibers and Textiles, and Other Business by ¥607 million (US$5,468 thousand), ¥1,181 million (US$10,639 thousand), ¥1,833 million (US$16,513 thousand), and ¥145 million (US$1,306 thousand), respectively.

Change in method of allocating headquarters' general and administrative expenses to each business

Beginning in fiscal 2018, headquarters' main general and administrative expenses, which were included in segment income adjustment, are now allocated to each reporting segment to make it easier to compare the financial performance of different businesses.

This change resulted in decreasing segment income in fiscal 2018 for Vinyl Acetate, Isoprene, Functional Materials, Fibers and Textiles, and Other Business by ¥2,210 million (US$19,909 thousand), ¥339 million (US$3,054 thousand), ¥1,448 million (US$13,045 thousand), ¥947 million (US$8,531 thousand), and ¥168 million (US$1,513 thousand), respectively.

Following the aforementioned change, segment income adjustment increased by ¥5,114 million (US$46,072 thousand), which is equivalent to the combined amount of decrease in each segment income.

3. Information on sales, income and loss, assets, liabilities, and other amounts by reporting segment

Fiscal 2018 (January 1, 2018 to December 31, 2018)

Millions of yen

	Reporting Segments						Other Business (Note 1)	Total	Adjustment (Note 2)	Consolidated Financial Statements (Note 3)
	Vinyl Acetate	Isoprene	Functional Materials	Fibers and Textiles	Trading	Total				
Net sales										
(1) Outside customers	¥233,214	¥30,144	¥111,969	¥47,287	¥136,109	¥558,726	¥44,269	¥602,996	¥—	¥602,996
(2) Inter-segment sales and transfers	46,164	27,062	19,563	17,429	2,739	112,959	13,755	126,714	(126,714)	—
Total	279,379	57,207	131,533	64,716	138,848	671,685	58,025	729,710	(126,714)	602,996
Segment income (loss)	54,739	7,272	4,396	6,279	4,215	76,904	1,178	78,082	(12,288)	65,794
Segment assets	416,191	62,682	226,542	67,035	46,282	818,733	42,664	861,397	85,718	947,116
Other items										
Depreciation and amortization (other than goodwill)	31,477	2,506	12,563	2,584	58	49,190	892	50,082	2,204	52,287
Impairment loss	6,311	—	189	—	—	6,500	161	6,662	—	6,662
Amortization of goodwill	1,804	—	2,603	—	—	4,408	2	4,410	—	4,410
Balance of goodwill at end of current period	18,468	—	48,016	—	—	66,485	0	66,485	—	66,485
Investments in equity method affiliates	—	—	—	2,290	—	2,290	—	2,290	—	2,290
Increase in tangible fixed assets and intangible fixed assets	38,034	4,038	7,341	7,633	53	57,102	2,890	59,993	6,832	66,825

Thousands of U.S. dollars

	Reporting Segments									
	Vinyl Acetate	Isoprene	Functional Materials	Fibers and Textiles	Trading	Total	Other Business (Note 1)	Total	Adjustment (Note 2)	Consolidated Financial Statements (Note 3)
Net sales										
(1) Outside customers	$2,101,027	$271,567	$1,008,729	$426,009	$1,226,207	$5,033,567	$398,819	$5,432,396	$—	$5,432,396
(2) Inter-segment sales and transfers	415,891	243,801	176,243	157,018	24,675	1,017,648	123,918	1,141,567	(1,141,567)	—
Total	2,516,927	515,378	1,184,981	583,027	1,250,882	6,051,216	522,747	6,573,963	(1,141,567)	5,432,396
Segment income (loss)	493,144	65,513	39,603	56,567	37,972	692,828	10,612	703,441	(110,702)	592,738
Segment assets	3,749,468	564,702	2,040,918	603,918	416,954	7,375,972	384,360	7,760,333	772,234	8,532,576
Other items										
Depreciation and amortization (other than goodwill)	283,576	22,576	113,180	23,279	522	443,153	8,036	451,189	19,855	471,054
Impairment loss	56,855	—	1,702	—	—	58,558	1,450	60,018	—	60,018
Amortization of goodwill	16,252	—	23,450	—	—	39,711	18	39,729	—	39,729
Balance of goodwill at end of current period	166,378	—	432,576	—	—	598,963	0	598,963	—	598,963
Investments in equity method affiliates	—	—	—	20,630	—	20,630	—	20,630	—	20,630
Increase in tangible fixed assets and intangible fixed assets	342,648	36,378	66,135	68,765	477	514,432	26,036	540,477	61,549	602,027

Notes: 1. The “Other Business” category incorporates operations not included in business segment reporting, including the environmental business and engineering business.

2. Adjustments are as follows:

(a) Adjustments of negative ¥12,288 million (negative US$110,702 thousand) for segment income include the elimination of intersegment transactions of ¥1,622 million (US$14,612 thousand) and unallocated corporate expenses of negative ¥13,910 million (negative US$125,315 thousand). These corporate expenses mainly comprise the Company’s basic research expenses.

(b) Adjustments for segment assets amounting to ¥85,718 million (US$772,234 thousand) include the elimination of intersegment transactions of negative ¥39,349 million (negative US$354,495 thousand) and unallocated corporate assets of ¥125,068 million (US$1,126,738 thousand). These corporate assets mainly comprise the Company’s surplus funds, long-term investments and assets related to basic research and administrative divisions at headquarters.

3. Segment income is adjusted with operating income under the Consolidated Statement of Income.

Fiscal 2017 (January 1, 2017 to December 31, 2017)

Millions of yen

	Reporting Segments						Other Business (Note 1)	Total	Adjustment (Note 2)	Consolidated Financial Statements (Note 3)
	Vinyl Acetate	Isoprene	Functional Materials	Fibers and Textiles	Trading	Total				
Net sales										
(1) Outside customers	¥234,711	¥30,037	¥39,774	¥49,458	¥127,446	¥481,427	¥37,015	¥518,442	¥—	¥518,442
(2) Inter-segment sales and transfers	32,183	26,329	15,425	16,910	4,288	95,138	14,383	109,521	(109,521)	—
Total	266,894	56,366	55,199	66,369	131,734	576,565	51,399	627,964	(109,521)	518,442
Segment income (loss)	61,619	9,010	6,665	7,551	3,924	88,770	3,022	91,793	(15,441)	76,351
Segment assets	424,414	52,834	51,684	63,255	44,773	636,963	40,815	677,779	98,956	776,735
Other items										
Depreciation and amortization (other than goodwill)	25,981	3,651	3,980	4,330	78	38,023	1,124	39,148	1,879	41,027
Impairment loss	224	1,256	—	—	—	1,480	193	1,674	—	1,674
Amortization of goodwill	1,800	—	135	—	—	1,935	2	1,937	—	1,937
Balance of goodwill at end of current period	23,548	—	1,015	—	—	24,564	2	24,567	—	24,567
Investments in equity method affiliates	—	—	—	111	—	111	—	111	—	111
Increase in tangible fixed assets and intangible fixed assets	35,865	2,654	4,047	5,610	131	48,309	1,366	49,675	4,838	54,514

Notes: 1. The “Other Business” category incorporates operations not included in business segment reporting, including the environmental business and engineering business.

2. Adjustments are as follows:

(a) Adjustments of negative ¥15,441 million for segment income include the elimination of intersegment transactions of ¥1,188 million and unallocated corporate expenses of negative ¥16,630 million. These corporate expenses mainly comprise the Company’s basic research expenses and headquarters’ general and administrative expenses.

(b) Adjustments for segment assets amounting to ¥98,956 million include the elimination of intersegment transactions of negative ¥38,914 million and unallocated corporate assets of ¥137,870 million. These corporate assets mainly comprise the Company’s surplus funds, long-term investments and assets related to basic research and administrative divisions at headquarters.

3. Segment income is adjusted with operating income under the Consolidated Statement of Income.

(Related Information)

Fiscal 2018 (January 1, 2018 to December 31, 2018)

1. Information about products and services

Millions of yen

	Vinyl Acetate	Isoprene	Functional Materials	Fibers and Textiles	Other Business	Total
Net sales to outside customers	**¥273,307**	**¥53,255**	**¥130,951**	**¥88,930**	**¥56,551**	**¥602,996**

	Thousands of U.S. dollars					
	Vinyl Acetate	Isoprene	Functional Materials	Fibers and Textiles	Other Business	Total
Net sales to outside customers	$2,462,225	$479,774	$1,179,738	$801,171	$509,468	$5,432,396

Notes: Principal products of each segment are as follows:

Vinyl Acetate: PVA resin and film, *EVAL* resin and others

Isoprene: *SEPTON* thermoplastic elastomers, *KURARITY*, isoprene chemicals, *GENESTAR* heat-resistant polyamide resin and others

Functional Materials: Methacrylic resin, medical products, carbon materials and others

Fibers and Textiles: PVA fiber, *CLARINO* man-made leather, *KURAFLEX* non-woven fabrics, *MAGIC TAPE* hook and loop fasteners, polyester and others

Other Business: Environmental business, engineering business and others

2. Performance by geographical segment

(1) Net sales

	Millions of yen					
Japan	United States	China	Europe	Asia	Other Area	Total
¥192,940	¥100,736	¥70,528	¥136,122	¥75,144	¥27,524	¥602,996

	Thousands of U.S. dollars					
Japan	United States	China	Europe	Asia	Other Area	Total
$1,738,198	$907,531	$635,387	$1,226,324	$676,972	$247,963	$5,432,396

Note: Net sales are classified by country or area based on customer location.

(2) Tangible fixed assets

Millions of yen				Thousands of U.S. dollars			
Japan	United States	Other Overseas	Total	Japan	United States	Other Overseas	Total
¥146,011	¥133,303	¥78,096	¥357,411	$1,315,414	$1,200,927	$703,567	$3,219,918

Change in presentation

Figures for “Germany” are included in the Other Overseas category in fiscal 2018 due to decreased significance of the country. Notes in the previous fiscal year have been restated to reflect this change in presentation method. As a result, ¥27,756 million presented under the Germany category in the previous fiscal year was reclassified into the Other Overseas category.

3. Major customers

No information is available as there is no single outside customer accounting for 10% or more of the Company’s total net sales.

Fiscal 2017 (January 1, 2017 to December 31, 2017)

1. Information about products and services

	Millions of yen					
	Vinyl Acetate	Isoprene	Functional Materials	Fibers and Textiles	Other Business	Total
Net sales to outside customers	¥268,961	¥52,717	¥57,100	¥90,033	¥49,629	¥518,442

Notes: Principal products of each segment are as follows:

Vinyl Acetate: PVA resin and film, *EVAL* resin and others

Isoprene: *SEPTON* thermoplastic elastomers, *KURARITY*, isoprene chemicals, *GENESTAR* heat-resistant polyamide resin and others

Functional Materials: Methacrylic resin, medical products, carbon materials and others

Fibers and Textiles: PVA fiber, *CLARINO* man-made leather, *KURAFLEX* non-woven fabrics, *MAGIC TAPE* hook and loop fasteners, polyester and others

Other Business: Aqua business, engineering business and others

As stated in Segment Information, 1. Segment overview, in fiscal 2018 the *CLARINO* business was reclassified into the Fibers and Textiles segment from the Functional Materials segment. Figures for fiscal 2017 have been restated to reflect the segmentation following the revision.

2. Performance by geographical segment

(1) Net sales

Millions of yen						
Japan	United States	China	Europe	Asia	Other Area	Total
¥184,674	¥67,610	¥62,767	¥106,979	¥73,157	¥23,253	¥518,442

Note: Net sales are classified by country or area based on customer location.

(2) Tangible fixed assets

Millions of yen			
Japan	United States	Other Overseas	Total
¥127,213	¥97,392	¥62,590	¥287,196

3. Major customers

No information is available as there is no single outside customer accounting for 10% or more of the Company's total net sales.

Information about impairment loss of fixed assets by reporting segment

Fiscal 2018: This information is omitted since similar information is disclosed in the segment information.

Fiscal 2017: This information is omitted since similar information is disclosed in the segment information.

Information about amortization of goodwill and unamortized balance of goodwill by reporting segment

Fiscal 2018: This information is omitted since similar information is disclosed in the segment information.

Fiscal 2017: This information is omitted since similar information is disclosed in the segment information.

Information about gain on negative goodwill

Fiscal 2018: Not applicable.

Fiscal 2017: Not applicable.

20 Related Party Disclosures

Fiscal 2018: Not applicable

Fiscal 2017: Not applicable

21 Per Share Information

	Yen		U.S. dollars
	Fiscal 2018	Fiscal 2017	**Fiscal 2018**
Net assets per share	**¥1,592.96**	¥1,587.60	**$14.35**
Basic net income per share	**96.05**	154.85	**0.86**
Diluted net income per share	**95.86**	154.44	**0.86**

Note: The basis for computation of basic and diluted net income per share is as follows:

	Millions of yen		Thousands of U.S. dollars
	Fiscal 2018	Fiscal 2017	**Fiscal 2018**
Basic net income per share			
Net income attributable to owners of the parent	**¥33,560**	¥54,459	**$302,342**
Amount unallocated to common stock	**—**	—	**—**
Net income attributable to owners of the parent allocated to common stock	**33,560**	54,459	**302,342**
Average number of common stock outstanding during the fiscal year (thousand shares)	**349,424**	351,688	**3,147,963**
Diluted net income per share			
Adjustment made on net income attributable to owners of the parent	**—**	—	**—**
Increase of common stocks (thousand shares)	**677**	934	**6,099**
(New subscription rights to shares (thousand shares))	**(677)**	(934)	**(6,099)**
Outline of the residual securities which were not included in the calculation of the diluted net income per share because there was no dilutive effect	**—**	—	**—**

Note: As mentioned in the “Changes in accounting policies” section, the changes made in accounting policies in fiscal 2018 have been retroactively applied and the consolidated financial statements for the previous fiscal year have been restated accordingly. The retroactive application of the changed principles resulted in increasing net assets per share, basic net income per share, and diluted net income per share by ¥2.82 (US$0.02), ¥2.44 (US$0.02), and ¥2.43 (US$0.02), respectively.

22 Subsequent Events

(Purchase of treasury stock)

On February 13, 2019, the Company's Board of Directors resolved to purchase treasury stock pursuant to the provisions in Article 156 of the Companies Act, as applied mutatis mutandis to the provisions of Article 165, paragraph 3 of the Companies Act. The details are below:

1. Reasons for the purchase

The Company will purchase treasury stock to enable flexible capital strategies in the future, enhance shareholder returns, and improve capital efficiency.

2. Details of the purchase

(1) Type of shares

Common stock

(2) Maximum number of shares

Up to 5,000 thousand shares

(Approximately 1.43% of total outstanding shares, excluding treasury stock)

(3) Maximum value of the purchase

Up to ¥10,000 million

(4) Purchase method

Market purchase based on a trade contract for acquiring treasury stock

(5) Purchase period

February 14, 2019 to December 26, 2019

Annexed Consolidated Detailed Schedules

Kuraray Co., Ltd. and its Consolidated Subsidiaries / Year ended December 31, 2018

1 Detailed Schedule of Bonds

(Millions of yen)

Company name	Issue	Date of issue	Balance at beginning of period	Balance at end of period	Yield	Security	Date of redemption
Kuraray Co., Ltd.	No. 4 Unsecured bonds	December 9, 2011	¥10,000 (US$90,090 thousand)	¥10,000 (US$90,090 thousand)	1.24%	None	December 9, 2021
	No. 5 Unsecured bonds	April 25, 2018	—	¥10,000 (US$90,090 thousand)	0.01%	None	April 23, 2021
	No. 6 Unsecured bonds	April 25, 2018	—	¥10,000 (US$90,090 thousand)	0.09%	None	April 25, 2023
	No. 7 Unsecured bonds	April 25, 2018	—	¥10,000 (US$90,090 thousand)	0.19%	None	April 25, 2025
	No. 8 Unsecured bonds	April 25, 2018	—	¥10,000 (US$90,090 thousand)	0.31%	None	April 25, 2028
	Total	—	¥10,000 (US$90,090 thousand)	¥50,000 (US$450,450 thousand)	—	—	—

Note: Total amount of corporate bonds to be redeemed each year within five years of the consolidated fiscal year-end:

(Millions of yen)

Due within 1 year	Due in 1-2 years	Due in 2-3 years	Due in 3-4 years	Due in 4-5 years
—	—	¥20,000 (US$180,180 thousand)	—	¥10,000 (US$90,090 thousand)

2 Detailed Schedule of Loans Payable

(Millions of yen)

Category	Balance as of January 1, 2017	Balance as of December 31, 2017	Average Interest rate (%)	Due date
Short-term loans	¥7,791	¥34,490 (US$310,720 thousand)	0.3	—
Current portion of long-term loans due within one year	72	¥12,050 (US$108,558 thousand)	2.0	—
Current portion of long-term lease due within one year (Note 2)	394	¥433 (US$3,900 thousand)	—	—
Long-term loans (Excluding current portion) (Note 3)	42,099	¥120,049 (US$1,081,522 thousand)	0.5	From March 2020 to September 2028
Lease liabilities (Excluding current portion) (Notes 2, 3)	1,558	¥1,497 (US$13,486 thousand)	—	From January 2020 to September 2046
Other interest-bearing debts (Commercial papers)	—	—	—	—
Total.	¥51,916	¥168,520 (US$1,518,198 thousand)	—	—

Notes: 1. The average interest rate is calculated based on the interest rate and the ending balance.

2. The average interest rate on lease liabilities is not reported, since interest payment equivalents included in total lease payments are allocated to each consolidated fiscal year using the straight-line method.

3. Repayments of long-term loans and lease liabilities (excluding those due within one year) within five years after the Consolidated Balance Sheet date are as follows:

(Millions of yen)

Category	Due after 1 year but within 2 years	Due after 2 years but within 3 years	Due after 3 years but within 4 years	Due after 4 years but within 5 years
Long-term loans	¥33	¥15	¥25,000	¥19,600
Lease liabilities	383	306	232	168

(Thousands of U.S. dollars)

Category	Due after 1 year but within 2 years	Due after 2 years but within 3 years	Due after 3 years but within 4 years	Due after 4 years but within 5 years
Long-term loans	$297	$135	$225,225	$176,576
Lease liabilities	3,450	2,756	2,090	1,513

3 Detailed Schedule of asset retirement obligations

The schedule of asset retirement obligations is omitted since the amount of asset retirement obligations is not more than one hundredth of total liabilities and net assets as of January 1, 2018 and December 31, 2018.

4 Quarterly information in Fiscal 2018

(Millions of yen)

Accumulated	First quarter from January 1 to March 31, 2018	Second quarter from January 1 to June 30, 2018	Third quarter from January 1 to September 30, 2018	Fiscal 2018
Net sales	¥149,158	¥301,382	¥449,929	¥602,996
Income (loss) before income taxes	21,135	32,810	49,244	50,041
Net income (loss) attributable to owners of the parent	15,111	22,588	33,283	33,560
Net income (loss) per share (Yen)	43.07	64.51	95.18	96.05

Quarterly	First quarter from January 1 to March 31, 2018	Second quarter from April 1 to June 30, 2018	Third quarter from July 1 to September 30, 2018	Fourth quarter from October 1 to December 31, 2018
Net income (loss) per share (Yen)	¥43.07	¥21.39	¥30.67	¥0.80

(Thousands of U.S. dollars)

Accumulated	First quarter from January 1 to March 31, 2018	Second quarter from January 1 to June 30, 2018	Third quarter from January 1 to September 30, 2018	Fiscal 2018
Net sales	$1,343,765	$2,715,153	$4,053,414	$5,432,396
Income (loss) before income taxes	190,405	295,585	443,639	450,819
Net income (loss) attributable to owners of the parent	136,135	203,495	299,846	302,342
Net income (loss) per share (Dollars)	0.38	0.58	0.85	0.86

Quarterly	First quarter from January 1 to March 31, 2018	Second quarter from April 1 to June 30, 2018	Third quarter from July 1 to September 30, 2018	Fourth quarter from October 1 to December 31, 2018
Net income (loss) per share (Dollars)	$0.38	$0.19	$0.27	$0.00

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Independent Auditor's Report

To the Board of Directors of
Kuraray Co., Ltd.

We have audited the accompanying consolidated financial statements of Kuraray Co., Ltd. ("the Company") and its consolidated subsidiaries, which comprise the consolidated balance sheet as at December 31, 2018, and the consolidated statement of income, consolidated statement of comprehensive income, consolidated statement of changes in net assets and consolidated statement of cash flows for the year then ended, and a summary of significant accounting policies and other explanatory information.

Management's Responsibility for the (Consolidated) Financial Statements

Management is responsible for the preparation and fair presentation of these 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.

Auditor's Responsibility

Our responsibility is to express an opinion on these consolidated financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in Japan. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the consolidated financial statements, whether due to fraud or error. In making, those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the consolidated financial statements in order to design audit procedures that are appropriate in the circumstances, while the purpose of the financial statement audit is not to express an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

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Opinion

In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company and its consolidated subsidiaries as at December 31, 2018, and their financial performance and cash flows for the year then ended in accordance with accounting principles generally accepted in Japan.

Convenience translation

The U.S. dollar amounts in the accompanying consolidated financial statements with respect to the year ended December 31, 2018 are presented solely for convenience. Our audit also included the translation of Japanese yen amounts into U.S. dollar amounts and, in our opinion, such translation has been made on the basis described in Note 1 to the consolidated financial statements.

PricewaterhouseCoopers Aarata LLC

May 30, 2019