Notes to Financial Statements

Showa Denko K.K. and Consolidated Subsidiaries

1. BASIS OF REPORTING AND FINANCIAL STATEMENTS

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

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

(a) Principles of Consolidation

The consolidated financial statements for the years ended December 31, 2018 and 2017 include the accounts of the Company and its 58 and 62, respectively, significant subsidiaries (collectively "the Companies").

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

Accounts of subsidiaries whose business year ends differ by more than three months from December 31 have been included using appropriate interim financial information.

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

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

(b) Investments in Unconsolidated Subsidiaries and Affiliates

The Company applied the equity method of accounting for investments in 2 unconsolidated subsidiaries in 2018 and 2 that of in 2017, and 9 affiliates in 2018 and 9 affiliates in 2017.

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

(c) Translation of Foreign Currency Accounts

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

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

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

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

(d) Cash and Cash Equivalents

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

(e) Securities

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

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

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

(f) Allowance for Doubtful Accounts

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

(g) Inventories

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

(h) Property, Plant and Equipment

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

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

(i) Intangible Assets

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

(j) Leased Assets

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

(k) Provision for Business Structure Improvement

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

(l) Provision for Bonuses

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

(m) Provision for Repairs

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

(n) Provision for Stock Payments

To provide for the Company's share payment to its Directors and Corporate Officers, the provision is provided based on the Director Share Payment Regulations.

(o) Provision for Loss on Guarantees

To provide for loss on guarantees, the Company makes a provision in the expected amount of such losses based on the financial conditions of the guaranteed companies.

(p) Accounting Policy for Retirement Benefits

(1) Method of attributing expected benefits to periods

The attribution of expected benefits to periods up to the current consolidated fiscal year, upon calculating the retirement benefit obligations, is done on the benefit formula basis.

(2) Method of amortization of actuarial gain or loss and past service costs

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

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

(3) Application of a simplified method to small businesses

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

(q) Income Taxes

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

Application of the Consolidated Taxation System

The Company and certain domestic subsidiaries adopt the consolidated taxation system.

(r) Derivative Financial Instruments and Hedge Accounting

The Company and certain subsidiaries state all derivative financial instruments at fair value and recognize changes in fair value as gains or losses unless the derivative financial instruments are used for hedging purposes.

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

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

Hedge accounting is not applied at some of the foreign subsidiaries.

(s) Reclassifications

Certain reclassifications have been made in the 2017 financial statements to conform to the presentation of 2018.

Notes to Financial Statements

Showa Denko K.K. and Consolidated Subsidiaries

3. ADDITIONAL INFORMATION

(a) Board Benefit Trust (BBT)

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

(1) Outline of the Transaction

In this Scheme, the shares of the Company are granted to its directors (excluding outside directors) and corporate officers pursuant to the Director Share Grant Regulations set forth by the Company.

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

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

(2) Residual Shares of the Company in the Trust

Residual shares of the Company in the trust have been recorded as treasury stock under net assets at the book value in the trust (excluding the amount of ancillary expenses). The book value and the number of such treasury stock were ¥327 million and 291,000 shares at the end of the fiscal year ended December 31, 2017, and ¥324 million (US$2,920 thousand) and 288,000 shares at the end of the fiscal year ended December 31, 2018, respectively.

4. NEW ACCOUNTING STANDARDS NOT YET APPLIED

"Accounting Standard for Revenue Recognition" (ASBJ Statement No. 29, March 30, 2018. Accounting Standards Board of Japan) and "Implementation Guidance on Accounting Standard for Revenue Recognition" (ASBJ Guidance No. 30, March 30, 2018. Accounting Standards Board of Japan)

(a) Overview

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

(b) Scheduled Date of Application

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

(c) Impact of Application

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

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

The Companies' accounting records are maintained in yen. Yen amounts included in the financial statements are rounded to the nearest one million unit. Therefore, the total and subtotal amounts presented in the financial statements may not equal the exact sum of the individual balances. The U.S. dollar amounts appearing in the accompanying financial statements and notes thereto represent the arithmetical results of translating yen into U.S. dollars at the rate of ¥111.00 to US$1.00, the approximate rate of exchange as at December 31, 2018. The inclusion of such U.S. dollar amounts is solely for the convenience of readers; it does not carry with it any implication that yen amounts have been or could be converted into U.S. dollars at that rate.

6. CASH FLOW STATEMENTS

(a) Cash and Cash Equivalents

Cash and deposits as of December 31, 2018 and 2017 on the consolidated balance sheets and cash equivalents as at December 31, 2018 and 2017 on the consolidated statements of cash flows were reconciled as follows:

	Millions of yen		Thousands of U.S. dollars
	2018	2017	**2018**
Cash and deposits	**¥ 113,186**	¥ 77,248	**$ 1,019,692**
Original maturities more than three months	**(351)**	(415)	**(3,160)**
Cash and cash equivalents	**¥ 112,835**	¥ 76,833	**$ 1,016,532**

(b) Assets and Liabilities of Newly Consolidated Subsidiaries through the Acquisition of Shares

Breakdown of the major assets and liabilities of the Company's newly consolidated subsidiary obtained through a share acquisition as of December 31, 2017

A breakdown of the major assets and liabilities at the time of the initial consolidation of SHOWA DENKO CARBON Holding GmbH and its 10 subsidiaries, obtained through a share acquisition, as well as the acquisition values and expenditures for the acquisition (net amount) were as follows:

	Millions of yen
Current assets	¥ 23,233
Non-current assets	39,219
Current liabilities	(27,514)
Non-current liabilities	(8,589)
Negative goodwill	(7,141)
Acquisition value of shares of the acquired company	¥ 19,208
Accounts payables that are included in the acquisition value	(3,015)
Cash and cash equivalents of the acquired company	(1,535)
Less: Expenditures for the acquisition	¥ 14,658

The figures in this statement reflect the amount after settlement of the provisional purchase price allocation for the business combination.

7. FINANCIAL INSTRUMENTS

(a) Overview

(1) Management policy relating to financial instruments

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

(2) Types of financial instruments and related risks

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

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

Operating payables, such as notes and accounts payable-trade and other, are due within one year. Foreign-currency-denominated accounts payable incurred through imports of raw materials are exposed to foreign currency fluctuation risk. The Companies hedge the risk by utilizing forward exchange contracts following internal rules that set out the foreign currency risk management principles. Short-term debt and commercial paper are mainly used to finance short-term operating funds, and long-term debts and bonds are mainly used to finance equipment funds. Since some of long-term debt is made up of variable interest rate loans, it is exposed to interest rate fluctuation risk. However, interest rate swaps are used for most loans to hedge the risk.

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

(3) Risk management relating to financial instruments

(i) Credit risk management (risk of default by the counterparties)

The Company follows internal rules that set out accounts receivable management principles. The compliance department works with the sales division in each sector and monitors the customers' credit conditions periodically and reviews the sales policy checking the sales volume and balances. The Company takes measures to obtain information on and minimize the credit risk that may arise due to the deterioration in the financial condition of their customers. Consolidated subsidiaries monitor their customers' financial and credit conditions based on their internal rules.

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

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

The maximum credit risk as of December 31, 2018 is disclosed as the balance sheets amount of financial instruments exposed to credit risk.

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

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

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

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

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

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

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

Consolidated subsidiaries manage their liquidity risk through similar procedures.

(4) Supplemental explanation on fair value of financial instruments

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

(b) Fair Value of Financial Instruments

As at December 31, 2018 and 2017, book value, fair value, and difference were as follows.

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

Year ended December 31, 2018	Millions of yen		
	Book value	Fair value	Difference
(1) Cash and deposits	¥113,186	¥113,186	¥ —
(2) Notes and accounts receivable-trade	203,730	203,730	—
(3) Investment securities	46,613	46,613	—
Total assets	¥363,529	¥363,529	¥ —
(1) Notes and accounts payable-trade	¥139,420	¥139,420	¥ —
(2) Short-term debt	81,747	81,747	—
(3) Current portion of long-term debt	41,403	41,411	8
(4) Accounts payable-other	56,471	56,471	—
(5) Long-term debt less current portion	164,818	165,040	222
Total liabilities	¥483,859	¥484,089	¥ 230
Derivative transactions*	¥ 1,231	¥ 1,231	¥ —

Year ended December 31, 2017	Millions of yen		
	Book value	Fair value	Difference
(1) Cash and deposits	¥ 77,248	¥ 77,248	¥ —
(2) Notes and accounts receivable-trade	176,021	176,021	—
(3) Investment securities	60,780	60,780	—
Total assets	¥314,049	¥314,049	¥ —
(1) Notes and accounts payable-trade	¥120,762	¥120,762	¥ —
(2) Short-term debt	91,699	91,699	—
(3) Current portion of long-term debt	57,432	57,499	67
(4) Accounts payable-other	67,082	67,082	—
(5) Long-term debt less current portion	197,594	197,260	(335)
Total liabilities	¥534,570	¥534,302	¥(268)
Derivative transactions*	¥ 5,354	¥ 5,354	¥ —

Year ended December 31, 2018	Thousands of U.S. dollars		
	Book value	Fair value	Difference
(1) Cash and deposits	$1,019,692	$1,019,692	$ —
(2) Notes and accounts receivable-trade	1,835,409	1,835,409	—
(3) Investment securities	419,935	419,935	—
Total assets	$3,275,036	$3,275,036	$ —
(1) Notes and accounts payable-trade	$1,256,039	$1,256,039	$ —
(2) Short-term debt	736,456	736,456	—
(3) Current portion of long-term debt	373,000	373,073	72
(4) Accounts payable-other	508,751	508,751	—
(5) Long-term debt less current portion	1,484,847	1,486,846	1,998
Total liabilities	$4,359,094	$4,361,164	$2,071
Derivative transactions*	$ 11,090	$ 11,090	$ —

*Derivative assets and liabilities are on a net basis.

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

Assets

Cash and deposits and Notes and accounts receivable-trade

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

Investment securities

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

Liabilities

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

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

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

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

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

As for bonds with short maturities, the book value is deemed to approximate the fair value since these are scheduled to be settled in a short period of time. For others, fair value is based on the market prices.

Derivative transactions

Refer to Note 9. DERIVATIVE FINANCIAL INSTRUMENTS.

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

	Millions of yen		Thousands of U.S. dollars
	2018	2017	2018
Non-listed equity securities	¥25,273	¥28,387	$227,683

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

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

Year ended December 31, 2018	Millions of yen			
	Due in 1 year or less	Due after 1 year through 5 years	Due after 5 years through 10 years	Due after 10 years
Cash and deposits	¥113,186	¥—	¥—	¥—
Notes and accounts receivable-trade	203,730	—	—	—
Total	¥316,916	¥—	¥—	¥—

Year ended December 31, 2017	Millions of yen			
	Due in 1 year or less	Due after 1 year through 5 years	Due after 5 years through 10 years	Due after 10 years
Cash and deposits	¥ 77,248	¥—	¥—	¥—
Notes and accounts receivable-trade	176,021	—	—	—
Total	¥253,269	¥—	¥—	¥—

Year ended December 31, 2018	Thousands of U.S. dollars			
	Due in 1 year or less	Due after 1 year through 5 years	Due after 5 years through 10 years	Due after 10 years
Cash and deposits	$1,019,692	$—	$—	$—
Notes and accounts receivable-trade	1,835,409	—	—	—
Total	$2,855,101	$—	$—	$—

Notes: 4. Scheduled maturities of bonds and long-term debt after December 31, 2018 and 2017

Year ended December 31, 2018	Millions of yen					
	Due in 1 year or less	Due after 1 year through 2 years	Due after 2 years through 3 years	Due after 3 years through 4 years	Due after 4 years through 5 years	Due after 5 years
(1) Short-term debt	¥ 81,747	¥ —	¥ —	¥ —	¥ —	¥ —
(2) Long-term debt	41,403	31,975	51,893	45,937	18,713	16,300
Total	¥123,150	¥31,975	¥51,893	¥45,937	¥18,713	¥16,300

Year ended December 31, 2017	Millions of yen					
	Due in 1 year or less	Due after 1 year through 2 years	Due after 2 years through 3 years	Due after 3 years through 4 years	Due after 4 years through 5 years	Due after 5 years
(1) Short-term debt	¥ 91,699	¥ —	¥ —	¥ —	¥ —	¥ —
(2) Long-term debt	57,432	41,406	31,609	47,737	35,632	41,210
Total	¥149,132	¥ 41,406	¥ 31,609	¥ 47,737	¥ 35,632	¥ 41,210

Year ended December 31, 2018	Thousands of U.S. dollars					
	Due in 1 year or less	Due after 1 year through 2 years	Due after 2 years through 3 years	Due after 3 years through 4 years	Due after 4 years through 5 years	Due after 5 years
(1) Short-term debt	$ 736,456	$ —	$ —	$ —	$ —	$ —
(2) Long-term debt	373,000	288,065	467,509	413,847	168,584	146,842
Total	$1,109,457	$288,065	$467,509	$413,847	$168,584	$146,842

8. SECURITIES

(a) Available-for-sale Securities

Year ended December 31, 2018	Millions of yen		
	Book value	Acquisition cost	Difference
Available-for-sale securities whose book value exceeds their acquisition cost			
Equity securities	**¥38,941**	**¥24,834**	**¥14,107**
Other	**181**	**159**	**21**
Available-for-sale securities whose book value is less than their acquisition cost			
Equity securities	**7,491**	**9,567**	**(2,076)**
Total	**¥46,613**	**¥34,561**	**¥12,052**

Year ended December 31, 2017	Millions of yen		
	Book value	Acquisition cost	Difference
Available-for-sale securities whose book value exceeds their acquisition cost			
Equity securities	¥54,675	¥29,211	¥25,465
Available-for-sale securities whose book value is less than their acquisition cost			
Equity securities	6,104	6,431	(326)
Total	¥60,780	¥35,641	¥25,138

Year ended December 31, 2018	Thousands of U.S. dollars		
	Book value	Acquisition cost	Difference
Available-for-sale securities whose book value exceeds their acquisition cost			
Equity securities	**$350,818**	**$223,730**	**$127,088**
Other	**1,627**	**1,433**	**194**
Available-for-sale securities whose book value is less than their acquisition cost			
Equity securities	**67,490**	**86,194**	**(18,704)**
Total	**$419,935**	**$311,357**	**$108,578**

(b) Available-for-sale Securities Sold in the Years Ended December 31, 2018 and 2017:

Year ended December 31, 2018	Millions of yen		
	Sales	Gross gain	Gross loss
Equity securities	**¥1,552**	**¥292**	**¥(2)**
Total	**¥1,552**	**¥292**	**¥(2)**

Year ended December 31, 2017	Millions of yen		
	Sales	Gross gain	Gross loss
Equity securities	¥1,116	¥218	¥(3)
Total	¥1,116	¥218	¥(3)

Year ended December 31, 2018	Thousands of U.S. dollars		
	Sales	Gross gain	Gross loss
Equity securities	**$13,980**	**$2,634**	**$(20)**
Total	**$13,980**	**$2,634**	**$(20)**

(c) Impairment of securities

For the year ended December 31, 2017, there were no impairment losses. For the year ended December 31, 2018, the Companies recorded an impairment loss of ¥2,581 million (US$23,250 thousand) on available-for-sale securities with fair market values.

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

9. DERIVATIVE FINANCIAL INSTRUMENTS

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

	Millions of yen								Thousands of U.S. dollars			
	2018				2017				**2018**			
	Contract amount	Contract amount over 1 year	Fair value	Valuation gain (loss)	Contract amount	Contract amount over 1 year	Fair value	Valuation gain (loss)	Contract amount	Contract amount over 1 year	Fair value	Valuation gain (loss)
Currency related:												
Forward exchange contracts:												
Buying												
Euro	**¥6,344**	**¥—**	**¥ 9**	**¥ 9**	¥ —	¥—	¥ —	¥ —	**$57,157**	**$—**	**$ 79**	**$ 79**
Selling												
U.S. Dollar	**¥ 20**	**¥—**	**¥ 0**	**¥ 0**	¥ 625	¥—	¥ (2)	¥ (2)	**$ 181**	**$—**	**$ 3**	**$ 3**
Euro	**401**	**—**	**¥13**	**13**	5,613	—	(113)	(113)	**3,609**	**—**	**118**	**118**

Note: Fair value calculation method:
Fair values of forward exchange contracts are stated by the forward exchange rates. Fair values of currency and interest rate swaps are measured at the quoted price obtained from the financial institutions.

(b) Derivative Transactions to Which Hedge Accounting is Applied

	Millions of yen						Thousands of U.S. dollars		
	2018			2017			**2018**		
	Contract amount	Contract amount over 1 year	Fair value	Contract amount	Contract amount over 1 year	Fair value	Contract amount	Contract amount over 1 year	Fair value
(1) Currency related:									
Principle method									
Forward exchange contracts:									
Buying									
U.S. Dollar	**¥11,309**	**¥ 766**	**¥ 0**	¥ 7,861	¥ 1,985	¥ 118	**$101,881**	**$ 6,905**	**$ 2**
Euro	**37**	**—**	**(0)**	29	—	0	**335**	**—**	**(4)**
Selling									
U.S. Dollar	**6,736**	**—**	**106**	9,108	—	29	**60,683**	**—**	**955**
Euro	**—**	**—**	**—**	306	—	(3)	**—**	**—**	**—**
Allocation method									
Forward exchange contracts:									
Buying									
U.S. Dollar	**¥ 1,971**	**¥ —**	**¥ —**	¥ 3,212	¥ —	¥ —	**$ 17,753**	**$ —**	**$ —**
Euro	**44**	**—**	**—**	53	—	—	**398**	**—**	**—**
Canadian Dollar	**—**	**—**	**—**	3	—	—	**—**	**—**	**—**
Selling									
U.S. Dollar	**7,390**	**—**	**—**	15,618	—	—	**66,575**	**—**	**—**
Euro	**1,845**	**—**	**—**	814	—	—	**16,620**	**—**	**—**
Yuan Renminbi	**1,041**	**—**	**—**	640	—	—	**9,375**	**—**	**—**
Currency swaps:									
Receipt U.S. Dollar									
Payment Yen	**¥ 7,900**	**¥2,900**	**¥ —**	¥10,400	¥ 6,900	¥ —	**$ 71,171**	**$26,126**	**$ —**
(2) Interest rate related:									
Special method									
Interest rate swaps:									
Receipt-variable rate/Payment-fixed rate	**¥ 7,168**	**¥2,836**	**¥ —**	¥25,579	¥ 7,181	¥ —	**$ 64,574**	**$25,551**	**$ —**
(3) Commodity related:									
Principle method									
Aluminum forward contracts:									
Buying	**¥18,235**	**¥8,790**	**¥1,070**	¥21,760	¥11,367	¥5,479	**$164,283**	**$79,192**	**$9,639**
Selling	**1,025**	**—**	**34**	2,093	—	(154)	**9,238**	**—**	**302**

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

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

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

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

10. EFFECT OF YEAR-END DATE ON FINANCIAL STATEMENTS

The year-end date of 2018, namely, December 31, 2018, was a bank holiday. Although notes receivable and payable maturing on this date were accordingly settled on January 4, 2019, the Companies accounted for those notes in their financial statements as if they had been settled on the maturity date.

Notes outstanding as at December 31, 2018 and 2017 dealt with in the above-mentioned manner were as follows:

	Millions of yen		Thousands of U.S. dollars
	2018	2017	**2018**
Notes receivable	**¥1,317**	¥938	**$11,868**
Notes payable	**901**	891	**8,116**

Notes to Financial Statements

Showa Denko K.K. and Consolidated Subsidiaries

11. SHORT-TERM DEBT AND LONG-TERM DEBT

As at December 31, 2018 and 2017, the short-term debt of the Companies consisted of the following:

	Millions of yen		Thousands of U.S. dollars
	2018	2017	2018
Bank loans at the average interest rate of 0.88%	¥61,747	¥86,699	$556,276
Commercial paper	20,000	5,000	180,180
Total	¥81,747	¥91,699	$736,456

As at December 31, 2018 and 2017, the long-term debt of the Companies consisted of the following:

	Millions of yen		Thousands of U.S. dollars
	2018	2017	2018
0.63% bonds due 2021	¥ 15,000	¥ 15,000	$ 135,135
0.20% bonds due 2021	10,000	10,000	90,090
0.734% bonds due 2022	10,000	10,000	90,090
0.50% bonds due 2026	7,000	7,000	63,063
Loans principally from banks and insurance companies due 2019 to 2027 at the average interest rate of 0.77%	164,221	213,026	1,479,468
	206,221	255,026	1,857,847
Less: current portion	(41,403)	(57,432)	(373,000)
Total	¥164,818	¥197,594	$1,484,847

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

Years ending December 31	Millions of yen	Thousands of U.S. dollars
2020	¥ 31,975	$ 288,065
2021	51,893	467,509
2022	45,937	413,847
2023	18,713	168,584
2024 and thereafter	16,300	146,842
Total	¥164,818	$1,484,847

As at December 31, 2018 and 2017, the assets pledged as collateral for long-term debt were as follows:

	Millions of yen		Thousands of U.S. dollars
	2018	2017	2018
Assets pledged as collateral			
Investment securities	¥ 361	¥ 422	$ 3,252
Property, plant and equipment, less accumulated depreciation	144,153	144,945	1,298,678
Total	¥144,514	¥145,367	$1,301,930
Secured short-term debt and long-term debt			
Short-term debt	¥ 170	¥ —	$ 1,530
Long-term debt	240	320	2,162
Notes and accounts payable-trade	163	202	1,468
Total	¥ 573	¥ 522	$ 5,160

12. RETIREMENT BENEFITS

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

(1) Reconciliation of opening and closing balance of retirement benefit obligation for the years ended December 31, 2018 and 2017 was as follows:

	Millions of yen		Thousands of U.S. dollars
	2018	2017	2018
Balance of retirement benefit obligation at the beginning of year	¥101,154	¥ 99,169	$911,294
Service cost	2,606	2,928	23,474
Interest cost	519	219	4,675
Actuarial gain and loss	1,428	(2,418)	12,865
Retirement benefits paid	(4,758)	(6,979)	(42,864)
Past service cost	72	24	646
Increase from changes in scope of consolidation	—	8,943	—
Other	(696)	(732)	(6,272)
Balance of the retirement benefit obligation at the end of year	¥100,324	¥101,154	$903,823

(2) Reconciliation of opening and closing balance of plan assets for the years ended December 31, 2018 and 2017 was as follows:

	Millions of yen		Thousands of U.S. dollars
	2018	2017	2018
Balance of plan assets at the beginning of year	¥82,419	¥77,613	$742,511
Expected return on plan assets	1,577	1,583	14,209
Actuarial gain and loss	(5,463)	4,654	(49,212)
Contribution from employer	4,554	4,519	41,030
Retirement benefits paid	(4,294)	(7,270)	(38,689)
Increase from changes in scope of consolidation	—	1,372	—
Other	(239)	(52)	(2,153)
Balance of plan assets at the end of year	¥78,554	¥82,419	$707,696

(3) Reconciliation of the ending balance of retirement benefit obligations and plan assets, and the net defined benefit liability and the net defined benefit asset for the years ended December 31, 2018 and 2017 was as follows:

	Millions of yen		Thousands of U.S. dollars
	2018	2017	2018
Funded retirement benefit obligations	¥ 97,178	¥ 98,015	$ 875,479
Plan assets	(78,554)	(82,419)	(707,697)
	18,624	15,596	167,781
Unfunded retirement benefit obligations	3,146	3,139	28,341
Net amount of relevant liabilities and assets on the consolidated balance sheets	21,770	18,734	196,122
Net defined benefit liability	22,018	18,966	198,365
Net defined benefit asset	(249)	(232)	(2,243)
Net amount of relevant liabilities and assets on the consolidated balance sheets	21,770	18,734	196,122

(4) Retirement benefit expenses and the components of the amounts thereof for the years ended December 31, 2018 and 2017 were as follows:

	Millions of yen		Thousands of U.S. dollars
	2018	2017	**2018**
Service cost	**¥ 2,606**	¥ 2,928	**$ 23,474**
Interest cost	**519**	219	**4,675**
Expected return on plan assets	**(1,577)**	(1,583)	**(14,209)**
Amortization of actuarial gain and loss	**1,641**	2,019	**14,787**
Amortization of past service cost	**78**	26	**702**
Retirement benefit expenses related to the defined-benefit pension plan	**¥ 3,267**	¥ 3,609	**$ 29,429**

(5) Remeasurements of defined benefit plans

The components of items (before tax) reported under remeasurements of defined benefit plans for the years ended December 31, 2018 and 2017 were as follows:

	Millions of yen		Thousands of U.S. dollars
	2018	2017	**2018**
Past service cost	**¥ (0)**	¥ (1)	**$ (2)**
Actuarial gain and loss	**5,114**	(9,071)	**46,074**
Total	**¥5,114**	¥(9,072)	**$46,072**

(6) Accumulated remeasurements of defined benefit plans

The components of items (before tax) reported under accumulated remeasurements of defined benefit plans for the years ended December 31, 2018 and 2017 were as follows:

	Millions of yen		Thousands of U.S. dollars
	2018	2017	**2018**
Unrecognized past service cost	**¥ (20)**	¥ (19)	**$ (177)**
Unrecognized actuarial gain and loss	**12,011**	6,895	**108,204**
Total	**¥11,991**	¥6,876	**$108,027**

(7) Matters regarding plan assets

(i) Major content of the plan assets

The percentages of major asset types that account for the total plan assets as of December 31, 2018 and 2017 were as follows:

	Ratio	
	2018	2017
Bonds	**42 %**	30 %
Stocks	**35**	47
General accounts of life insurance company	**22**	21
Cash and deposits	**1**	2
Total	**100 %**	100 %

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

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

(8) Matters regarding the assumptions for actuarial calculations

Key assumptions for actuarial calculations as of December 31, 2018 and 2017 were as follows:

	Ratio	
	2018	2017
Discount rate	**Mainly 0.3%**	Mainly 0.4%
Long-term rate of expected return on plan assets	**Mainly 1.8%**	Mainly 2.0%

(b) Defined contribution pension plan

The amounts required to be contributed by consolidated subsidiaries for the years ended December 31, 2018 and 2017 were ¥657 million (US$5,917 thousand), and ¥443 million, respectively.

13. INCOME TAXES

(a) As at December 31, 2018 and 2017, significant components of deferred tax assets and liabilities were as follows:

	Millions of yen		Thousands of U.S. dollars
	2018	2017	**2018**
Deferred tax assets:			
Impairment loss	**¥ 17,252**	¥ 10,616	**$ 155,420**
Write-down of marketable and investment securities	**16,657**	15,218	**150,059**
Tax loss carryforwards	**5,681**	10,643	**51,179**
Net defined benefit liability	**5,423**	4,360	**48,852**
Depreciation and amortization	**4,869**	3,789	**43,867**
Allowance for doubtful accounts	**3,924**	7,031	**35,353**
Loss on valuation of inventories	**2,200**	592	**19,820**
Provision for bonuses	**791**	693	**7,128**
Unrealized earnings from the sale of fixed assets	**543**	629	**4,890**
Undetermined accrued liabilities	**473**	530	**4,258**
Provision for repairs	**356**	1,307	**3,203**
Deferred gains or losses on hedges	**355**	1,676	**3,199**
Write-down of golf club memberships	**243**	342	**2,193**
Other	**5,359**	5,946	**48,283**
Subtotal of deferred tax assets	**64,125**	63,373	**577,706**
Valuation allowance	**(45,374)**	(46,471)	**(408,774)**
Total deferred tax assets	**18,751**	16,902	**168,932**
Deferred tax liabilities:			
Special depreciation reserve	**(5,058)**	(4,168)	**(45,563)**
Amount of revaluation from the book value	**(4,233)**	(4,991)	**(38,136)**
Valuation difference on available-for-sale securities	**(3,678)**	(7,675)	**(33,131)**
Foreign subsidiaries' undistributed retained earnings	**(3,436)**	(1,981)	**(30,955)**
Deferred gains or losses on hedges	**(371)**	(1,692)	**(3,344)**
Reserve for advanced depreciation of fixed assets	**(231)**	(207)	**(2,085)**
Other	**(3,197)**	(1,255)	**(28,804)**
Total deferred tax liabilities	**(20,204)**	(21,969)	**(182,019)**
Net deferred tax assets (liabilities)	**¥ (1,453)**	¥ (5,067)	**$ (13,086)**

Notes to Financial Statements

Showa Denko K.K. and Consolidated Subsidiaries

(b) The net deferred tax assets as at December 31, 2018 and 2017 were included in the consolidated balance sheets as follows:

	Millions of yen		Thousands of U.S. dollars
	2018	2017	**2018**
Deferred tax assets — current	**¥ 3,747**	¥ 6,898	**$ 33,760**
Deferred tax assets — non-current	**1,590**	1,080	**14,320**
Other current liabilities	**(106)**	(165)	**(956)**
Deferred tax liabilities — non-current	**(6,683)**	(12,880)	**(60,211)**

(c) Significant items in the reconciliation the statutory tax rate with the effective as at December 31, 2018 and 2017 were as follows:

	2018	2017
Statutory tax rate	**30.9 %**	30.9 %
Differences of statutory tax rate in subsidiaries	**(5.7)**	(3.9)
Consolidated adjustment for loss on valuation of investments in capital of subsidiaries and associates, etc.	**(1.6)**	(1.1)
Effect on the reexamination of recoverability	**(1.2)**	(1.1)
Unrealized earnings from the sale of fixed assets	**(0.8)**	0.1
Deferred taxes on undistributed earnings of foreign subsidiaries	**0.7**	0.6
Other	**(2.5)**	(4.0)
Effective tax rate	**19.8 %**	21.4 %

14. IMPAIRMENT LOSS

As at December 31, 2018, major impairment losses on fixed assets were as follows:

Location	Major use	Asset category	Millions of yen	Thousands of U.S. dollars
Oyama City, Tochigi Prefecture, etc.	Production facilities	Machinery and equipment, etc.	**¥ 8,845**	**$ 79,689**
Omachi City, Nagano Prefecture, etc.	Production facilities	Machinery and equipment, etc.	**4,641**	**41,807**
Hikone City, Shiga Prefecture	Idle assets and land for rent	Land, etc.	**5,967**	**53,754**
Chiba City, Chiba Prefecture	Idle assets	Land, etc.	**1,864**	**16,792**
Other			**1,257**	**11,321**
Total			**¥22,573**	**$203,362**

15. CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)

Reclassification adjustments and tax effects for components of other comprehensive income (loss) for the year ended December 31, 2018, were as follows:

	Millions of yen	Thousands of U.S. dollars
Valuation difference on available-for-sale securities		
Increase during the year	**¥(12,897)**	**$(116,192)**
Reclassification adjustments	**(227)**	**(2,043)**
Amount before income tax effect	**(13,124)**	**(118,235)**
Income tax effect	**3,997**	**36,007**
Total	**¥ (9,127)**	**$ (82,228)**
Deferred gains or losses on hedges		
Increase during the year	**¥ (2,785)**	**$ (25,089)**
Reclassification adjustments	**(115)**	**(1,034)**
Adjustments of acquisition cost of assets	**(1,360)**	**(12,255)**
Amount before income tax effect	**(4,260)**	**(38,379)**
Income tax effect	**1,318**	**11,871**
Total	**¥ (2,942)**	**$ (26,508)**
Foreign currency translation adjustments		
Increase during the year	**¥ (7,227)**	**$ (65,107)**
Reclassification adjustments	**(440)**	**(3,963)**
Amount before income tax effect	**(7,667)**	**(69,070)**
Income tax effect	**—**	**—**
Total	**¥ (7,667)**	**$ (69,070)**
Remeasurements of defined benefit plans, net of tax		
Increase during the year	**¥ (6,833)**	**$ (61,561)**
Reclassification adjustments	**1,719**	**15,486**
Amount before income tax effect	**(5,114)**	**(46,075)**
Income tax effect	**1,559**	**14,041**
Total	**¥ (3,556)**	**$ (32,034)**
Share of other comprehensive income of unconsolidated subsidiaries and affiliates accounted for using the equity method		
Increase during the year	**¥ (83)**	**$ (747)**
Reclassification adjustments	**(1,322)**	**(11,908)**
Total	**¥ (1,405)**	**$ (12,655)**
Total other comprehensive income	**¥(24,697)**	**$(222,495)**

16. LEASES

(a) Finance Leases as a Lessee

Finance lease transactions other than those involving transfer of ownership to the lessee

(1) Type of leased assets

a) Tangible fixed assets: Principally welfare facilities (buildings and structures)

b) Intangible fixed assets: Software

(2) Method of depreciation

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

(b) Operating Leases as a Lessee

As at December 31, 2018 and 2017, assets leased under non-capitalized operating leases were as follows:

Future minimum lease payments for the remaining lease periods:

	Millions of yen		Thousands of U.S. dollars
	2018	2017	**2018**
Due within 1 year	**¥ 678**	¥ 366	**$ 6,111**
Due over 1 year	**3,288**	2,147	**29,625**
Total	**¥3,967**	¥2,514	**$35,735**

(c) Operating Leases as a Lessor

As at December 31, 2018 and 2017, non-cancellable operating lease receivables for the remaining lease periods were as follows:

Future minimum lease receivables for the remaining lease periods:

	Millions of yen		Thousands of U.S. dollars
	2018	2017	**2018**
Due within 1 year	**¥ 80**	¥ 80	**$ 717**
Due over 1 year	**435**	514	**3,917**
Total	**¥514**	¥594	**$4,634**

17. CONTINGENT LIABILITIES

As at December 31, 2018 and 2017, the Companies were guarantors for the borrowings below. The guarantees were principally for unconsolidated subsidiaries, affiliates and others.

	Millions of yen		Thousands of U.S. dollars
	2018	2017	**2018**
Guarantees	**¥2,137**	¥1,509	**$19,250**

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

18. NET ASSETS

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

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

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

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

19. REVALUATION RESERVE FOR LAND

The Company and some of its consolidated subsidiaries revalued the land they own for business in accordance with the Law concerning the Revaluation of Land. The difference between the revalued amount and the book value, after the deduction of applicable tax, is stated as a land revaluation reserve. The revaluation was conducted using methods stipulated in the ordinance for enforcement of the law, specifically, the method in Item 4 of Article 2 (Reasonable Adjustment of the Appraised Value Relating to Land Price Tax), and the method in Item 5 of Article 2 (Estimation by Experts). The excess of the carrying amount of the revalued land over the market value as at December 31, 2018 was ¥63,724 million (US$574,094 thousand).

20. SELLING, GENERAL AND ADMINISTRATIVE EXPENSES

Selling, general and administrative expenses for the years ended December 31, 2018 and 2017 were summarized as follows:

	Millions of yen		Thousands of U.S. dollars
	2018	2017	**2018**
Freight	**¥ 27,986**	¥26,612	**$252,126**
Employees' compensation	**24,076**	21,582	**216,899**
Other	**55,068**	51,597	**496,111**
Total	**¥107,130**	¥99,790	**$965,135**

Research and development expenses included in selling, general and administrative expenses for the years ended December 31, 2018 and 2017 were ¥19,623 million (US$176,784 thousand) and ¥18,419 million, respectively.

21. RESEARCH AND DEVELOPMENT

Research and development costs included in manufacturing costs, selling, general and administrative expenses for the years ended December 31, 2018 and 2017 were ¥19,735 million (US$177,789 thousand) and ¥18,539 million, respectively.

22. LOSSES FOR AFFILIATES

Year ended December 31, 2018

The information as of December 31, 2018 was not disclosed because there were no significant losses for affiliates.

Year ended December 31, 2017

The Company discussed how to manage the alumina plant of PT. Indonesia Chemical Alumina (ICA)—in which the Company held a 20% share—in the future with ICA's parent company, PT ANTAM Tbk. However, the Company judged at its Board of Directors' meeting held on July 24, 2017, that it would be difficult for the two parties to reach an agreement on terms and conditions to restructure ICA.

As a result, a loss on investment to companies under the application of the equity method of ¥9,948 million (US$88,035 thousand) in connection with the impairment loss of ICA's alumina plant was recorded as the other expenses for the fiscal year ended December 31, 2017.

In addition, in light of ICA's current financial conditions as a result of the above, the Company recorded losses including ¥2,648 million (US$23,433 thousand) in the provision of allowance for doubtful accounts for the loans to ICA and ¥2,640 million (US$23,362 thousand) in the provision for loss on guarantees for guarantee liabilities for ICA's borrowings.

23. BUSINESS COMBINATION

Finalization of temporary accounting for a business combination

Temporary accounting was made for the business combination between the Company and SGL GE Holding GmbH carried out on October 2, 2017, for the previous fiscal year, the first quarter, and the second quarter. The temporary accounting was finalized.

Due to the finalization of the temporary accounting, a material review has been reflected in the initial allotment of the acquisition cost. Mainly because of a decrease in deferred tax liability related to the valuation of investment securities, the gain on negative goodwill that was temporarily calculated during the previous fiscal year (from January 1, 2017 through December 31, 2017) increased by ¥4,026 million to ¥7,141 million, and net income attributable to owners of the parent increased by ¥3,934 million to ¥37,404 million.

24. SEGMENT INFORMATION

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

Year ended December 31, 2018	Millions of yen								
	Petrochemicals	Chemicals	Electronics	Inorganics	Aluminum	Others	Total	Adjustments	Consolidated
Sales									
Outside customers	¥258,035	¥139,041	¥104,351	¥257,525	¥ 99,078	¥134,106	¥ 992,136	¥ —	¥ 992,136
Inter-segment	10,844	17,499	1,472	8,624	9,176	9,307	56,922	(56,922)	—
Total	268,879	156,541	105,823	266,149	108,254	143,413	1,049,058	(56,922)	992,136
Operating income (loss)	¥ 20,333	¥ 17,393	¥ 12,397	¥132,445	¥ 4,942	¥ 2,893	¥ 190,403	¥(10,400)	¥ 180,003
Assets	¥156,169	¥218,256	¥128,956	¥300,197	¥150,117	¥164,695	¥1,118,389	¥(42,643)	¥1,075,746
Depreciation and amortization	5,046	8,806	9,195	7,967	5,655	1,549	38,217	1,242	39,459
Amortization of goodwill	—	(260)	12	8	222	(1)	(19)	—	(19)
Investments in unconsolidated subsidiaries and affiliates	10,718	3,421	—	1,824	—	388	16,352	—	16,352
Increase in property, plant and equipment and intangible assets	5,051	8,048	8,397	8,127	5,521	4,092	39,237	2,491	41,727

Notes: 1. Adjustments are as follows:

(1) Elimination of intersegment transactions of ¥(83) million (US$(750) thousand) and total corporate expenses of ¥(10,317) million (US$(92,942) thousand) that were not allocated to any reportable segment were included in "Adjustments" for "Operating income" of ¥(10,400) million (US$(93,692) thousand). The total corporate expenses principally consist of the total corporate common research expenses which are not attributable to any reportable segment.

(2) Elimination of intersegment receivables and payables and assets of ¥(67,798) million (US$(610,794) thousand) and total corporate assets of ¥25,155 million (US$226,619 thousand) that were not allocated to any reportable segment were included in "Adjustments" for "Assets" of ¥(42,643) million (US$(384,175) thousand). The total corporate assets principally consist of surplus funds of the Companies under management (in the form of cash and deposits), deferred tax assets and assets related to the total corporate common research and development expenses.

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

Year ended December 31, 2017	Millions of yen								
	Petrochemicals	Chemicals	Electronics	Inorganics	Aluminum	Others	Total	Adjustments	Consolidated
Sales									
Outside customers	¥240,685	¥131,540	¥120,593	¥ 65,199	¥ 96,827	¥125,544	¥ 780,387	¥ —	¥ 780,387
Inter-segment	10,443	17,218	2,471	8,243	8,612	8,080	55,067	(55,067)	—
Total	251,128	148,758	123,064	73,442	105,439	133,624	835,454	(55,067)	780,387
Operating income (loss)	¥ 33,357	¥ 16,474	¥ 21,925	¥ 6,979	¥ 6,697	¥ 633	¥ 86,065	¥ (8,357)	¥ 77,708
Assets	¥146,608	¥215,641	¥144,939	¥204,546	¥169,561	¥166,540	¥1,047,835	¥(20,836)	¥1,026,999
Depreciation and amortization	6,850	8,460	9,598	5,574	5,356	1,614	37,452	1,113	38,565
Amortization of goodwill	—	(260)	12	8	228	(0)	(12)	—	(12)
Investments in unconsolidated subsidiaries and affiliates	11,148	2,301	—	1,789	—	340	15,578	—	15,578
Increase in property, plant and equipment and intangible assets	2,836	9,627	11,242	8,289	8,022	1,154	41,170	617	41,787

Notes: 1. Adjustments are as follows:

(1) Elimination of intersegment transactions of ¥88 million (US$783 thousand) and total corporate expenses of ¥(8,445) million (US$(74,735) thousand) that were not allocated to any reportable segment were included in "Adjustments" for "Operating income" of ¥(8,357) million (US$(73,954) thousand). The total corporate expenses principally consist of total corporate common research expenses that are not attributable to any reportable segment.

(2) Elimination of intersegment receivables and payables and assets of ¥(51,071) million (US$(451,956) thousand) and total corporate assets of ¥30,235 million (US$267,566 thousand) that were not allocated to any reportable segment were included in "Adjustments" for "Assets" of ¥(20,836) million (US$(184,390) thousand). The total corporate assets principally consist of surplus funds of the Companies under management (in the form of cash and deposits), deferred tax assets and assets related to the total corporate common research and development expenses.

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

Year ended December 31, 2018	Thousands of U.S. dollars								
	Petrochemicals	Chemicals	Electronics	Inorganics	Aluminum	Others	Total	Adjustments	Consolidated
Sales									
Outside customers	**$2,324,641**	**$1,252,623**	**$ 940,097**	**$2,320,045**	**$ 892,593**	**$1,208,162**	**$ 8,938,162**	**$ —**	**$8,938,162**
Inter-segment	**97,694**	**157,652**	**13,261**	**77,694**	**82,667**	**83,845**	**512,812**	**(512,812)**	**—**
Total	**2,422,335**	**1,410,275**	**953,359**	**2,397,739**	**975,260**	**1,292,008**	**9,450,975**	**(512,812)**	**8,938,162**
Operating income (loss)	**$ 183,178**	**$ 156,696**	**$ 111,686**	**$1,193,195**	**$ 44,520**	**$ 26,066**	**$ 1,715,341**	**$ (93,692)**	**$1,621,649**
Assets	**$1,406,926**	**$1,966,266**	**$1,161,768**	**$2,704,479**	**$1,352,403**	**$1,483,739**	**$10,075,581**	**$(384,175)**	**$9,691,405**
Depreciation and amortization	**45,456**	**79,336**	**82,835**	**71,777**	**50,943**	**13,951**	**344,298**	**11,191**	**355,489**
Amortization of goodwill	**—**	**(2,344)**	**106**	**76**	**2,004**	**(9)**	**(167)**	**—**	**(167)**
Investments in unconsolidated subsidiaries and affiliates	**96,561**	**30,824**	**—**	**16,435**	**—**	**3,495**	**147,315**	**—**	**147,315**
Increase in property, plant and equipment and intangible assets	**45,508**	**72,506**	**75,645**	**73,218**	**49,737**	**36,869**	**353,483**	**22,438**	**375,921**

(b) Information about geographical areas

Year ended December 31, 2018	Millions of yen			
	Japan	Asia	Others	Total
Sales	**¥551,333**	**¥239,885**	**¥200,919**	**¥992,136**

Year ended December 31, 2017	Millions of yen			
	Japan	Asia	Others	Total
Sales	¥504,162	¥230,644	¥45,580	¥780,387

Year ended December 31, 2018	Thousands of U.S. dollars			
	Japan	Asia	Others	Total
Sales	**$4,966,960**	**$2,161,125**	**$1,810,077**	**$8,938,162**

Notes to Financial Statements

Showa Denko K.K. and Consolidated Subsidiaries

Year ended December 31, 2018	Millions of yen		
	Japan	Others	Total
Property, plant and equipment	**¥379,577**	**¥98,829**	**¥478,406**

Year ended December 31, 2017	Millions of yen		
	Japan	Others	Total
Property, plant and equipment	¥402,889	¥103,045	¥505,933

Year ended December 31, 2018	Thousands of U.S. dollars		
	Japan	Others	Total
Property, plant and equipment	**$3,419,613**	**$890,351**	**$4,309,964**

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

Year ended December 31, 2018	Millions of yen							
	Petrochemicals	Chemicals	Electronics	Inorganics	Aluminum	Others	Elimination	Total
Impairment loss on assets	**¥7**	**¥—**	**¥4,964**	**¥79**	**¥9,642**	**¥6,016**	**¥1,864**	**¥22,573**

Year ended December 31, 2017	Millions of yen							
	Petrochemicals	Chemicals	Electronics	Inorganics	Aluminum	Others	Elimination	Total
Impairment loss on assets	¥289	¥649	¥3,945	¥2,312	¥2	¥7	¥—	¥7,204

Year ended December 31, 2018	Thousands of U.S. dollars							
	Petrochemicals	Chemicals	Electronics	Inorganics	Aluminum	Others	Elimination	Total
Impairment loss on assets	**$65**	**$—**	**$44,723**	**$716**	**$86,866**	**$54,197**	**$16,792**	**$203,362**

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

Year ended December 31, 2018	Millions of yen							
	Petrochemicals	Chemicals	Electronics	Inorganics	Aluminum	Others	Elimination	Total
Amortization	**¥—**	**¥ 48**	**¥ 44**	**¥ 8**	**¥ 276**	**¥ 27**	**¥—**	**¥ 404**
Unamortized balance	**—**	**134**	**244**	**38**	**2,278**	**122**	**—**	**2,815**

Year ended December 31, 2017	Millions of yen							
	Petrochemicals	Chemicals	Electronics	Inorganics	Aluminum	Others	Elimination	Total
Amortization	¥—	¥ 48	¥ 44	¥ 8	¥ 282	¥ 28	¥—	¥ 410
Unamortized balance	—	186	288	46	2,660	148	—	3,328

Year ended December 31, 2018	Thousands of U.S. dollars							
	Petrochemicals	Chemicals	Electronics	Inorganics	Aluminum	Others	Elimination	Total
Amortization	**$—**	**$ 431**	**$ 399**	**$ 76**	**$ 2,487**	**$ 246**	**$—**	**$ 3,638**
Unamortized balance	**—**	**1,208**	**2,195**	**341**	**20,518**	**1,097**	**—**	**25,359**

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

Year ended December 31, 2018	Millions of yen							
	Petrochemicals	Chemicals	Electronics	Inorganics	Aluminum	Others	Elimination	Total
Amortization	**¥—**	**¥ 308**	**¥ 33**	**¥—**	**¥ 54**	**¥ 28**	**¥—**	**¥ 422**
Unamortized balance	**—**	**1,780**	**293**	**—**	**486**	**17**	**—**	**2,575**

Year ended December 31, 2017	Millions of yen							
	Petrochemicals	Chemicals	Electronics	Inorganics	Aluminum	Others	Elimination	Total
Amortization	¥—	¥ 308	¥ 33	¥—	¥ 54	¥ 28	¥—	¥ 422
Unamortized balance	—	2,088	325	—	540	231	—	3,184

Year ended December 31, 2018	Thousands of U.S. dollars							
	Petrochemicals	Chemicals	Electronics	Inorganics	Aluminum	Others	Elimination	Total
Amortization	**$—**	**$ 2,774**	**$ 293**	**$—**	**$ 483**	**$255**	**$—**	**$ 3,805**
Unamortized balance	**—**	**16,037**	**2,637**	**—**	**4,377**	**150**	**—**	**23,201**

25. RELATED PARTY INFORMATION

(a) Related party transactions

The information for the fiscal years ended December 31, 2018 and 2017 was not disclosed because there were no significant transactions with related parties.

(b) Summary financial statements of significant affiliates

The information as of December 31, 2018 was not disclosed because there were no significant affiliates.

A significant affiliate as of December 31, 2017 was PT. Indonesia Chemical Alumina (ICA), and the summary of its financial statements was as follows:

	Millions of yen
Balance Sheets	
Total current assets	¥ 3,078
Total non-current assets	43,128
Total current liabilities	11,310
Total non-current liabilities	26,203
Total net assets	8,694
Statements of Income	
Net sales	2,830
Income before income taxes	(11,300)
Net income	(11,702)

In addition, in the consolidated financial statements for the consolidated fiscal year and as a result of recording impairment losses from the alumina factory of this company, equity in losses of unconsolidated subsidiaries and affiliates of ¥10,533 million was recorded as “other expenses.”