LG International Corp.
and its subsidiaries

Consolidated financial statements
for the years ended December 31, 2018 and 2017
with the independent auditors' report

LG International

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Independent auditor's report

The Stockholders and Board of Directors
LG International Corp.

Opinion

We have audited the accompanying consolidated financial statements of LG International Corp. (the "Company") and its subsidiaries (collectively referred to as the "Group"), which comprise the consolidated statements of financial position as of December 31, 2018 and 2017, and the consolidated statements of profit or loss and other comprehensive income or loss, consolidated statements of changes in equity and consolidated statements of cash flows for the years then ended, and the notes to the financial statements, including a summary of significant accounting policies.

In our opinion, the consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Group as of December 31, 2018 and 2017, and its consolidated financial performance and its consolidated cash flows for the years then ended in accordance with Korean International Financial Reporting Standards.

Basis for opinion

We conducted our audit in accordance with Korean Auditing Standards. Our responsibilities under those standards are further described in the Auditor's responsibilities for the audit of the consolidated financial statements section of our report. We are independent of the Group in accordance with the ethical requirements that are relevant to our audit of the consolidated financial statements in the Republic of Korea, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion

Key Audit Matters

The Key Audit Matters are based on our professional judgment and are the most significant in the Group's consolidated financial statements. These matters have been addressed in the context of an audit of our entire consolidated financial statements and in the formation of our opinion and we do not provide any separate opinion on these matters.

A. Revenue recognition

As discussed in Note 2 to the consolidated financial statements, the Group recognizes revenue when the performance obligation identified in the contracts with the customers is fulfilled, as the amount of which is expected to be received in exchange for the goods or services. Revenues from resource business and infrastructure business are ₩1,046,342 million and ₩4,910,607 million, respectively, and revenue were recognized when controls were transferred to customers for the goods produced or purchased from suppliers.

As discussed in Note 2, the Group has concluded that in some of contracts with customers, it does not have control on the goods before the goods are transferred to customers, and therefore the Group net off cost of sales amounting ₩1,903,819 million with their revenues.

We identified the risk of overstatement in revenues caused by possibilities of the Group's errors in identification of performance obligations and the timing of performing obligations identified in the contracts with customers related to the Group's goods sales as a most significant risk.

The major audit procedures we have conducted in relation to above significant risk are as follows:

- Review of accounting policies and its changes in revenue recognition for major types of sales contracts
- Review of contracts by type of sales (identification of performance obligation, measurement of transaction amount, allocation of transaction price, review of appropriateness in timing of revenue

recognition)

- Testing sales transactions selected on sampling base by comparing the records with related evidences
- Testing appropriateness in timing of revenue recognition for the transactions occurred around the reporting period end

B. Impairment of resource development business related intangible assets

The Group engages in the exploration / development and production activities ("resource development business") of minerals and biological assets such as bituminous coal, palm oil, crude oil and natural gas in Asia and elsewhere. As discussed in Note 2 to the consolidated financial statements, the Group recognizes the expenditures incurred directly related to the exploration and development business as overseas resource development assets.

The operating results of the resource development business are sensitive to international prices of the resources, exploration / development and production technologies, and potential reserves of economically producible resources, and it takes usually long term to recover the invested amount.

As of December 31, 2018, the Group has overseas resource development assets amounting to ₩406,741 million, and the Group assesses at the end of each reporting period whether there is any indication that those overseas resource development assets and related intangible assets may be impaired. A formal estimate of the recoverable amount of the assets are made if any of those indications are present and the impairment loss is recognized if necessary. In the estimate, professional forecasting and assumptions in relation to the potential reserves of resources, economic output, and international price outlook during the payback period are applied in its estimation process. Accordingly, we identified that there is a significant risk in the Group's assessment of impairment indication and estimation of recoverable amount for the intangible assets related to the resource development business due to its uncertainty and high degree of management's judgements being involved in the procedures.

The major audit procedures we have conducted in relation to above significant risk are as follows:

- Review of the accounting policies on determination of CAPEX / OPEX, depreciation, and impairment test
- Verification test on significant expenditures on major business expense
- Examination in appropriateness of cost allocation to significant expenditure capitalized with related documentation
- Review on the reserve report estimating economically producible resources
- Review on consistency and feasibility of assumptions applied to the forecasted cash flow in estimation of the recoverable amount

Responsibilities of management and those charged with governance for the financial statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with Korean International Financial Reporting Standards, and for such internal control as management determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error

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

Those charged with governance are responsible for overseeing the Company's financial reporting process.

Auditor's responsibilities for the audit of the consolidated financial statements

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

As part of an audit in accordance with Korean Auditing Standards we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

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

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

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

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

The partner in charge of the audit resulting in this independent auditor's report is Jung Ho Chae.

Ernst & Young Han Young

March 7, 2019

This audit report is effective as of March 7, 2019, the independent auditor's report date. Accordingly, certain material subsequent events or circumstances may have occurred during the period from the independent auditor's report date to the time this report is used. Such events and circumstances could significantly affect the accompanying consolidated financial statements and may result in modifications to this report.

LG International Corp. and its subsidiaries

Consolidated financial statements
for the years ended December 31, 2018 and 2017

"The accompanying consolidated financial statements, including all footnotes and disclosures, have been prepared by, and are the responsibility of, the Company."

Chi-Ho Song
Chief Executive Officer
LG International Corp.

LG International Corp. and its subsidiaries
Consolidated statements of financial position
as at December 31, 2018 and 2017

(Korean won in millions)

	Notes	2018	2017
Assets			
Current assets			
Cash and cash equivalents	4, 5, 26, 27	₩ 342,014	₩ 395,211
Short-term financial assets	4, 11, 26, 27	14,162	20,649
Trade accounts receivable, net	4, 11, 24, 26, 27	1,067,921	1,276,108
Other accounts receivable, net	4, 6, 11, 26, 27	384,169	53,424
Accrued income, net	4	9,458	17,602
Advance payments		103,600	79,136
Prepaid expenses		68,453	60,611
Other current assets	4	53,408	52,318
Inventories, net	7	514,101	598,075
Non-current assets held-for-sale	27	1,116	1,116
Total current assets		2,558,402	2,554,250
Non-current assets			
Investment assets	4, 8, 11, 24, 26, 27	218,214	219,834
Investment in associates	8	368,193	400,519
Property, plant and equipment, net	9	669,022	552,520
Investment properties, net	9	30,158	31,824
Intangible assets, net	10	876,123	881,782
Deferred tax assets	21	137,997	209,171
Other non-current assets	4, 5	179,963	117,702
Total non-current assets		2,479,670	2,413,352
Total assets		**₩ 5,038,072**	**₩ 4,967,602**

(Continued)

LG International Corp. and its subsidiaries
Consolidated statements of financial position
as at December 31, 2018 and 2017 (cont'd)
(Korean won in millions)

	Notes	2018	2017
Liabilities			
Current liabilities			
Short-term borrowings	4, 12, 26, 27, 28	₩ 63,318	₩ 130,692
Trade accounts payable	4, 24, 26, 27	1,184,020	1,416,001
Other accounts payable	4, 6, 26, 27	389,072	161,151
Advance received		65,891	47,158
Withholdings	4	34,252	34,949
Current tax liabilities		30,146	27,522
Accrued expenses	4	92,515	91,733
Current portion of bonds and long-term borrowings	4, 12, 26, 27, 28	243,582	164,767
Deferred income		56,004	48,391
Deposits received	4	8,555	7,966
Total current liabilities		2,167,355	2,130,330
Non-current liabilities			
Bonds payable	4, 12, 26, 27, 28	389,222	329,310
Long-term borrowings	4, 12, 26, 27, 28	734,529	781,814
Defined benefit liabilities	20	26,417	15,596
Deferred tax liabilities	23	98,342	89,447
Provisions	13	64,826	21,033
Deposits received	4	7,844	14,612
Total non-current liabilities		1,321,180	1,251,812
Total liabilities		**3,488,535**	**3,382,142**
Equity			
Issued capital	14	193,800	193,800
Share premium	14	101,163	100,931
Other components of equity	14	(1,579)	(1,579)
Accumulated other comprehensive income (loss)	14	(45,031)	(59,749)
Retained earnings	14	880,144	960,988
Equity attributable to the owners of the parent		1,128,497	1,194,391
Non-controlling interests		421,040	391,069
Total equity		**1,549,537**	**1,585,460**
Total liabilities and equity		**₩ 5,038,072**	**₩ 4,967,602**

The accompanying notes are an integral part of the consolidated financial statements.

LG International Corp. and its subsidiaries
Consolidated statements of profit or loss
for the years ended December 31, 2018 and 2017
(Korean won in millions, except per share amounts)

	Notes		2018		2017
Sales	3, 16, 24	₩	**9,988,225**	₩	**12,827,237**
Cost of sales	19, 24		(9,277,167)		(12,076,656)
Gross profit			**711,058**		**750,581**
Selling and administrative expenses	18, 19		(545,399)		(538,327)
Operating profit	3, 17		**165,659**		**212,254**
Finance income	4, 21		198,621		230,304
Finance costs	4, 21		(247,321)		(268,868)
Share of profit in associates	8, 21		109,093		15,063
Other non-operating expenses, net	21		(69,457)		(10,862)
Profit before income tax			**156,595**		**177,891**
Income tax expenses	23		(192,587)		(89,706)
Profit (loss) for the year		₩	**(35,992)**	₩	**88,185**
Attributable to:					
Owners of the parent		₩	(70,365)	₩	60,210
Non-controlling interests		₩	34,373	₩	27,975
Earnings per share attributable to the equity owners of the parent:					
Basic earnings (loss) per share	14	₩	(1,820)	₩	1,557
Diluted earnings (loss) per share	14	₩	(1,820)	₩	1,557

The accompanying notes are an integral part of the consolidated financial statements.

LG International Corp. and its subsidiaries
Consolidated statements of other comprehensive income or loss
for the years ended December 31, 2018 and 2017
(Korean won in millions)

	Notes	2018	2017
Profit (loss) for the year		**₩ (35,991)**	**₩ 88,185**
Other comprehensive income (loss) that may be reclassified to profit or loss in subsequent periods:			
Net loss on valuation of available-for-sale financial assets	4, 8	-	(11,246)
Gain (loss) on valuation of derivatives designated as cash flow hedges	4, 6	1,731	(2,146)
Equity adjustments in equity method	8	(4,107)	(5,709)
Exchange differences on translation of foreign operations		10,908	(113,035)
		8,532	(132,136)
Other comprehensive income that will not be reclassified to profit or loss in subsequent periods:			
Gain on valuation of financial assets designated at fair value through OCI	*8*	6,920	-
Re-measurement gain (loss) on defined benefit plans	20	(5,488)	547
		1,433	547
Other comprehensive income (loss) for the year, net of tax		**9,964**	**(131,589)**
Total comprehensive income (loss) for the year, net of tax		**₩ (26,027)**	**₩ (43,404)**
Attributable to:			
Owners of the parent		₩ (60,867)	₩ (44,927)
Non-controlling interests		₩ 34,840	₩ 1,523

The accompanying notes are an integral part of the consolidated financial statements.

LG International Corp. and its subsidiaries
Consolidated statements of changes in equity
for the years ended December 31, 2018 and 2017

(Korean won in millions)

	Notes	Attributable to the owners of the parent							
	Notes	Issued capital	Share premium	Other components of equity	Accumulated other comprehensive income (loss)	Retained earnings	Total	Non-controlling interests	Total equity
As at January 1, 2017		**₩ 193,800**	**₩ 100,849**	**₩ (1,579)**	**₩ 45,392**	**₩ 910,439**	**₩ 1,248,901**	**₩ 396,457**	**₩ 1,645,358**
Profit for the year		-	-	-	-	60,210	60,210	27,975	88,185
Net loss on valuation of available-for-sale financial assets		-	-	-	(10,994)	-	(10,994)	(251)	(11,245)
Gain on valuation of derivatives designated as cash flow hedges		-	-	-	(1,949)	-	(1,949)	(197)	(2,146)
Equity adjustments in equity method		-	-	-	(5,634)	-	(5,634)	(76)	(5,710)
Exchange differences on translation of foreign operations		-	-	-	(86,564)	-	(86,564)	(26,471)	(113,035)
Re-measurement loss on defined benefit plans		-	-	-	-	4	4	543	547
Total comprehensive income (loss)		**-**	**-**	**-**	**(105,141)**	**60,214**	**(44,927)**	**1,523**	**(43,404)**
Dividends	15	-	-	-	-	(9,665)	(9,665)	(9,364)	(19,029)
Paid in capital of subsidiaries and acquisition of equity		-	82	-	-	-	82	2,453	2,535
As at December 31, 2017		**₩ 193,800**	**₩ 100,931**	**₩ (1,579)**	**₩ (59,749)**	**₩ 960,988**	**₩ 1,194,391**	**₩ 391,069**	**₩ 1,585,460**

(Continued)

LG International Corp. and its subsidiaries
Consolidated statements of changes in equity
for the years ended December 31, 2018 and 2017 (cont'd)

(Korean won in millions)

	Notes	Attributable to the owners of the parent							
		Issued capital	Share premium	Other components of equity	Accumulated other comprehensive income (loss)	Retained earnings	Total	Non-controlling interests	Total equity
As at January 1, 2018		**₩ 193,800**	**₩ 100,931**	**₩ (1,579)**	**₩ (59,749)**	**₩ 960,988**	**₩ 1,194,391**	**₩ 391,069**	**₩ 1,585,460**
Effect of adoption of new accounting standards	2				558	3,853	4,410	(53)	4,357
As at January 1, 2018(Restated)		**193,800**	**100,931**	**(1,579)**	**(59,191)**	**964,841**	**1,198,801**	**391,016**	**1,589,817**
Profit for the year		-	-	-	-	(70,365)	(70,365)	34,373	(35,992)
Gain on valuation of financial assets designated at fair value through OCI		-	-	-	7,120	-	7,120	(199)	6,921
Gain on valuation of derivatives designated as cash flow hedges		-	-	-	1,554	-	1,554	177	1,731
Equity adjustments in equity method		-	-	-	(4,111)	-	(4,111)	3	(4,107)
Exchange differences on translation of foreign operations		-	-	-	9,597	-	9,597	1,312	10,908
Re-measurement loss on defined benefit plans		-	-	-	-	(4,662)	(4,662)	(826)	(5,488)
Total comprehensive income (loss)		**-**	**-**	**-**	**14,160**	**(75,027)**	**(60,866)**	**34,840**	**(26,027)**
Dividends	16	-	-	-	-	(9,665)	(9,665)	(10,434)	(20,098)
Paid in capital of subsidiaries and acquisition of equity		-	232	-	-	-	232	1,911	2,144
Non-controlling interests arising on a business combination	31	-	-	-	-	-	-	3,707	3,707
Other		-	-	-	-	(5)	(5)	-	(5)
As at December 31, 2018		**₩ 193,800**	**₩ 101,163**	**₩ (1,579)**	**₩ (45,031)**	**₩ 880,144**	**₩ 1,128,497**	**₩ 421,040**	**₩ 1,549,538**

The accompanying notes are an integral part of the consolidated financial statements.

LG International Corp. and its subsidiaries
Consolidated statements of cash flows
for the years ended December 31, 2018 and 2017
(Korean won in millions)

	Notes	2018	2017
Cash flows from operating activities:			
Profit (loss) for the year		₩ (35,991)	₩ 88,185
Non-cash adjustments to reconcile profit for the year to net cash flows provided by operating activities	28	318,419	196,945
Working capital adjustments	28	(117,152)	(5,133)
Interest received		19,044	13,960
Interest paid		(45,702)	(52,878)
Dividends received		15,906	7,009
Income taxes paid		(123,735)	(67,474)
Net cash flows provided by operating activities		**30,789**	**180,614**
Cash flows from investing activities:			
Decrease in financial instruments		43,297	168,316
Decrease in loans		16,954	8,142
Decrease in guarantee deposits		15,486	6,522
Proceeds from disposal of equity instruments held for long-term		2,197	4,426
Proceeds from disposal and capital reduction of investment in subsidiaries and associates		128,052	19,189
Proceeds from disposal of non-current assets held-for-sale		-	7,361
Proceeds from disposal of property, plant and equipment		1,909	3,863
Proceeds from disposal of intangible assets		509	2,469
Proceeds from disposal of other investments		-	139
Net cash flow from disposal of subsidiary		(2,182)	-
Net cash flow from business combination		(68,533)	-
Increase in financial instruments		(35,822)	(87,805)
Increase in loans		(17,556)	(15,359)
Increase in guarantee deposits		(18,045)	(6,801)
Acquisition of equity instruments held for long-term		(6,467)	(7,500)
Acquisition of investment in associates		(2,799)	(7,179)
Acquisition of property, plant and equipment		(103,045)	(74,355)
Acquisition of intangible assets		(23,222)	(31,629)
Acquisition of other investment assets		-	(3)
Net cash used in investing activities		**(69,267)**	**(10,204)**
Cash flows from financing activities:			
Proceeds from finance liabilities	28	2,947,315	2,044,291
Repayment of finance liabilities	28	(2,936,635)	(2,092,143)
Dividends paid to stockholders		(20,098)	(19,029)
Net cash flows from other financing activities		2,099	-
Net cash flows used in financing activities		**(7,319)**	**(66,881)**
Net increase (decrease) in cash and cash equivalents		**(45,797)**	**103,529**
Cash and cash equivalents as at January 1		**395,211**	**311,173**
Exchange differences on translation of cash and cash equivalents		**(7,400)**	**(19,491)**
Cash and cash equivalents as at December 31		**₩ 342,014**	**₩ 395,211**

The accompanying notes are an integral part of the consolidated financial statements.

1. Organization and business

LG International Corp. ("LGI" or the "Company") and its 86 subsidiaries including LG International (America) Inc. (collectively referred to as the "Group") prepare the consolidated financial statements in accordance with KIFRS 1110 *Consolidated Financial Statements*, and general information on the Group is as follows:

1.1 The Company

The Company was established on November 26, 1953 to engage in the import and export business. It changed its name to Bando Corporation in 1956 and to Lucky Industries Co., Ltd. in 1984. Its current name was adopted on March 1, 1995.

LGI listed its common stock on the Korea Exchange in January 1976 and was designated as a general trading company by the Korean Government on November 12, 1976.

LGI is currently engaged in the import and export of goods, and other business activities. The LGI headquarters is located in Seoul and operates 14 overseas branch offices, 10 liaison offices and 87 subsidiaries (including 61 sub-subsidiaries) as at December 31, 2018.

1.2 Consolidated subsidiaries

Subsidiaries included in consolidation are as follows:

	Country of domicile	Equity ownership (%)		Reporting date	Principal activity	Basis of control
		2018	2017			
LG International (America) Inc.	USA	100.00	100.00	Dec. 31	Export and import	Ownership over 50%
LHC Solar LLC	USA	100.00	100.00	Dec. 31	Solar energy	Ownership over 50%
LG International (Japan) Ltd.	Japan	100.00	100.00	Dec. 31	Export and import	Ownership over 50%
LG International (Hong Kong) Ltd.	Hong Kong	100.00	100.00	Dec. 31	Export and import	Ownership over 50%
LG International (Singapore) Pte. Ltd.	Singapore	100.00	100.00	Dec. 31	Export and import	Ownership over 50%
LG International (Deutschland) GmbH	Deutschland	100.00	100.00	Dec. 31	Export and import	Ownership over 50%
LG International (China) Ltd.	China	100.00	100.00	Dec. 31	Export and import	Ownership over 50%
Nanjing LG International VMI Co., Ltd.	China	100.00	100.00	Dec. 31	Hub	Ownership over 50%
LG International (Shanghai) Ltd.	China	100.00	100.00	Dec. 31	Export and import	Ownership over 50%
Yantai VMI Hub LG International Co., Ltd.	China	100.00	100.00	Dec. 31	Hub	Ownership over 50%
Guangzhou Steel Flower Electrical & Machinary Co., Ltd.	China	100.00	100.00	Dec. 31	Steel frames	Ownership over 50%
Bowen Investment (Australia) Pty. Ltd. (*1)	Australia	100.00	100.00	Dec. 31	Coal mining	Ownership over 50%
Resources Investments (Marree) Pty. Ltd. (*1)	Australia	-	100.00	Dec. 31	Uranium	Ownership over 50%
PT. Batubara Global Energy (BGE)	Indonesia	100.00	100.00	Dec. 31	Coal mining	Ownership over 50%
PT. Megaprima Persada (MPP)	Indonesia	75.00	75.00	Dec. 31	Coal mining	Ownership over 50%
PT. Mega Global Energy (MGE)	Indonesia	100.00	100.00	Dec. 31	Coal mining	Ownership over 50%
PT. Ganda Alam Makmur (GAM)	Indonesia	60.00	60.00	Dec. 31	Coal mining	Ownership over 50%
LG International (India) Ltd.	India	100.00	100.00	Dec. 31	Export and import	Ownership over 50%
PT. Green Global Lestari (GGL)	Indonesia	100.00	100.00	Dec. 31	Palm oil	Ownership over 50%
PT. Parna Agromas (PAM)	Indonesia	95.00	95.00	Dec. 31	Palm oil	Ownership over 50%
PT. Grand Utama Mandiri (GUM) (*1)	Indonesia	95.00	-	Dec. 31	Palm oil	Ownership over 50%
PT. Tintin Boyok Sawit Makmur (TBSM) (*1)	Indonesia	95.00	-	Dec. 31	Palm oil	Ownership over 50%
PT. Tintin Boyok Sawit Makmur (TBSMD) (*1)	Indonesia	95.00	-	Dec. 31	Palm oil	Ownership over 50%
PT. Indonesia Renewable Resources (IRR)	Indonesia	100.00	100.00	Dec. 31	Industrial planting	Ownership over 50%
PT. Binsar Natorang Energi (BNE)	Indonesia	94.81	92.82	Dec. 31	Hydroelectric power	Ownership over 50%
Steel Flower Electric & Machinary (Tianjin) Co., Ltd.	China	100.00	100.00	Dec. 31	Steel frames	Ownership over 50%
Philco Resources Ltd. (Rapu-Rapu)	Malaysia	60.00	60.00	Dec. 31	Copper mining	Ownership over 50%
Resource Investment (Hong Kong) Ltd. (Wantugou)	Hong Kong	100.00	100.00	Dec. 31	Coal mining	Ownership over 50%
LG International Yakutsk Ltd.	Russia	100.00	100.00	Dec. 31	Real estate	Ownership over 50%
Korea Carbon International Co., Ltd. (Shaanxi BBM)	Hong Kong	60.00	60.00	Dec. 31	Renewable plant	Ownership over 50%
Colmineral, S.A. de.C.V.	Mexico	100.00	100.00	Dec. 31	Iron ore	Ownership over 50%
Fertilizer Resources Investment Ltd.	Hong Kong	100.00	100.00	Dec. 31	Fertilizer	Ownership over 50%
Dangjin Tank Terminal Co., Ltd.	Korea	100.00	100.00	Dec. 31	Storage	Ownership over 50%
Haiphong Steel Flower Electrical & Machinery Company Limited	Vietnam	100.00	100.00	Dec. 31	Steel frames	Ownership over 50%

1.2 Consolidated subsidiaries (cont'd)

	Country of domicile	Equity ownership (%) 2018	2017	Reporting date	Principal activity	Basis of control
Highland Cement International Co., Ltd.	Myanmar	51.00	51.00	Mar. 31	Cement	Ownership over 50%
Pantos Logistics Co., Ltd. (*2)	Korea	51.00	51.00	Dec. 31	Logistics	Ownership over 50%
Pantos Busan Newport Logistics Center Co., Ltd. (*2)	Korea	100.00	100.00	Dec. 31	Warehouse	Ownership over 50%
Helistar Air Co., Ltd (*2)	Korea	100.00	100.00	Dec. 31	Logistics	Ownership over 50%
Hanultari Co., Ltd (*1, 2)	Korea	100.00	-	Dec. 31	Whole sale & Retail	Ownership over 50%
Pantos Logistics (China) Co., Ltd. (*2)	China	100.00	100.00	Dec. 31	Logistics	Ownership over 50%
FNS (Beijing) Logistics Co., Ltd. (*2)	China	100.00	100.00	Dec. 31	Logistics	Ownership over 50%
Pantos Logistics (Shanghai) Co., Ltd. (*2)	China	100.00	100.00	Dec. 31	Warehouse	Ownership over 50%
Pantos Logistics (Ningbo) Co., Ltd. (*2)	China	100.00	100.00	Dec. 31	Logistics	Ownership over 50%
Pantos Logistics (Shenzhen) Co., Ltd. (*2)	China	100.00	100.00	Dec. 31	Logistics	Ownership over 50%
Pantos Logistics (H.K.) Co., Ltd. (*2)	Hong Kong	100.00	100.00	Dec. 31	Logistics	Ownership over 50%
Pantos Logistics (Taiwan) Co., Ltd. (*2)	Taiwan	100.00	100.00	Dec. 31	Logistics	Ownership over 50%
PT. Pantos Logistics Indonesia (*2)	Indonesia	99.00	99.00	Dec. 31	Logistics	Ownership over 50%
PT. Pantos Logistics Jakarta (*2)	Indonesia	100.00	100.00	Dec. 31	Logistics	Ownership over 50%
Pantos Logistics Singapore Pte. Ltd. (*2)	Singapore	100.00	100.00	Dec. 31	Logistics	Ownership over 50%
Pantos Logistics (Thailand) Co., Ltd. (*2)	Thailand	100.00	100.00	Dec. 31	Logistics	Ownership over 50%
Pantos Logistics Malaysia Sdn. Bhd. (*2)	Malaysia	100.00	100.00	Dec. 31	Logistics	Ownership over 50%
Pantos Logistics (India) Pvt. Ltd. (*2)	India	100.00	100.00	Mar. 31	Logistics	Ownership over 50%
Pantos Logistics (Cambodia) Co., Ltd. (*2)	Cambodia	100.00	99.98	Dec. 31	Logistics	Ownership over 50%
Pantos Logistics Vietnam Co., Ltd. (*2)	Vietnam	99.00	99.00	Dec. 31	Logistics	Ownership over 50%
Pantos Logistics Australia Pty Ltd. (*2)	Australia	100.00	100.00	Dec. 31	Logistics	Ownership over 50%
Pantos Holdings (Thailand) Co., Ltd. (*2)	Thailand	48.50	48.50	Dec. 31	Logistics	De facto control
Pantos Logistics Myanmar Co., Ltd. (*2)	Myanmar	69.99	69.99	Mar. 31	Logistics	Ownership over 50%
Pantos Logistics U.K. Ltd (*2)	UK	100.00	100.00	Dec. 31	Logistics	Ownership over 50%
Pantos Logistics Benelux B.V (*2)	Netherlands	100.00	100.00	Dec. 31	Logistics	Ownership over 50%
Pantos Logistics France (*2)	France	100.00	100.00	Dec. 31	Logistics	Ownership over 50%
Pantos Logistics Poland (*2)	Poland	100.00	100.00	Dec. 31	Logistics	Ownership over 50%
Pantos Logistics Germany GmbH (*2)	Deutschland	100.00	100.00	Dec. 31	Logistics	Ownership over 50%
Pantos Logistics Spain S.L. (*2)	Spain	100.00	100.00	Dec. 31	Logistics	Ownership over 50%
Pantos Logistics Ve Tic.Lgd.Sti (*2)	Turkey	100.00	100.00	Dec. 31	Logistics	Ownership over 50%
Pantos Logistics Sweden (*1,2)	Sweden	100.00	-	Dec. 31	Logistics	Ownership over 50%
Pantos USA Inc. (*1,2)	USA	-	100.00	Dec. 31	Logistics	Ownership over 50%
Pantos Logistics Mexico (*2)	Mexico	100.00	100.00	Dec. 31	Logistics	Ownership over 50%
Pantos Do Brasil Logistica (*2)	Brazil	100.00	100.00	Dec. 31	Logistics	Ownership over 50%
Pantos Logistics Colombia SAS (*2)	Colombia	100.00	100.00	Dec. 31	Logistics	Ownership over 50%
Pantos Logistics Chile SpA (*2)	Chile	100.00	100.00	Dec. 31	Logistics	Ownership over 50%
Pantos Logistics Panama S.A (*2)	Panama	100.00	100.00	Dec. 31	Logistics	Ownership over 50%
Pantos Logistics AR S.A (*1,2)	Argentina	100.00	100.00	Dec. 31	Logistics	Ownership over 50%
Hi Logistics Brasil Servicos De Logistica LTDA (*2)	Brasil	100.00	100.00	Dec. 31	Logistics	Ownership over 50%
Great America Trans, Inc. (*1, 2)	USA	-	100.00	Dec. 31	Logistics	Ownership over 50%
FNS CIS LLC (*2)	Russia	100.00	100.00	Dec. 31	Logistics	Ownership over 50%
Pantos Logistics Kazakhstan (*2)	Kazakhstan	100.00	100.00	Dec. 31	Logistics	Ownership over 50%
Pantos Logistics Ukraine Ltd (*2)	Ukraine	100.00	100.00	Dec. 31	Logistics	Ownership over 50%
Pantos Customs Services LLC (*2)	Russia	100.00	99.00	Dec. 31	Customs	Ownership over 50%
Pantos Logistics L.L.C (Dubai) (*2)	Dubai	49.00	49.00	Dec. 31	Logistics	De facto control
Pantos Logistics L.L.C (Oman) (*2)	Oman	70.00	70.00	Dec. 31	Logistics	Ownership over 50%
Pantos Logistics CO., LTD. Saudi Arabia (*1,2)	Saudi Arabia	100.00	100.00	Dec. 31	Steel frames	Ownership over 50%
Pantos Logistics Nigeria Limited (*1,2)	Nigeria	99.93	-	Dec. 31	Logistics	Ownership over 50%
Pantos Logistics Japan Inc. (*2)	Japan	100.00	100.00	Dec. 31	Logistics	Ownership over 50%
Hi Logistics (China) Co., Ltd. (*2)	China	100.00	100.00	Dec. 31	Logistics	Ownership over 50%
Hi Logistics solution India Private Limited (*1, 2)	India	100.00	100.00	Dec. 31	Logistics	Ownership over 50%
Hi Logistics Malaysia Sdn. Bhd. (*2)	Malaysia	100.00	100.00	Dec. 31	Logistics	Ownership over 50%
Hi Logistics USA, Inc (*2)	USA	100.00	100.00	Dec. 31	Logistics	Ownership over 50%
Hi Logistics RUS, LLC. (*2)	Russia	100.00	100.00	Dec. 31	Logistics	Ownership over 50%
Hi Logistics Egypt S.A.E (*2)	Egypt	98.00	98.00	Dec. 31	Logistics	Ownership over 50%
Hi Logistics Vietnam Co., Ltd. (*2)	Vietnam	100.00	100.00	Dec. 31	Logistics	Ownership over 50%

(*1) During the year ended December 31, 2018, the Group established Hanultari Co., LTD., Pantos Logistics Nigeria Limited, and Pantos Logistics Sweden as a subsidiary to be consolidated. In addition, PT.Green Global Lestari (GGL) acquired PT.Grand Utama Mandiri (GUM), PT. Tintin Boyok Sawit Mkmur (TBSM), PT. Tintin Boyok Sawit Makmur Dua (TBSMD, subsidiary of TBSM) as a subsidiary to be condolidated. On the other hand, the Group has liquidated Resources Investments (Marree) Pty. Ltd. and disposed Pantos USA, Inc. and Great America Trans, Inc. and excluded them from the Group's subsidiaries. Pantos Logistics L.L.C (KSA) was renamed Pantos Logistics CO., Ltd. SaudiArabia, and Hi Logistics

1.2 Consolidated subsidiaries (cont'd)

India Private Limited was renamed Pantos Logistics Solutions India Private Limited. During the year ended December 31, 2017, the Group established Pantos Logistics AR S.A and Great America Trans, Inc. as a subsidiary to be consolidated. Hi Logistics NJ Inc. was renamed as Pantos USA, Inc., Natural Resources Investment (Australia) Pty. Ltd. was renamed as Bowen Investment (Australia) Pty. Ltd.

(*2) As at December 31, 2018 and 2017, the entities are subsidiaries of Pantos Logistics Co., Ltd., and the above equity ownerships are merely the sums of equity ownership held by Pantos Logistics Co., Ltd. and its subsidiaries.

1.3 Summarized financial information of consolidated subsidiaries

The summarized financial information of consolidated subsidiaries (before elimination of intra-group transactions) are as follows (Korean won in millions):

	2018				
	Assets	Liabilities	Equity	Revenue	Profit (loss) for the year
LG International (America) Inc.	₩ 343,416	₩ 315,763	₩ 27,653	₩ 813,702	₩ 4,514
LHC Solar LLC	3,723	1,363	2,360	323	31
LG International (Japan) Ltd.	218,797	210,532	8,265	598,376	1,477
LG International (Hong Kong) Ltd.	100,548	94,337	6,211	258,606	60
LG International (Singapore) Pte. Ltd.	355,719	342,790	12,929	2,039,240	2,167
LG International (Deutschland) GmbH	49,367	42,862	6,505	168,943	(6,410)
LG International (China) Ltd.	9,488	5,222	4,266	10,936	(38)
Nanjing LG International VMI Co., Ltd.	2,727	147	2,580	1,471	374
LG International (Shanghai) Ltd.	1,504	150	1,354	2,396	167
Yantai VMI Hub LG International Co., Ltd.	3,005	60	2,945	876	403
Guangzhou Steel Flower Electrical & Machinary Co., Ltd.	23,474	4,521	18,953	31,474	(12)
Bowen Investment (Australia) Pty Ltd.	90,965	63,049	27,916	85,317	20,252
PT. Batubara Global Energy (BGE)	62,652	27,158	35,494	303,765	5,645
PT. Megaprima Persada (MPP)	54,865	34,775	20,090	102,158	7,522
PT. Mega Global Energy (MGE)	6,825	179	6,646	5,106	1,720
PT. Ganda Alam Makmur (GAM)	587,512	276,929	310,583	178,214	7,934
LG International (India) Ltd.	1,616	146	1,470	1,533	217
PT. Green Global Lestari (GGL)	140,535	20,637	119,898	-	1,260
PT. Parna Agromas (PAM)	86,970	52,232	34,738	48,667	4,668
PT. Grand Utama Mandiri (GUM)	45,448	8,186	37,262	528	(1,550)
PT. Tintin Boyok Sawit Makmur (TBSM)	40,270	11,843	28,427	3,041	(1,039)
PT. Tintin Boyok Sawit Makmur DUA (TBSMD)	9,833	1,928	7,905	497	49
PT. Indonesia Renewable Resources (IRR)	10,191	8,655	1,536	230	45
PT. Binsar Natorang Energi (BNE)	201,630	130,811	70,819	61,947	7,697
Steel Flower Electric & Machinary (Tianjin) Co., Ltd.	42,045	21,080	20,965	72,094	2,660
Philco Resources Ltd. (Rapu-Rapu)	401	34	367	-	(8)
Resource Investment (HongKong) Ltd. (Wantugou)	74,847	-	74,847	-	(173)
LG International Yakutsk Ltd.	6,649	12,331	(5,682)	1,165	(79)
Korea Carbon International Co., Ltd. (Shaanxi BBM)	8,157	13,401	(5,244)	-	(579)
Colmineral, S.A. de.C.V.	3	-	3	-	-
Fertilizer Resources Investment Ltd.	105,566	-	105,566	-	12,147
Dangjin Tank Terminal Co., Ltd.	94,707	32	94,675	-	(1,250)
Haiphong Steel Flower Electrical & Machinery Company Limited	19,840	15,222	4,618	19,866	(453)
Highland Cement International Co., Ltd.	78,854	13,292	65,562	15,132	(10,716)
Pantos Logistics Co., Ltd.	871,110	387,370	483,740	2,179,630	50,373
Pantos Busan Newport Logistics Center Co., Ltd.	10,166	714	9,452	7,555	703
Helistar Air Co., Ltd.	6,363	3,312	3,051	40,094	469
Hanultari Co., Ltd.	156	51	105	209	5
Pantos Logistics (China) Co., Ltd.	75,261	55,299	19,962	257,799	3,476

	2018				
	Assets	Liabilities	Equity	Revenue	Profit (loss) for the year
FNS (Beijing) Logistics Co., Ltd.	4,586	4,526	60	22,920	(31)
Pantos Logistics (Shanghai) Co., Ltd.	42,380	28,676	13,704	158,679	2,712
Pantos Logistics (Ningbo) Co., Ltd.	1,843	154	1,689	1,046	293
Pantos Logistics (Shenzhen) Co., Ltd.	59,993	38,290	21,703	194,986	8,641
Pantos Logistics (H.K) Co., Ltd.	30,797	10,702	20,095	75,297	2,490
Pantos Logistics (Taiwan) Co., Ltd.	5,573	3,286	2,287	16,979	572
PT. Pantos Logistics Indonesia	18,593	14,197	4,396	43,709	(36)
PT. Pantos Logistics Jakarta	11,260	4,841	6,419	6,431	(114)
Pantos Logistics Singapore Pte. Ltd.	7,692	2,462	5,230	22,413	533
Pantos Logistics (Thailand) Co., Ltd.	24,917	17,291	7,626	65,885	478
Pantos Logistics Malaysia Sdn. Bhd.	4,438	2,962	1,476	16,106	105
Pantos Logistics (India) Pvt. Ltd.	11,793	6,581	5,212	29,810	(1,799)
Pantos Logistics (Cambodia) Co., Ltd.	1,334	1,876	(542)	6,382	171
Pantos Logistics Vietnam Co., Ltd.	24,242	19,011	5,231	90,858	2,782
Pantos Logistics Australia Pty Ltd.	2,469	908	1,561	8,195	11
Pantos Holdings (Thailand) Co., Ltd.	1,409	53	1,356	419	28
Pantos Logistics Myanmar Co., Ltd.	993	1,198	(205)	1,574	(137)
Pantos Logistics U.K. Ltd.	12,260	10,675	1,585	24,018	(120)
Pantos Logistics Benelux B.V	33,462	15,540	17,922	72,192	(472)
Pantos Logistics France	10,165	8,234	1,931	22,191	818
Pantos Logistics Poland	74,145	65,586	8,559	204,001	5,019
Pantos Logistics Germany GmbH	12,111	6,670	5,441	44,896	1,070
Pantos Logistics Spain S.L.	6,794	3,333	3,461	20,835	656
Pantos Logistics Ve Tic.Lgd.Sti	4,240	1,724	2,516	22,370	918
Pantos Logistics Sweden	1,348	6	1,342	-	7
Pantos Logistics Mexico	37,175	25,221	11,954	158,216	1,416
Pantos Do Brasil Logistica	5,140	5,249	(109)	36,670	(283)
Pantos Logistics Colombia SAS	2,912	1,529	1,383	7,713	186
Pantos Logistics Chile SpA	3,451	3,246	205	12,389	100
Pantos Logistics Panama S.A	3,388	2,391	997	13,378	143
Pantos Logistics AR S.A	676	284	392	3,784	77
Hi Logistics Brasil Servicos De Logistica Ltda	4,069	2,813	1,256	4,313	(598)
FNS CIS LLC	26,956	17,484	9,472	50,849	(1,338)
Pantos Logistics Kazakhstan	2,587	1,137	1,450	7,294	(376)
Pantos Logistics Ukraine Ltd	1	-	1	-	-
Pantos Customs Services LLC	912	236	676	1,339	182
Pantos Logistics L.L.C (Dubai)	9,294	6,520	2,774	19,615	(183)
Pantos Logistics L.L.C (Oman)	106	21	85	-	(68)
Pantos Logistics co., Ltd. Saudi Arabia	2,875	611	2,264	4,238	(625)
Pantos Logistics Nigeria Limited	439	6	433	511	(120)
Pantos Logistics Japan Inc.	13,958	6,386	7,572	57,933	1,264
Hi Logistics (China) Co., Ltd.	19,619	11,212	8,407	63,649	597
Pantos Logistics Solutions India Private Limited	9,222	6,759	2,463	72,159	419
Hi Logistics Malaysia SDN. Bhd.	511	-	511	-	(13)
Hi Logistics USA	16,211	13,758	2,453	58,834	938
Hi Logistics RUS Limited Liability Company	1,210	372	838	299	302
Hi Logistics Egypt	2,590	1,682	908	5,461	156
Hi Logistics Vietnam Co., Ltd.	526	4	522	-	(101)
	₩ 4,417,870	₩ 2,552,116	₩ 1,865,754	₩ 9,061,726	₩ 140,398

1.3 Summarized financial information of consolidated subsidiaries (cont'd)

	2017				
	Assets	Liabilities	Equity	Revenue	Profit (loss) for the year
LG International (America) Inc.	₩ 300,972	₩ 268,042	₩ 32,930	₩ 1,971,922	₩ 3,016
LHC Solar LLC	3,680	1,449	2,231	329	46
LG International (Japan) Ltd.	223,628	212,547	11,081	1,771,130	2,161
LG International (Hong Kong) Ltd.	154,064	148,171	5,893	1,123,851	2,103
LG International (Singapore) Pte. Ltd.	363,389	343,290	20,099	1,897,256	927
LG International (Deutschland) GmbH	65,980	56,358	9,622	244,467	1,542
LG International (China) Ltd.	16,909	12,593	4,316	56,746	512
Nanjing LG International VMI Co., Ltd.	2,340	114	2,226	1,102	196
LG International (Shanghai) Ltd.	1,718	522	1,196	3,338	(35)
Yantai VMI Hub LG International Co., Ltd.	2,643	79	2,564	1,108	531
Guangzhou Steel Flower Electrical & Machinary Co., Ltd.	31,199	12,131	19,068	43,571	684
Bowen Investment (Australia) Pty Ltd.	76,083	67,059	9,024	76,608	4,379
Resources Investments (Marree) Pty. Ltd.	-	-	-	-	(32)
PT. Batubara Global Energy (BGE)	64,667	35,692	28,975	278,088	3,453
PT. Megaprima Persada (MPP)	70,492	36,646	33,846	128,631	22,770
PT. Mega Global Energy (MGE)	6,891	1,812	5,079	7,333	1,418
PT. Ganda Alam Makmur	570,585	280,609	289,976	128,732	12,269
LG International (India) Ltd.	1,456	144	1,312	992	108
PT. Green Global Lestari (GGL)	62,914	18,316	44,598	-	1,056
PT. Parna Agromas (PAM)	88,886	55,507	33,379	67,011	10,933
PT. Indonesia Renewable Resources (IRR)	9,699	8,154	1,545	393	(95)
PT. Binsar Natorang Energi	134,209	91,050	43,159	69,808	4,491
Steel Flower Electric & Machinary (Tianjin) Co., Ltd.	40,972	22,508	18,464	70,309	2,589
Philco Resources Ltd. (Rapu-Rapu)	395	29	366	-	(6,837)
Resource Investment (HongKong) Ltd. (Wantugou)	74,190	-	74,190	-	5,952
LG International Yakutsk Ltd.	7,424	11,817	(4,393)	1,256	(477)
Korea Carbon International Co., Ltd. (Shaanxi BBM)	8,109	12,563	(4,454)	-	(1,173)
Colmineral, S.A. de.C.V.	3	-	3	-	-
Fertilizer Resources Investment Ltd.	93,776	9	93,767	-	969
Dangjin Tank Terminal Co., Ltd.	94,055	31	94,024	-	(1,060)
Haiphong Steel Flower Electrical & Machinery Company Limited	16,449	11,480	4,969	20,112	(1,128)
Highland Cement International Co., Ltd.	83,174	5,333	77,841	3,532	(3,733)
Pantos Logistics Co., Ltd.	748,375	302,655	445,720	1,997,834	39,083
Pantos Busan Newport Logistics Center Co., Ltd.	10,184	1,435	8,749	6,193	519
Helistar Air Co., Ltd	5,762	3,180	2,582	22,176	(447)
Pantos Logistics (China) Co., Ltd.	67,984	45,104	22,880	243,633	5,744
FNS (Beijing) Logistics Co., Ltd.	3,027	2,937	90	23,696	101
Pantos Logistics (Shanghai) Co., Ltd.	36,673	25,561	11,112	131,911	530
Pantos Logistics (Ningbo) Co., Ltd.	1,517	107	1,410	1,017	212
Pantos Logistics (Shenzhen) Co., Ltd.	37,714	21,935	15,779	193,421	5,913
Pantos Logistics (H.K) Co., Ltd.	33,448	9,599	23,849	81,919	3,669
Pantos Logistics (Taiwan) Co., Ltd.	3,715	2,032	1,683	13,628	254
PT. Pantos Logistics Indonesia	20,878	16,421	4,457	34,568	(1,599)
PT. Pantos Logistics Jakarta	11,028	4,395	6,633	6,374	504
Pantos Logistics Singapore Pte. Ltd.	7,975	3,381	4,594	21,392	731
Pantos Logistics (Thailand) Co., Ltd.	22,696	15,881	6,815	66,968	(465)
Pantos Logistics Malaysia Sdn. Bhd.	3,832	2,489	1,343	14,576	256
Pantos Logistics (India) Pvt. Ltd.	7,840	5,691	2,149	31,959	104
Pantos Logistics (Cambodia) Co., Ltd.	1,067	1,757	(690)	6,509	(976)
Pantos Logistics Vietnam Co., Ltd.	20,404	18,029	2,375	80,978	1,386
Pantos Logistics Australia Pty Ltd.	2,639	996	1,643	5,762	(77)
Pantos Holdings (Thailand) Co., Ltd.	1,315	49	1,266	434	116
Pantos Logistics Myanmar Co., Ltd.	2,276	2,356	(80)	1,444	(247)
Pantos Logistics U.K. Ltd.	13,495	11,771	1,724	21,959	194

1.3 Summarized financial information of consolidated subsidiaries (cont'd)

	2017				
	Assets	Liabilities	Equity	Revenue	Profit (loss) for the year
Pantos Logistics Benelux B.V	33,526	15,148	18,378	59,077	570
Pantos Logistics France	5,909	4,784	1,125	17,695	150
Pantos Logistics Poland	35,599	31,827	3,772	135,023	585
Pantos Logistics Germany GmbH	11,050	6,663	4,387	37,601	(14)
Pantos Logistics Spain S.L.	6,643	3,829	2,814	19,504	333
Pantos Logistics Ve Tic.Lgd.Sti	5,104	2,833	2,271	22,315	876
Pantos USA, Inc.	36,868	36,851	17	208,652	(2,473)
Pantos Logistics Mexico	29,495	19,421	10,074	146,304	1,936
Pantos Do Brasil Logistica	4,902	4,722	180	35,360	(1,600)
Pantos Logistics Colombia SAS	1,494	1,034	460	4,982	34
Pantos Logistics Chile SpA	3,179	3,058	121	11,867	29
Pantos Logistics Panama S.A	7,060	6,245	815	10,776	(54)
Pantos Logistics AR	1,592	953	639	3,371	147
Hi Logistics Brasil Servicos	2,734	685	2,049	3,560	(401)
Great America Trans, Inc.	1,585	1,485	100	2,908	49
FNS CIS LLC	30,601	18,229	12,372	51,077	(404)
Pantos Logistics Kazakhstan	3,564	1,569	1,995	13,643	240
Pantos Logistics Ukraine Ltd.	-	-	-	-	-
Pantos Customs Services LLC	773	184	589	1,206	141
Pantos Logistics L.L.C (Dubai)	9,965	7,090	2,875	25,643	(705)
Pantos Logistics L.L.C (Oman)	171	23	148	1	43
Pantos Logistics L.L.C (KSA)	3,788	1,009	2,779	8,631	(521)
Pantos Logistics Japan Inc.	12,321	5,374	6,947	55,150	1,358
Hi Logistics (China) Co., Ltd.	19,001	11,135	7,866	67,390	62
Hi Logistics India Private Limited	8,912	6,771	2,141	63,225	182
Hi Logistics Malaysia Sdn. Bhd.	513	-	513	(6)	(14)
Hi Logistics USA	10,270	8,832	1,438	43,862	481
Hi Logistics RUS Limited Liability Company	1,007	357	650	468	215
Hi Logistics Egypt	2,996	2,269	727	6,465	338
Hi Logistics Vietnam Co., Ltd.	635	23	612	5,590	138
	₩ 4,026,052	₩ 2,414,219	₩ 1,611,833	₩ 12,037,316	₩ 124,761

1.4 Summarized financial information of subsidiaries attributable to non-controlling interests

The summarized financial information of subsidiaries attributable to non-controlling interests which are material to the Group are as follows (Korean won in millions):

	2018		
	Profit or loss attributable to non-controlling interests	Non-controlling interests	Dividends distributed to non-controlling interests
PT. Megaprima Persada (MPP)	₩ 2,303	₩ 5,260	₩ 5,533
PT. Ganda Alam Makmur (GAM)	3,573	124,342	-
PT. Binsar Natorang Energi (BNE)	447	3,678	-
Highland Cement International Co., Ltd.	(5,251)	32,125	-
Pantos Logistics Co., Ltd. and its subsidiaries	33,420	249,216	4,900

1.4 Summarized financial information of subsidiaries attributable to non-controlling interests (cont'd)

	2017		
	Profit or loss attributable to non-controlling interests	Non-controlling interests	Dividends distributed to non-controlling interests
PT. Megaprima Persada (MPP)	₩ 5,799	₩ 8,276	₩ 4,464
PT. Ganda Alam Makmur (GAM)	4,617	115,700	-
PT. Binsar Natorang Energi (BNE)	381	3,097	-
Highland Cement International Co., Ltd.	(1,839)	38,142	-
Pantos Logistics Co., Ltd. and its subsidiaries	22,305	222,888	4,900

2. Significant accounting policies and basis of financial statements preparation

2.1 Basis of preparation

The Group prepares statutory consolidated financial statements in the Korean language in accordance with Korean International Financial Reporting Standards (KIFRS) enacted by the *Act on External Audit of Stock Companies*. The accompanying consolidated financial statements have been translated into English from the Korean language financial statements. In the event of any differences in interpreting the consolidated financial statements or the independent auditors' report thereon, the Korean version, which is used for regulatory reporting purposes, shall prevail.

The consolidated financial statements have been prepared on a historical cost basis, except for derivative financial instruments, equity instruments held for long-term. The carrying values of recognized assets and liabilities that are designated as hedged items in fair value hedges that would otherwise be carried at amortized cost are adjusted to record changes in the fair values attributable to the risks that are being hedged in effective hedge relationships. The consolidated financial statements are presented in Korean won and all values are rounded to the nearest won, except when otherwise indicated.

2.2 Basis of consolidation

The consolidated financial statements comprise the consolidated financial statements of the Group as at December 31, 2018. Control is achieved when the Group is exposed, or has rights, to variable returns from its involvement with the investee and has the ability to affect those returns through its power over the investee. Specifically, the Group controls an investee if, and only if, the Group has:

- Power over the investee (i.e., existing rights that give it the current ability to direct the relevant activities of the investee)
- Exposure, or rights, to variable returns from its involvement with the investee
- The ability to use its power over the investee to affect its returns

Generally, there is a presumption that a majority of voting rights results in control. To support this presumption and when the Group has less than a majority of the voting or similar rights of an investee, the Group considers all relevant facts and circumstances in assessing whether it has power over an investee, including:

- The contractual arrangement(s) with the other vote holders of the investee
- Rights arising from other contractual arrangements
- The Group's voting rights and potential voting rights

The Group re-assesses whether or not it controls an investee if facts and circumstances indicate that there are changes to one or more of the three elements of control. Consolidation of a subsidiary begins when the Group obtains control over the subsidiary and ceases when the Group loses control of the subsidiary.

2.2 Basis of consolidation (cont'd)

When necessary, adjustments are made to the consolidated financial statements of subsidiaries to bring their accounting policies into line with the Group's accounting policies. All intra-group assets and liabilities, equity, income, expenses and cash flows relating to transactions between members of the Group are eliminated in full on consolidation.

Total comprehensive income within a subsidiary is attributed to the non-controlling interest even if that results in a deficit balance.

A change in the ownership interest of a subsidiary, without a loss of control, is accounted for as an equity transaction. Losses are attributed to the non-controlling interest even if that results in a deficit balance. If the Group loses control over a subsidiary, it:

- Derecognizes the assets (including goodwill) and liabilities of the subsidiary
- Derecognizes the carrying amount of any non-controlling interest
- Derecognizes the cumulative translation differences, recorded in equity
- Recognizes the fair value of the consideration received
- Recognizes the fair value of any investment retained
- Recognizes any surplus or deficit in profit or loss
- Reclassifies the parent's share of components previously recognized in other comprehensive income to profit or loss

2.3 Summary of significant accounting policies

2.3.1 Business combinations and goodwill

Business combinations are accounted for using the acquisition method. The cost of an acquisition is measured as the aggregate of the consideration transferred, measured at acquisition date fair value and the amount of any non-controlling interest in the acquiree. For each business combination, the acquirer measures the non-controlling interest in the acquiree either at fair value or at the proportionate share of the acquiree's identifiable net assets. Acquisition costs incurred are expensed and included in selling and administrative expenses.

When the Group acquires a business, it assesses the financial assets and liabilities assumed for appropriate classification and designation in accordance with the contractual terms, economic circumstances and pertinent conditions as at the acquisition date. This includes the separation of embedded derivatives in host contracts by the acquiree.

Any contingent consideration to be transferred by the acquirer will be recognized at fair value at the acquisition date. Subsequent changes to the fair value of the contingent consideration which is deemed to be an asset or liability will be recognized in accordance with KIFRS 1109 either in profit or loss or as change to other comprehensive income. If the contingent consideration is classified as equity, it shall not be remeasured until it is finally settled within equity. Subsequent settlement is accounted for within equity. In instances where the contingent consideration does not fall within the scope of KIFRS 1109, it is measured in accordance with the appropriate KIFRS.

Goodwill is initially measured at cost, being the excess of the consideration transferred and the amount recognized for non-controlling interest over the net identifiable assets acquired and liabilities assumed. If the fair value of the net assets acquired is in excess of the aggregate consideration transferred, the Group re-assesses whether it has correctly identified all of the assets acquired and all of the liabilities assumed and reviews the procedures used to measure the amounts to be recognized at the acquisition date. If the re-assessment still results in an excess of the fair value of net assets acquired over the aggregate consideration transferred, then the gain is recognized in profit or loss.

After initial recognition, goodwill is measured at cost less any accumulated impairment losses. For the purpose of impairment testing, goodwill acquired in a business combination is, from the acquisition date, allocated to each of the Group's cash generating units that are expected to benefit from the business combination, irrespective of whether other assets or liabilities of the acquiree are assigned to those units.

2.3.1 Business combinations and goodwill (cont'd)

Where goodwill forms part of a cash-generating unit and part of the operation within that unit is disposed of, the goodwill associated with the operation disposed of is included in the carrying amount of the operation when determining the gain or loss on disposal of the operation. Goodwill disposed of in this circumstance is measured based on the relative values of the operation disposed of and the portion of the cash-generating unit retained.

2.3.2 Cash and cash equivalents

Cash and cash equivalents in the statement of financial position comprise cash at banks and on hand and cash equivalents with an original maturity of three months or less. These are stated as cash on the statement of cash flows.

2.3.3 Inventories

Inventories are valued at the lower of cost and net realizable value, with cost being determined using the specific identification method and moving average method. Net realizable value is the estimated selling price in the ordinary course of business, less estimated costs of completion and the estimated costs necessary to make the sale.

2.3.4 Financial instruments – initial recognition and subsequent measurement

A financial instrument is any contract that gives rise to a financial asset of one entity and a financial liability or equity instrument of another entity.

2.3.4.1 Financial assets

2.3.4.1.1 Initial recognition and measurement

The classification of financial assets at initial recognition depends on the financial asset's contractual cash flow characteristics and the Group's business model for managing them. With the exception of trade receivables that do not contain a significant financing component or for which the Group has applied the practical expedient, the Group initially measures a financial asset at its fair value plus, in the case of a financial asset not at fair value through profit or loss, transaction costs. Trade receivables that do not contain a significant financing component or for which the Group has applied the practical expedient are measured at the transaction price determined under KIFRS 1115. Refer to the accounting policies in section 2.3.23.

In order for a financial asset to be classified and measured at amortised cost or fair value through OCI, it needs to give rise to cash flows that are 'solely payments of principal and interest (SPPI)' on the principal amount outstanding. This assessment is referred to as the SPPI test and is performed at an instrument level.

The Group's business model for managing financial assets refers to how it manages its financial assets in order to generate cash flows. The business model determines whether cash flows will result from collecting contractual cash flows, selling the financial assets, or both.

Purchases or sales of financial assets that require delivery of assets within a time frame established by regulation or convention in the market place (regular way trades) are recognised on the trade date, i.e., the date that the Group commits to purchase or sell the asset.

2.3.4.1.2 Subsequent measurement

For purposes of subsequent measurement, financial assets are classified in four categories:

- Financial assets at amortised cost (debt instruments)
- Financial assets at fair value through OCI with recycling of cumulative gains and losses (debt instruments)
- Financial assets designated at fair value through OCI with no recycling of cumulative gains and losses upon
- Financial assets at fair value through profit or loss

2.3.4.1.2 Subsequent measurement(cont'd)

Financial assets at amortised cost (debt instruments)
This category is the most relevant to the Group. The Group measures financial assets at amortised cost if both of the following conditions are met:

- The financial asset is held within a business model with the objective to hold financial assets in order to collect contractual cash flows
- The contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding

Financial assets at amortised cost are subsequently measured using the effective interest (EIR) method and are subject to impairment. Gains and losses are recognised in profit or loss when the asset is derecognised modified or impaired.

Financial assets at fair value through OCI (debt instruments)
The Group measures debt instruments at fair value through OCI if both of the following conditions are met:

- The financial asset is held within a business model with the objective of both holding to collect contractual cash flows and selling
- The contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding

For debt instruments at fair value through OCI, interest income, foreign exchange revaluation and impairment losses or reversals are recognized in the statement of profit or loss and computed in the same manner as for financial assets measured at amortised cost. The remaining fair value changes are recognized in OCI. Upon derecognition, the cumulative fair value change recognized in OCI is recycled to profit or loss.

The Group's debt instruments at fair value through OCI includes investments in quoted debt instruments included under other non-current financial assets.

Financial assets designated at fair value through OCI (equity instruments)
Upon initial recognition, the Group can elect to classify irrevocably its equity investments as equity instruments designated at fair value through OCI when they meet the definition of equity under KIFRS 1032 Financial Instruments: Presentation and are not held for trading.

Gains and losses on these financial assets are never recycled to profit or loss. Dividends are recognised as other income in the statement of profit or loss when the right of payment has been established, except when the Comapny benefits from such proceeds as a recovery of part of the cost of the financial asset, in which case, such gains are recorded in OCI. Equity instruments designated at fair value through OCI are not subject to impairment assessment.

Financial assets at fair value through profit or loss
Financial assets at fair value through profit or loss include financial assets held for trading and financial assets designated upon initial recognition at fair value through profit or loss. Financial assets are classified as held for trading if they are acquired for the purpose of selling or repurchasing in the near term. Derivatives, including separated embedded derivatives, are also classified as held for trading unless they are designated as effective hedging instruments. Financial assets with cash flows that are not solely payments of principal and interest are classified and measured at fair value through profit or loss, irrespective of the business model.

Notwithstanding the criteria for debt instruments to be classified at amortised cost or at fair value through OCI, as described above, debt instruments may be designated at fair value through profit or loss on initial recognition if doing so eliminates, or significantly reduces, an accounting mismatch.

Financial assets at fair value through profit or loss are carried in the statement of financial position at fair value with net changes in fair value recognized in the statement of profit or loss.

This category includes derivatives and equity instruments that do not have an irrevocable choice of dealing with changes in fair value in OCI. Dividends on listed equity instruments are recognised in profit or loss at the time the rights are established.

2.3.4.1.2 Subsequent measurement (cont'd)

A derivative embedded in a hybrid contract, with a financial liability or non-financial host, is separated from the host and accounted for as a separate derivative if: the economic characteristics and risks are not closely related to the host; a separate instrument with the same terms as the embedded derivative would meet the definition of a derivative; and the hybrid contract is not measured at fair value through profit or loss. Embedded derivatives are measured at fair value with changes in fair value recognised in profit or loss. Reassessment only occurs if there is either a change in the terms of the contract that significantly modifies the cash flows that would otherwise be required or a reclassification of a financial asset out of the fair value through profit or loss category.

A derivative embedded within a hybrid contract containing a financial asset host is not accounted for separately. The financial asset host together with the embedded derivative is required to be classified in its entirety as a financial asset at fair value through profit or loss.
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2.3.4.1.3 Derecognition of financial assets

A financial asset (or, where applicable, a part of a financial asset or part of a group of similar financial assets) is derecognized when:

- The rights to receive cash flows from the asset have expired, or
- The Group has transferred its rights to receive cash flows from the asset or has assumed an obligation to pay the received cash flows in full without material delay to a third party under a 'pass-through' arrangement; and either (a) the Group has transferred substantially all the risks and rewards of the asset, or (b) the Group has neither transferred nor retained substantially all the risks and rewards of the asset, but has transferred control of the asset.

When the Group has transferred its rights to receive cash flows from an asset or has entered into a pass-through arrangement, it evaluates if, and to what extent, it has retained the risks and rewards of ownership. When it has neither transferred nor retained substantially all of the risks and rewards of the asset, nor transferred control of the asset, the asset is recognized to the extent of the Group's continuing involvement in the asset. In that case, the Group also recognizes an associated liability. The transferred asset and the associated liability are measured on a basis that reflects the rights and obligations that the Group has retained.

2.3.4.2 Impairment of financial assets

Further disclosures relating to impairment of financial assets are also provided in Note 11.

The Group recognises an allowance for expected credit losses (ECLs) for all debt instruments not held at fair value through profit or loss. ECLs are based on the difference between the contractual cash flows due in accordance with the contract and all the cash flows that the Group expects to receive, discounted at an approximation of the original effective interest rate. The expected cash flows will include cash flows from the sale of collateral held or other credit enhancements that are integral to the contractual terms.

ECLs are recognised in two stages. For credit exposures for which there has not been a significant increase in credit risk since initial recognition, ECLs are provided for credit losses that result from default events that are possible within the next 12-months (a 12-month ECL). For those credit exposures for which there has been a significant increase in credit risk since initial recognition, a loss allowance is required for credit losses expected over the remaining life of the exposure, irrespective of the timing of the default (a lifetime ECL).

For trade receivables and contract assets, the Group applies a simplified approach in calculating ECLs. Therefore, the Group does not track changes in credit risk, but instead recognises a loss allowance based on lifetime ECLs at each reporting date. The Group has established a provision matrix that is based on its historical credit loss experience, adjusted for forward-looking factors specific to the debtors and the economic environment.

2.3.4.2 Impairment of financial assets (cont'd)

For debt instruments at fair value through OCI, the Group applies the low credit risk simplification. At every reporting date, the Group evaluates whether the debt instrument is considered to have low credit risk using all reasonable and supportable information that is available without undue cost or effort. In making that evaluation, the Group reassesses the internal credit rating of the debt instrument. In addition, the Group considers that there has been a significant increase in credit risk when contractual payments are more than 30 days past due.

The Group's debt instruments at fair value through OCI comprise solely of quoted bonds that are graded in the top investment category (Very Good and Good) by the Good Credit Rating Agency and, therefore, are considered to be low credit risk investments. It is the Group's policy to measure ECLs on such instruments on a 12-month basis. However, when there has been a significant increase in credit risk since origination, the allowance will be based on the lifetime ECL. The Group uses the ratings from the Good Credit Rating Agency both to determine whether the debt instrument has significantly increased in credit risk and to estimate ECLs.

The Group considers a financial asset in default when contractual payments are 90 days past due. However, in certain cases, the Group may also consider a financial asset to be in default when internal or external information indicates that the Group is unlikely to receive the outstanding contractual amounts in full before taking into account any credit enhancements held by the Group. A financial asset is written off when there is no reasonable expectation of recovering the contractual cash flows.

2.3.4.3 Financial liabilities

2.3.4.3.1 Initial recognition and measurement

Financial liabilities are classified, at initial recognition, as financial liabilities at fair value through profit or loss, loans and borrowings, payables, or as derivatives designated as hedging instruments in an effective hedge, as appropriate. All financial liabilities are recognized initially at fair value and in the case of loans and borrowings, less directly attributable transaction costs.

The Group's financial liabilities include trade and other payables, bonds and borrowings and derivative financial liabilities.

2.3.4.3.2 Subsequent measurement

The subsequent measurement of financial liabilities depends on their classification as described below:

Financial liabilities at fair value through profit or loss
Financial liabilities at fair value through profit or loss includes financial liabilities held for trading and financial liabilities designated upon initial recognition as at fair value through profit or loss. Financial liabilities are classified as held for trading if they are acquired for the purpose of selling in the near term. This category includes derivative financial instruments entered into by the Group that are not designated as hedging instruments in hedge relationships as defined by KIFRS 1109. Separated embedded derivatives are also classified as held for trading unless they are designated as effective hedging instruments. Gains or losses on liabilities held for trading are recognized in the statement of profit or loss.

Borrowings
Interest-bearing borrowings are subsequently measured at amortized cost using the EIR method. Gains and losses are recognized in profit or loss when the liabilities are derecognized as well as through the EIR amortization process. Amortized cost is calculated by taking into account any discount or premium on acquisition and fees or costs that are an integral part of the EIR.

2.3.4.3.3 Derecognition of financial liabilities

A financial liability is derecognized when the obligation under the liability is discharged or cancelled or expires. When an existing financial liability is replaced by another from the same lender on substantially different terms, or the terms of an existing liability are substantially modified, such an exchange or modification is treated as a derecognition of the original liability and the recognition of a new liability, and the difference in the respective carrying amounts is recognized in the statement of profit or loss.

2.3.4.4 Offsetting of financial instruments

Financial assets and financial liabilities are offset and the net amount is reported in the statement of financial position if, and only if, there is a currently enforceable legal right to offset the recognized amounts and there is an intention to settle on a net basis, or to realize the assets and settle the liabilities simultaneously.

2.3.5 Derivative financial instruments and hedge accounting

2.3.5.1 Initial recognition and subsequent measurement

The Group uses derivative financial instruments such as commodity contracts to hedge its commodity price risks. Such derivative financial instruments are initially recognized at fair value on the date on which a derivative contract is entered into and are subsequently remeasured at fair value. Derivatives are carried as financial assets when the fair value is positive and as financial liabilities when the fair value is negative.

For the purpose of hedge accounting, hedges are classified as:

- Fair value hedges when hedging the exposure to changes in the fair value of a recognized asset or liability or an unrecognized firm commitment
- Cash flow hedges when hedging exposure to variability in cash flows that is either attributable to a particular risk associated with a recognized asset or liability or a highly probable forecast transaction or the foreign currency risk in an unrecognized firm commitment
- Hedges of a net investment in a foreign operation

At the inception of a hedge relationship, the Group formally designates and documents the hedge relationship to which the Group wishes to apply hedge accounting and the risk management objective and strategy for undertaking the hedge.

Before January 1, 2018, the documentation includes identification of the hedging instrument, the hedged item or transaction, the nature of the risk being hedged and how the Group will assess the effectiveness of changes in the hedging instrument’s fair value in offsetting the exposure to changes in the hedged item’s fair value or cash flows attributable to the hedged risk. Such hedges are expected to be highly effective in achieving offsetting changes in fair value or cash flows and are assessed on an ongoing basis to determine that they actually have been highly effective throughout the financial reporting periods for which they were designated.

Beginning January 1, 2018, the documentation includes identification of the hedging instrument, the hedged item, the nature of the risk being hedged and how the Group will assess whether the hedging relationship meets the hedge effectiveness requirements (including the analysis of sources of hedge ineffectiveness and how the hedge ratio is determined). A hedging relationship qualifies for hedge accounting if it meets all of the following effectiveness requirements:

- There is ‘an economic relationship’ between the hedged item and the hedging instrument.
- The effect of credit risk does not ‘dominate the value changes’ that result from that economic relationship.
- The hedge ratio of the hedging relationship is the same as that resulting from the quantity of the hedged item that the Group actually hedges and the quantity of the hedging instrument that the Group actually uses to hedge that quantity of hedged item.

Hedges which meet the strict criteria for hedge accounting are accounted for as follows:

Fair value hedges
The change in the fair value of a hedging derivative is recognized in the statement of profit or loss in finance costs. The change in the fair value of the hedged item attributable to the risk hedged is recorded as part of the carrying value of the hedged item and is also recognized in the statement of profit or loss as finance costs. For fair value hedges relating to items carried at amortized cost, any adjustment to carrying value is amortized through the statement of profit or loss over the remaining term of the hedge using the EIR method. The EIR amortization may begin as soon as an adjustment exists and no later than when the hedged item ceases to be adjusted for changes in its fair value attributable to the risk being hedged. If the hedge item is derecognized, the unamortized fair value is recognized immediately in the statement of profit or loss.

2.3.5.1 Initial recognition and subsequent measurement (cont'd)

When an unrecognized firm commitment is designated as a hedged item, the subsequent cumulative change in the fair value of the firm commitment attributable to the hedged risk is recognized as an asset or liability with a corresponding gain (loss) recognized in the statement of profit or loss.

Cash flow hedges
The effective portion of the gain or loss on the hedging instrument is recognized in other comprehensive income or loss in the cash flow hedge reserve, while any ineffective portion is recognized immediately in the statement of profit or loss. The cash flow hedge reserve is adjusted to the lower of the cumulative gain or loss on the hedging instrument and the cumulative change in fair value of the hedged item.

The Group uses forward currency contracts as hedges of its exposure to foreign currency risk in forecast transactions and firm commitments, as well as forward commodity contracts for its exposure to volatility in the commodity prices. The ineffective portion relating to foreign currency contracts is recognised as other expense and the ineffective portion relating to commodity contracts is recognised in other operating income or expenses.

Before January 1, 2018, the Group designated all of the forward contracts as hedging instrument. Any gains or losses arising from changes in the fair value of derivatives were taken directly to profit or loss, except for the effective portion of cash flow hedges, which were recognised in OCI and later reclassified to profit or loss when the hedge item affects profit or loss.

Beginning January 1, 2018, the Group designates only the spot element of forward contracts as a hedging instrument. The forward element is recognised in OCI and accumulated in a separate component of equity under cost of hedging reserve.

The amounts accumulated in OCI are accounted for, depending on the nature of the underlying hedged transaction. If the hedged transaction subsequently results in the recognition of a non-financial item, the amount accumulated in equity is removed from the separate component of equity and included in the initial cost or other carrying amount of the hedged asset or liability. This is not a reclassification adjustment and will not be recognised in OCI for the period. This also applies where the hedged forecast transaction of a non-financial asset or non-financial liability subsequently becomes a firm commitment for which fair value hedge accounting is applied.

For any other cash flow hedges, the amount accumulated in OCI is reclassified to profit or loss as a reclassification adjustment in the same period or periods during which the hedged cash flows affect profit or loss.

If cash flow hedge accounting is discontinued, the amount that has been accumulated in OCI must remain in accumulated OCI if the hedged future cash flows are still expected to occur. Otherwise, the amount will be immediately reclassified to profit or loss as a reclassification adjustment. After discontinuation, once the hedged cash flow occurs, any amount remaining in accumulated OCI must be accounted for depending on the nature of the underlying transaction as described above.

Hedges of a net investment in a foreign operation
Hedges of a net investment in a foreign operation, including a hedge of a monetary item that is accounted for as part of the net investment, are accounted for in a way similar to cash flow hedges. Gains or losses on the hedging instrument relating to the effective portion of the hedge are recognized as OCI while any gains or losses relating to the ineffective portion are recognized in the statement of profit or loss. On disposal of the foreign operation, the cumulative value of any such gains or losses recorded in equity is transferred to the statement of profit or loss.

2.3.6 Investment in associates

The Group's investment in its associate is accounted for using the equity method. An associate is an entity in which the Group has significant influence. Under the equity method, the investment in the associate is carried on the statement of financial position at cost plus post acquisition changes in the Group's share of net assets of the associate. Goodwill relating to the associate is included in the carrying amount of the investment and is neither amortized nor individually tested for impairment.

2.3.6 Investment in associates(cont'd)

The statement of profit or loss and other comprehensive income reflects the Group's share of the results of operations of the associate. Any change in other comprehensive income or loss of the associate is presented as part of the Group's other comprehensive income or loss. In addition, when there has been a change recognized directly in the equity of the associate, the Group recognizes its share of any changes, when applicable, in the statement of changes in equity. Unrealized gains and losses resulting from transactions between the Group and the associate are eliminated to the extent of the interest in the associate.

The financial statements of the associate are prepared for the same reporting period as the parent company. Where necessary, adjustments are made to bring the accounting policies in line with those of the Group.

After application of the equity method, the Group determines whether it is necessary to recognize an additional impairment loss on the Group's investment in its associates. The Group determines at each reporting date whether there is any objective evidence that the investment in the associate is impaired. If this is the case the Group calculates the amount of impairment as the difference between the recoverable amount of the associate and its carrying value and recognizes the amount in the 'share of profit of an associate' in the statement of profit or loss.

Upon loss of significant influence over the associate, the Group measures and recognizes any retaining investment at its fair value. Any difference between the carrying amount of the associate upon loss of significant influence and the fair value of the retaining investment and proceeds from disposal is recognized in profit or loss.

2.3.7 Non-current assets held for sale (or distribution to equity holders)

The Group classifies non-current assets and disposal groups as held for sale or for distribution to equity holders of the parent if their carrying amounts will be recovered principally through a sale or distribution rather than through continuing use. Such non-current assets and disposal groups classified as held for sale or as held for distribution are measured at the lower of their carrying amount and fair value less costs to sell or to distribute. Costs to distribute are the incremental costs directly attributable to the distribution, excluding the finance costs and income tax expense.

Property, plant and equipment and intangible assets are not depreciated or amortized once classified as held for sale or as held for distribution.

Assets and liabilities classified as held for sale or for distribution are presented separately as current items in the statement of financial position.

A disposal group qualifies as discontinued operation if it is:

- A component of the group that is a CGU or a group of CGUs
- Classified as held for sale or distribution or already disposed in such a way, or
- A major line of business or major geographical area

Discontinued operations are excluded from the results of continuing operations and are presented as a single amount as profit or loss after tax from discontinued operations in the statement of profit or loss and other comprehensive income. Additional disclosures are provided in Note 30. All other notes to the financial statements include amounts for continuing operations, unless otherwise mentioned.

2.3.8 Property, plant and equipment

Construction in progress is carried at acquisition cost less accumulated impairment loss, and property, plant and equipment is stated at cost, net of accumulated depreciation and accumulated impairment losses, if any. Such cost includes the cost of replacing part of the plant and equipment and borrowing costs for long-term construction projects if the recognition criteria are met. When significant parts of property, plant and equipment are required to be replaced in intervals, the Group recognizes such parts as individual assets with specific useful lives and depreciates them accordingly. Likewise, when a major inspection is performed, its cost is recognized in the carrying amount of the plant and equipment as a replacement if the recognition criteria are satisfied. All other repair and maintenance costs are recognized in the statement of profit or loss as

2.3.8 Property, plant and equipment (cont'd)

incurred. The present value of the expected cost for the decommissioning of the asset after its use is included in the cost of the respective asset if the recognition criteria for a provision are met.

Depreciation of property, plant and equipment is provided using the straight-line method over the estimated useful lives of the assets as follows:

	Useful lives	Depreciation method
Buildings and others	8 ~ 40	Straight-line method
Structures	8 ~ 50	〃
Machinery	5 ~ 8	〃
Vehicles	5 ~ 12	〃
Bearer plants	20	〃
Others	5	〃

An item of property, plant and equipment and any significant part initially recognized is derecognized upon disposal or when no future economic benefits are expected from its use or disposal. Any gain or loss arising on derecognition of the asset is included in the statement of profit or loss when the asset is derecognized.

The assets' residual values, useful lives and methods of depreciation are reviewed at each financial year end, and adjusted prospectively, if appropriate.

2.3.9 Leases

The determination of whether an arrangement is, or contains, a lease is based on the substance of the arrangement at inception date: whether fulfillment of the arrangement is dependent on the use of a specific asset or assets or the arrangement conveys a right to use the asset, even if that right is not explicitly specified in an arrangement.

Leases where the Group does not transfer substantially all the risks and benefits of ownership of the asset are classified as operating leases. Initial direct costs incurred in negotiating an operating lease are added to the carrying amount of the leased asset and recognized over the lease term on the same bases as rental income. Contingent rents are recognized as revenue in the period in which they are earned.

2.3.10 Borrowing costs

Borrowing costs directly attributable to the acquisition, construction or production of an asset that necessarily takes a substantial period of time to get ready for its intended use or sale are capitalized as part of the cost of the respective assets. All other borrowing costs are expensed in the period they occur. Borrowing costs consist of interest and other costs that an entity incurs in connection with the borrowing of funds.

2.3.11 Investment properties

Investment properties are measured initially at cost, including transaction costs and replacement costs which satisfied asset recognition requirements when they incurred. However, costs incurred during common maintenance activities are recognized as expenses when they occurred. Subsequent to initial recognition, investment properties are stated at cost, net of accumulated depreciation and accumulated impairment losses.

Investment properties are derecognized when either they have been disposed of or when the investment property is permanently withdrawn from use and no future economic benefit is expected from its disposal. The difference between the net disposal proceeds and the carrying amount of the asset is recognized in the statement of profit or loss in the period of derecognition.

Transfers are made to or from investment property only when there is a change in use. For a transfer from investment property to owner occupied property, the deemed cost for subsequent accounting is the carrying cost at the date of change in use. If owner occupied property becomes an investment property, the Group accounts for such property in accordance with the policy stated under property, plant and equipment up to the date of change in use.

2.3.12 Intangible assets

Intangible assets acquired separately are measured on initial recognition at cost. The cost of intangible assets acquired in a business combination is its fair value as at the date of acquisition. Following initial recognition, intangible assets are carried at cost less any accumulated amortization and any accumulated impairment losses. Internally generated intangible assets, excluding capitalized development costs, are not capitalized and expenditure is reflected in the statement of profit or loss in the year in which the expenditure is incurred.

The useful lives of intangible assets are assessed as either finite or indefinite. Intangible assets with finite lives are amortized over the useful economic life and assessed for impairment whenever there is an indication that the intangible asset may be impaired. The amortization period and the amortization method for an intangible asset with a finite useful life is reviewed at least at each financial year end. Changes in the expected useful life or the expected pattern of consumption of future economic benefits embodied in the asset is accounted for by changing the amortization period or method, as appropriate, and are treated as changes in accounting estimates. The amortization expense on intangible assets with finite lives is recognized in the statement of profit or loss in the expense category consistent with the function of the intangible assets.

Intangible assets with indefinite useful lives are not amortized, but are tested for impairment annually, either individually or at the cash generating unit level. The assessment of indefinite life is reviewed annually to determine whether the indefinite life continues to be supportable. If not, the change in useful life from indefinite to finite is made on a prospective basis.

Gains or losses arising from derecognition of an intangible asset are measured as the difference between the net disposal proceeds and the carrying amount of the asset and are recognized in the statement of profit or loss when the asset is derecognized.

A summary of the policies applied to the Group’s intangible assets is as follows:

	Useful lives	Amortization method
Goodwill	-	Test for impairment annually
Industrial property rights	5~15 years	Straight-line method
Overseas resources development (*)	Production period	Unit of production method
Others	5 years or production period	Straight-line method or unit of production method

(*) Oil, natural gas and other natural resources exploration and development expenditures are classified as overseas resource investments. When proved reserves of oil are determined and development is sanctioned, they are depreciated on a unit of production basis. Conversely, if there is any evidence or event that implies impairment of the asset, such as suspending the exploration or development before proposing its technical feasibility and possibility of commercialization, the Group commences tests on the assets for impairment. When the book value of the asset is greater than the estimated recoverable amounts for the residual period, the Group recognizes the difference as a loss on impairment.

2.3.13 Biological assets

Biological assets (excluding bearer plants) are measured at initial recognition and at the end of each reporting period at its fair value less costs to sell. Gain or loss arising on initial recognition of a biological asset at fair value less costs to sell and from a change in fair value of a biological asset shall be included in profit or loss for the period in which it arises. Agricultural products harvested from the Group’s biological assets are measured at its fair value less costs to sell at the point of harvest which becomes the cost at that date. If an active market exists for a biological asset (excluding bearer plants) or agricultural products in its present location and condition, the quoted price in that market is the appropriate basis for determining the fair value of that asset. If an entity has access to different active markets, the entity uses the most relevant one. If an active market doesn't exist, the most recent market price, market price of similar asset can be used to assess fair value.

2.3.14 Pensions benefits

The Group operates a defined benefit pension plan for its employees in Korea, which requires contributions to be made to a separately administered fund. The cost of providing benefits under the defined benefit plan is

2.3.14 Pensions benefits (cont'd)

determined using the projected unit credit method. Re-measurements, comprising of actuarial gains and losses, the effect of the asset ceiling, excluding net interest and the return on plan assets (excluding net interest), are recognized immediately in the statement of financial position with a corresponding debit or credit to retained earnings through other comprehensive income in the period in which they occur. Re-measurements are not reclassified to profit or loss in subsequent periods.

Past service costs are recognized in profit or loss on the earlier of:

- The date of the plan amendment or curtailment, and
- The date that the Group recognizes restructuring-related costs

Net interest is calculated by applying the discount rate to the net defined benefit liability or asset. The Group recognizes the following changes in the net defined benefit obligation under selling and administrative expenses in the consolidated statement of profit or loss:

- Service costs comprising current service costs, past-service costs, gains and losses on curtailments and non-routine settlements
- Net interest expense or income

2.3.15 Provisions

Provisions are recognized when the Group has a present obligation (legal or constructive) as a result of a past event, it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and a reliable estimate can be made of the amount of the obligation. Where the Group expects some or all of a provision to be reimbursed, the reimbursement is recognized as a separate asset but only when the reimbursement is virtually certain. The expense relating to any provision is presented in the statement of profit or loss, net of any reimbursement.

2.3.16 Onerous contracts

If the Group has a contract that is onerous, the present obligation under the contract is recognised and measured as a provision. However, before a separate provision for an onerous contract is established, the Group recognises any impairment loss that has occurred on assets dedicated to that contract. The unavoidable costs under a contract reflect the least net cost of exiting from the contract, which is the lower of the cost of fulfilling it and any compensation or penalties arising from failure to fulfil it.

2.3.17 Treasury shares

Own equity instruments which are reacquired (treasury shares) are recognized at cost and deducted from equity. No gain or loss is recognized in the statement of profit or loss on the purchase, sale, issue or cancellation of the Group's own equity instruments.

2.3.18 Revenue from contracts with customers

The Group is in the business of sales of goods in the resource and infrastructure sectors, transportation brokerage and storage industry. The Group provides the supply of goods, export-import transactions, transportation arrange and storage service through contracts with customers. Revenue from contracts with customers is recognised when control of the goods or services are transferred to the customer at an amount that reflects the consideration to which the Group expects to be entitled in exchange for those goods or services..

2.3.18.1 Sales of goods

Revenue from sale of goods is recognised at the point in time when control of the asset is transferred to the customer, generally on delivery of the goods. The normal credit term is 30 to 90 days upon delivery. The Group considers whether there are other promises in the contract that are separate performance obligations to which a portion of the transaction price needs to be allocated. In determining the transaction price for the sale of goods, the Group considers principal versus agent consideration.

2.3.18.2 Principal versus agent consideration

When another party is involved in providing goods or services to its customer, the Group determines whether it is a principal or an agent in these transactions by evaluating the nature of its promise to the customer. The Group is a principal and records revenue on a gross basis if it controls the promised goods or services before transferring them to the customer. However, if the Group's role is only to arrange for another entity to provide the goods or services, then the Group is an agent and will need to record revenue at the net amount that it retains for its agency services.

2.3.18.3 Contract balance

Trade receivables
A receivable represents the Group's right to an amount of consideration that is unconditional. Refer to accounting policies of financial assets in the Note 2.3.4.1

Contract liabilities
A contract liability is the obligation to transfer goods or services to a customer for which the Group has received consideration (or an amount of consideration is due) from the customer. If a customer pays consideration before the Group transfers goods or services to the customer, a contract liability is recognised when the payment is made or the payment is due (whichever is earlier). Contract liabilities are recognised as revenue when the Group performs under the contract.

2.3.19 Foreign currency translation

The Group's consolidated financial statements are presented in Korean won, which is also the parent company's functional currency. Each entity in the Group determines its own functional currency and items included in the financial statements of each entity are measured using that functional currency.

2.3.19.1 Transactions and balances

Transactions in foreign currencies are initially recorded by the Group entities at their respective functional currency spot rates at the date the transaction first qualifies for recognition.

Monetary assets and liabilities denominated in foreign currencies are retranslated at the functional currency spot rate of exchange at the reporting date. All differences are taken to the statement of profit or loss with the exception of all monetary items that are designated as part of the hedge of the Group's net investment of a foreign operation. These are recognized in other comprehensive income until the net investment is disposed, at which time, the cumulative amount is reclassified to the statement of profit or loss. Tax charges and credits attributable to exchange differences on those monetary items are also recorded in other comprehensive income.

Non-monetary items that are measured in terms of historical cost in a foreign currency are translated using the exchange rates as at the dates of the initial transactions. Non-monetary items measured at fair value in a foreign currency are translated using the exchange rates at the dates when the fair value is determined.

2.3.19.2 Translation of foreign operations

On consolidation, the assets and liabilities of foreign operations are translated into Korean won at the rate of exchange prevailing at the reporting date and their income statement are translated at average exchange rates of the fiscal year. The exchange differences arising on the translation are recognized in other comprehensive income. On disposal of a foreign operation, the component of other comprehensive income relating to that particular foreign operation is recognized in the statement of profit or loss.

Any goodwill arising on the acquisition of a foreign operation and any fair value adjustments to the carrying amounts of assets and liabilities arising on the acquisition are treated as assets and liabilities of the foreign operations and translated at the spot rate of exchange at the reporting date.

2.3.20 Impairment of non-financial assets

The Group assesses, at each reporting date, whether there is an indication that an asset may be impaired. If any indication exists, or when annual impairment testing for an asset is required, the Group estimates the asset's recoverable amount. An asset's recoverable amount is the higher of an asset's or CGU's fair value less costs of disposal and its value in use. The recoverable amount is determined for an individual asset, unless the asset does not generate cash inflows that are largely independent of those from other assets or groups of assets. When the carrying amount of an asset or CGU exceeds its recoverable amount, the asset is considered impaired and is written down to its recoverable amount. In assessing value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset. In determining fair value less costs of disposal, recent market transactions are taken into account. If no such transactions can be identified, an appropriate valuation model is used. These calculations are corroborated by valuation multiples, quoted share prices for publicly traded subsidiaries or other available fair value indicators.

Impairment losses of continuing operations, including impairment on inventories, are recognized in the statement of profit or loss in expense categories consistent with the function of the impaired asset.

For assets excluding goodwill, an assessment is made at each reporting date as to whether there is any indication that previously recognized impairment losses may no longer exist or may have decreased. If such indication exists, the Group estimates the asset's or cash-generating unit's recoverable amount. A previously recognized impairment loss is reversed only if there has been a change in the assumptions used to determine the asset's recoverable amount since the last impairment loss was recognized. The reversal is limited so that the carrying amount of the asset does not exceed its recoverable amount, nor exceed the carrying amount that would have been determined, net of depreciation, had no impairment loss been recognized for the asset in prior years. Such reversal is recognized in the statement of profit or loss unless the asset is carried at a revalued amount, in which case the reversal is treated as a revaluation increase.

The following criteria are also applied in assessing impairment of specific assets:

Goodwill
Goodwill is tested for impairment annually (as at December 31) and when circumstances indicate that the carrying value may be impaired.

Impairment is determined for goodwill by assessing the recoverable amount of each cash-generating unit (or group of cash-generating units) to which the goodwill relates. Where the recoverable amount of the cash generating unit is less than their carrying amount an impairment loss is recognized. Impairment losses relating to goodwill cannot be reversed in future periods.

Intangible assets
Intangible assets with indefinite useful lives are tested for impairment annually as at December 31 either individually or at the cash generating unit level, as appropriate and when circumstances indicate that the carrying value may be impaired.

2.3.21 Taxes

2.3.21.1 Current income tax

Current income tax assets and liabilities for the current and prior periods are measured at the amount expected to be recovered from or paid to the taxation authorities. The tax rates and tax laws used to compute the amount are those that are enacted or substantively enacted, by the reporting date, in the countries where the Group operates and generates taxable income.

Current income tax relating to items recognized directly in equity is recognized in equity and not in the statement of profit or loss. Management periodically evaluates positions taken in the tax returns with respect to situations in which applicable tax regulations are subject to interpretation and establishes provisions where appropriate.

2.3.21.2 Deferred tax

Deferred tax is provided using the liability method on temporary differences at the reporting date between the tax bases of assets and liabilities and their carrying amounts for financial reporting purposes at the reporting date.

Deferred tax liabilities are recognized for all taxable temporary differences, except:

- Where the deferred tax liability arises from the initial recognition of goodwill or of an asset or liability in a transaction that is not a business combination and, at the time of the transaction, affects neither the accounting profit nor taxable profit or loss.
- In respect of taxable temporary differences associated with investments in subsidiaries, associates and interests in joint ventures, where the timing of the reversal of the temporary differences can be controlled and it is probable that the temporary differences will not reverse in the foreseeable future.

Deferred tax assets are recognized for all deductible temporary differences, carry forward of unused tax credits and unused tax losses, to the extent that it is probable that taxable profit will be available against which the deductible temporary differences, and the carry forward of unused tax credits and unused tax losses can be utilized except:

- Where the deferred tax asset relating to the deductible temporary difference arises from the initial recognition of an asset or liability in a transaction that is not a business combination and, at the time of the transaction, affects neither the accounting profit nor taxable profit or loss.
- In respect of deductible temporary differences associated with investments in subsidiaries, associates and interests in joint ventures, deferred tax assets are recognized only to the extent that it is probable that the temporary differences will reverse in the foreseeable future and taxable profit will be available against which the temporary differences can be utilized.

The carrying amount of deferred tax assets is reviewed at each reporting date and reduced to the extent that it is no longer probable that sufficient taxable profit will be available to allow all or part of the deferred tax asset to be utilized. Unrecognized deferred tax assets are reassessed at each reporting date and are recognized to the extent that it has become probable that future taxable profits will allow the deferred tax asset to be recovered.

Deferred tax assets and liabilities are measured at the tax rates that are expected to apply in the year when the asset is realized or the liability is settled, based on tax rates (and tax laws) that have been enacted or substantively enacted at the reporting date.

Deferred tax relating to items recognized outside profit or loss is recognized outside profit or loss. Deferred tax items are recognized in correlation to the underlying transaction either in other comprehensive income or directly in equity.

Deferred tax assets and deferred tax liabilities are offset if a legally enforceable right exists to set off current tax assets against current income tax liabilities and the deferred taxes relate to the same taxable entity and the same taxation authority.

2.4 New and amended standards and interpretations

2.4.1 KIFRS 1115 *Revenue from contracts with customers*

KIFRS 1115 supersedes KIFRS 1011 Construction Contracts, KIFRS 1018 Revenue and related Interpretations and it applies, with limited exceptions, to all revenue arising from contracts with its customers. KIFRS 1115 establishes a five-step model to account for revenue arising from contracts with customers and requires that revenue be recognised at an amount that reflects the consideration to which an entity expects to be entitled in exchange for transferring goods or services to a customer.

KIFRS 1115 requires entities to exercise judgement, taking into consideration all of the relevant facts and circumstances when applying each step of the model to contracts with their customers. The standard also specifies the accounting for the incremental costs of obtaining a contract and the costs directly related to fulfilling a contract. In addition, the standard requires extensive disclosures.

2.4.1 KIFRS 1115 *Revenue from contracts with customers (cont'd)*

The Group adopted KIFRS 1115 using the modified retrospective method of adoption with the date of initial application of January 1, 2018. Under this method, the standard can be applied either to all contracts at the date of initial application or only to contracts that are not completed at this date. The Group elected to apply the standard to all contracts as of January 1, 2018.

The cumulative effect of initially applying KIFRS 1115 is recognised at the date of initial application as an adjustment to the opening balance of retained earnings. Therefore, the comparative information was not restated and continues to be reported under KIFRS 1011, KIFRS 1018 and related Interpretations.

As adopting KIFRS 1115, the role of the Group in some contracts with customers has been changed from a principal to an agent and the effect on the financial statements of the Group is as follows (Korean won in millions):

There was no effect on the Group's equity as of the date of adopting KIFRS 1115.

Impact on the statement of financial position as of December 31, 2018.

	In KIFRS 1115	Adjustment	In previous standards
Assets :			
Trade accounts receivable	₩ 1,067,921	₩ 186,191	₩ 1,254,112
Other accounts receivable	384,169	(255,816)	128,353
Advance payments	103,600	(846)	102,754
Inventories	514,101	124,865	638,966
Total asset	5,038,072	54,394	5,092,466
Liabilities :			
Trade accounts payable	1,184,020	297,115	1,481,135
Other accounts payable	389,071	(242,721)	146,350
Total liability	3,488,534	54,394	3,542,928
Total equity	1,549,538	₩ -	1,549,538

Impact on the statement of profit or loss for the year ended December 31, 2018.

	In KIFRS 1115	Adjustment	In previous standards
Sales	₩ 9,988,225	₩ 1,903,819	₩ 11,892,044
Cost of sales	(9,277,167)	(1,903,819)	(11,180,986)
Gross profit	711,058	-	711,058
Operating loss	165,659	-	165,659
Loss for the year	(35,991)	-	(35,991)
Total comprehensive loss for the year	(26,027)	₩ -	(26,027)

There was no effect on the Group's cash flow for the year ended December 31, 2018.

2.4.2 KIFRS 1109 *Financial Instrument*

KIFRS 1109 Financial Instruments replaces KIFRS 1039 Financial Instruments: Recognition and Measurement for annual periods beginning on or after January 1, 2018, bringing together all three aspects of the accounting for financial instruments: classification and measurement; impairment; and hedge accounting.

The Group applied KIFRS 1109 prospectively, with an initial application date of January 1, 2018. The Group has not restated the comparative information. Differences arising from the adoption of KIFRS 1109 have been recognised directly in retained earnings and other components of equity in January 1, 2018.

2.4.2 KIFRS 1109 *Financial Instrument (cont'd)*

Classification and measurement
Under KIFRS 1109, debt instruments are subsequently measured at fair value through profit or loss, amortised cost, or fair value through OCI. The classification is based on two criteria: the Group's business model for managing the assets; and whether the instruments' contractual cash flows represent 'solely payments of principal and interest' on the principal amount outstanding.

The assessment of the Group's business model was made as of the date of initial application, January 1, 2018. The assessment of whether contractual cash flows on debt instruments are solely comprised of principal and interest was made based on the facts and circumstances as of the initial recognition of the assets.

The classification and measurement requirements of KIFRS 1109 did not have a significant impact to the Group. The Group continued measuring at fair value all financial assets previously held at fair value under KIFRS 1039. The following are the changes in the classification of the Group's financial assets:

- Trade receivables and other non-current financial assets classified as loans and receivables as of December 31, 2017 are held to collect contractual cash flows and give rise to cash flows representing solely payments of principal and interest. These are classified and measured as debt instruments at amortised cost beginning January 1, 2018.
- Equity investments not held for trading and acquired for strategic purposes classified as available-for-sales (AFS) financial assets as of December 31, 2017 are classified and measured as equity instruments designated at fair value through OCI beginning January 1, 2018. Other equity investments are classified as financial assets at fair value through profit or loss.
- As a result of the change in classification of the Group's AFS, the AFS reserve of ₩3,799 million related to financial assets at fair value through profit or loss that were previously presented under accumulated OCI, was reclassified to retained earnings as at January 1, 2018. The remaining amount of AFS reserve was reclassified to fair value reserve of financial assets designated at fair value through OCI.
- There are no changes in classification and measurement for the Group's financial liabilities.

Impairment
The adoption of KIFRS 1109 has changed the Group's accounting for impairment losses for financial assets by replacing KIFRS 1039's incurred loss approach with a forward-looking expected credit loss (ECL) approach. KIFRS 1109 requires the Group to recognise an allowance for ECLs for all debt instruments not held at fair value through profit or loss and contract assets.

Other adjustments
In addition to the adjustments described above, other item such as deferred taxes, was adjusted to retained earnings as necessary upon adoption of KIFRS 1109 as of January 1, 2018.

The impact on the financial statement of the Group as of January 1, 2018 as its adoption of KIFRS 1109 is as follows (Korean won in millions):

The effect of reclassification required, or elected for the financial assets.

	Classification		Book value		
	KIFRS 1039	KIFRS 1109	KIFRS 1039	KIFRS 1109	Difference (*)
Deposits to financial institutions, etc.	Loans and receivables	Amortized cost measurement	₩ 1,963,051	₩ 1,963,051	₩ -
Equity instruments	Available-for-sale financial investments	FVOCI measurement	140,927	135,563	5,462
		FVTPL measurement		10,826	
Total (excluding derivatives)			₩ 2,103,978	₩ 2,109,440	₩ 5,462

(*) The change in carrying amount is a result of the additional measurement of equity instruments as fair value in accordance with KIFRS 1109 which were measured at amortized cost in KIFRS 1039.

2.4.2 KIFRS 1109 *Financial Instrument (cont'd)*

Impact on the statement of financial position (Korean won in millions):

	Notes		January 1, 2018
Asset:			
Investment assets	8	₩	5,462
Deferred tax assets	23		(1,105)
Total		₩	4,357
Equity:			
Accumulated other comprehensive income	14	₩	558
Retained earnings	14		3,852
Non-controlling interests	14		(53)
Total		₩	4,357

2.4.3 Amendments to KIFRS 2122 *Foreign Currency Transactions and Advance Consideration*

The Interpretation clarifies that, in determining the spot exchange rate to use on initial recognition of the related asset, expense or income (or part of it) on the derecognition of a non-monetary asset or non-monetary liability relating to advance consideration, the date of the transaction is the date on which an entity initially recognises the non-monetary asset or non-monetary liability arising from the advance consideration. If there are multiple payments or receipts in advance, then the entity must determine the transaction date for each payment or receipt of advance consideration. The amendments has no effect on the Group's consolidated financial statements.

2.4.4 Amendments to KIFRS 1040 *Investment Property — Transfers of Investment Property*

The amendments clarify when an entity should transfer property, including property under construction or development into, or out of investment property. The amendments state that a change in use occurs when the property meets, or ceases to meet, the definition of investment property and there is evidence of the change in use. A mere change in management's intentions for the use of a property does not provide evidence of a change in use. The amendments has no effect on the Group's consolidated financial statements.

2.4.5 Amendments to KIFRS 1102 *Share-based Payment — Classification and Measurement of Share-based Payment Transactions*

The amendments to KIFRS 1102 Share-based Payment that address three main areas: the effects of vesting conditions on the measurement of a cash-settled share-based payment transaction; the classification of a share-based payment transaction with net settlement features for withholding tax obligations; and accounting where a modification to the terms and conditions of a share-based payment transaction changes its classification from cash settled to equity settled

2.4.6 Amendments to KIFRS 1101 *First-time Adoption of International Financial Reporting Standards - Deletion of short-term exemptions for first-time adopters*

Short-term exemptions in paragraphs E3–E7 of KIFRS 1101 were deleted because they have now served their intended purpose. This amendment is not applicable to the Group.

2.5 Significant accounting judgments, estimates and assumptions

The preparation of the Group's financial statement requires management to make judgments, estimates and assumptions that affect the reported amounts of revenues, expenses, assets and liabilities, and the disclosure of contingent liabilities, at the end of the reporting period. However, uncertainty about these assumptions and estimates could result in outcomes that require a material adjustment to the carrying amount of the asset or liability affected in future periods.

2.5 Significant accounting judgments, estimates and assumptions (cont'd)

Other disclosures relating to the Group's exposure to risks and uncertainties includes:

- Financial instruments risk management and policies   Note 26
- Sensitivity analyses disclosures   Note 20, 26

Estimates and assumptions

The key assumptions concerning the future and other key sources of estimation uncertainty at the reporting date, that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are discussed below. The Group based its assumptions and estimates on parameters available when the consolidated financial statements were prepared. Existing circumstances and assumptions about future developments, however, may change due to market changes or circumstances arising beyond control of the Group. Such changes are reflected in the assumptions when they occur.

2.5.1 Impairment of non-financial assets

The Group assesses at each reporting date whether there is any objective evidence that a non-financial asset is impaired. Goodwill and intangible assets with indefinite useful lives are tested when there are indications. Other non-financial asset is tested when there are indications that carrying amount is not to be collected. In assessing value in use, management estimates future cash flows from certain assets or CGUs and selects the appropriate discount rate to calculate the present value of future cash flow.

2.5.2 Defined benefit pension plan

The cost of the defined benefit pension plan and the present value of the pension obligation are determined using actuarial valuations. An actuarial valuation involves making various assumptions. These include the determination of the discount rate, future salary increases, mortality rates and future pension increases. Due to the complexity of the valuation, the underlying assumptions and its long term nature, a defined benefit obligation is highly sensitive to changes in these assumptions. All assumptions are reviewed at each reporting date.

In determining the appropriate discount rate, management considers the interest rates of corporate bonds in currencies consistent with the currencies of the post-employment benefit obligation with at least an 'AA' rating or above, as set by an internationally acknowledged rating agency. The mortality rate is based on publicly available mortality tables for the specific countries. Future salary increases and pension increases are based on expected future inflation rates for the respective countries.

2.5.3 Fair value measurement of financial instruments

When the fair values of financial assets and financial liabilities recorded in the statement of financial position cannot be measured based on quoted prices in active markets, their fair value is measured using valuation techniques including the discounted cash flow (DCF) model. The inputs to these models are taken from observable markets where possible, but where this is not feasible, a degree of judgement is required in establishing fair values. Judgements include considerations of inputs such as liquidity risk, credit risk and volatility. Changes in assumptions relating to these factors could affect the reported fair value of financial instruments.

2.5.4 Provision for expected credit losses of trade receivables

The Group uses a provision matrix to calculate ECLs for trade receivables. The provision rates are based on days past due for groupings of various customer segments that have similar loss patterns (i.e., by geography, product type, customer type and rating, and coverage by letters of credit and other forms of credit insurance).
The provision matrix is initially based on the Group's historical observed default rates. The Group will calibrate the matrix to adjust the historical credit loss experience with forward-looking information. For instance, if forecast economic conditions (i.e., gross domestic product) are expected to deteriorate over the next year which can lead to an increased number of defaults in the manufacturing sector, the historical default rates are adjusted. At every reporting date, the historical observed default rates are updated and changes in the forward-looking estimates are analysed.

2.5.4 Provision for expected credit losses of trade receivables (cont'd)

The assessment of the correlation between historical observed default rates, forecast economic conditions and ECLs is a significant estimate. The amount of ECLs is sensitive to changes in circumstances and of forecast economic conditions. The Group's historical credit loss experience and forecast of economic conditions may also not be representative of customer's actual default in the future.

2.6 Standards issued but not yet effective

The standards and interpretations that are issued, but not yet effective, up to the date of issuance of the Group's financial statement are disclosed below.

2.6.1 KIFRS 1116 *Leases*

KIFRS 1116 replaces KIFRS 1017 Leases, KIFRS 2104 determining whether an Arrangement contains a Lease, KIFRS 2015 Operating Leases-Incentives and KIFRS 2027 Evaluating the Substance of Transactions Involving the Legal Form of a Lease. KIFRS 1116 sets out the principles for the recognition, measurement, presentation and disclosure of leases and requires lessees to account for all leases under a single on-balance sheet model similar to the accounting for finance leases under KIFRS 1017. The standard includes two recognition exemptions for lessees – leases of 'low-value' assets (e.g., personal computers) and short-term leases (i.e., leases with a lease term of 12 months or less). At the commencement date of a lease, a lessee will recognise a liability to make lease payments (i.e., the lease liability) and an asset representing the right to use the underlying asset during the lease term (i.e., the right-of-use asset). Lessees will be required to separately recognise the interest expense on the lease liability and the depreciation expense on the right-of-use asset.

Lessees will be also required to remeasure the lease liability upon the occurrence of certain events (e.g., a change in the lease term, a change in future lease payments resulting from a change in an index or rate used to determine those payments). The lessee will generally recognise the amount of the remeasurement of the lease liability as an adjustment to the right-of-use asset. Lessor accounting under KIFRS 1116 is not significantly changed from today's accounting under KIFRS 1017. Lessors will continue to classify all leases using the same classification principle as in KIFRS 1017 and distinguish between two types of leases: operating and finance leases.

KIFRS 1116 is effective for annual periods beginning on or after January 1, 2019. KIFRS 1116 also requires lessees and lessors to make more extensive disclosures than under KIFRS 1017.

This Standard applies for annual periods beginning on or after 1 January 2019. Although early application is permitted, the entity first applies KIFRS 1115. The lessee may apply KIFRS 1116 using either the full retrospective approach or the modified retrospective approach. KIFRS 1116 allows for several practical expedients.

The Group will analyse the financial impact on its financial statements. The Group plans to apply KIFRS 1116 at the fixed effective date.

2.6.2 Amendments to KIFRS 1109 *Prepayment Features with Negative Compensation*

Under KIFRS 1109, a debt instrument can be measured at amortised cost or at fair value through other comprehensive income, provided that the contractual cash flows are 'solely payments of principal and interest on the principal amount outstanding' (the SPPI criterion) and the instrument is held within the appropriate business model for that classification. The amendments to KIFRS 1109 clarify that a financial asset passes the SPPI criterion regardless of the event or circumstance that causes the early termination of the contract and irrespective of which party pays or receives reasonable compensation for the early termination of the contract.

The amendments should be applied retrospectively and are effective from January 1, 2019, with earlier application permitted. These amendments have no impact on the financial statements of the Group.

2.6 Standards issued but not yet effective (cont'd)

2.6.3 Amendments to KIFRS 1110 and KIFRS 1028 *Sale or Contribution of Assets between an Investor and its Associate or Joint Venture*

The amendments address the conflict between KIFRS 1110 and KIFRS 1028 in dealing with the loss of control of a subsidiary that is sold or contributed to an associate or joint venture. The amendments clarify that the gain or loss resulting from the sale or contribution of assets that constitute a business, as defined in KIFRS 1103, between an investor and its associate or joint venture, is recognised in full. Any gain or loss resulting from the sale or contribution of assets that do not constitute a business, however, is recognised only to the extent of unrelated investors' interests in the associate or joint venture. The KASB has deferred the effective date of these amendments indefinitely, but an entity that early adopts the amendments must apply them prospectively. The Group will apply these amendments when they become effective.

2.6.4 Amendments to KIFRS 1028 *Long-term interests in associates and joint ventures*

The amendments clarify that an entity applies KIFRS 1109 to long-term interests in an associate or joint venture to which the equity method is not applied but that, in substance, form part of the net investment in the associate or joint venture (long-term interests). This clarification is relevant because it implies that the expected credit loss model in KIFRS 1109 applies to such long-term interests. The amendments also clarified that, in applying KIFRS 1109, an entity does not take account of any losses of the associate or joint venture, or any impairment losses on the net investment, recognised as adjustments to the net investment in the associate or joint venture that arise from applying KIFRS 1028 Investments in Associates and Joint Ventures. The amendments should be applied retrospectively and are effective from January 1, 2019, with early application permitted.

2.6.5 IFRIC Interpretation 2123 *Uncertainty over Income Tax Treatment*

The Interpretation addresses the accounting for income taxes when tax treatments involve uncertainty that affects the application of KIFRS 1012 and does not apply to taxes or levies outside the scope of KIFRS 1012, nor does it specifically include requirements relating to interest and penalties associated with uncertain tax treatments. The Interpretation specifically addresses the following:

- Whether an entity considers uncertain tax treatments separately
- The assumptions an entity makes about the examination of tax treatments by taxation authorities
- How an entity determines taxable profit (tax loss), tax bases, unused tax losses, unused tax credits and tax rates
- How an entity considers changes in facts and circumstances

The Group has to determine whether to consider each uncertain tax treatment separately or together with one or more other uncertain tax treatments. The approach that better predicts the resolution of the uncertainty should be followed. The interpretation is effective for annual reporting periods beginning on or after January 1, 2019, but certain transition reliefs are available. The Group will apply the interpretation from its effective date. Since the Group operates in a complex multinational tax environment, applying the Interpretation may affect its consolidated financial statements. In addition, the Group may need to establish processes and procedures to obtain information that is necessary to apply the Interpretation on a timely basis.

2.6.6 Annual Improvements 2015-2017 Cycle

KIFRS 1103 *Business Combinations*
The amendments clarify that, when an entity obtains control of a business that is a joint operation, it applies the requirements for a business combination achieved in stages, including remeasuring previously held interests in the assets and liabilities of the joint operation at fair value. In doing so, the acquirer remeasures its entire previously held interest in the joint operation.

An entity applies those amendments to business combinations for which the acquisition date is on or after the beginning of the first annual reporting period beginning on or after January 1, 2019, with early application permitted. These amendments will apply on future business combinations of the Group.

2.6.6 Annual Improvements 2015-2017 Cycle (cont'd)

KIFRS 1111 *Joint Arrangements*
A party that participates in, but does not have joint control of, a joint operation might obtain joint control of the joint operation in which the activity of the joint operation constitutes a business as defined in KIFRS 1103. The amendments clarify that the previously held interests in that joint operation are not remeasured.

An entity applies those amendments to transactions in which it obtains joint control on or after the beginning of the first annual reporting period beginning on or after January 1, 2019, with early application permitted. These amendments are currently not applicable to the Group but may apply to future transactions.

KIFRS 1012 *Income Taxes*
The amendments clarify that the income tax consequences of dividends are linked more directly to past transactions or events that generated distributable profits than to distributions to owners. Therefore, an entity recognises the income tax consequences of dividends in profit or loss, other comprehensive income or equity according to where the entity originally recognised those past transactions or events.

An entity applies those amendments for annual reporting periods beginning on or after January 1, 2019, with early application is permitted. When an entity first applies those amendments, it applies them to the income tax consequences of dividends recognised on or after the beginning of the earliest comparative period. Since the Group's current practice is in line with these amendments, the Group does not expect any effect on its financial statements.

KIFRS 1023 *Borrowing Costs*
The amendments clarify that an entity treats as part of general borrowings any borrowing originally made to develop a qualifying asset when substantially all of the activities necessary to prepare that asset for its intended use or sale are complete.

An entity applies those amendments to borrowing costs incurred on or after the beginning of the annual reporting period in which the entity first applies those amendments. An entity applies those amendments for annual reporting periods beginning on or after January 1, 2019, with early application permitted. Since the Group's current practice is in line with these amendments, the Group does not expect any effect on its consolidated financial statements.

3. Segment information

For management purposes, the Group is organized into business units based on its products and services and has four reportable operating segments as follows:

Segment	Principal business activity
Resources	Coal, oil & gas, metals, food & commodities, and others
Infra-business	Chemical plant, power generation, infrastructure, chemicals, electric/electronic parts, automotive and others
Logistics	Shipping, air transport, land transport, international courier, customs, warehousing, distribution consulting and others
Collectively grouped	Common group management

3.1 Segment sales and operating income

Segment sales and operating income of the Group are as follows (Korean won in millions):

	2018			2017		
	Sales	Operating income	Adjusted operating income (*)	Sales	Operating income	Adjusted operating income (*)
Resources	₩ 1,059,085	₩ 28,252	₩ 28,252	₩ 1,049,556	₩ 78,399	₩ 83,937
Infra-business	5,029,815	41,460	41,460	8,230,462	58,629	58,629
Logistics	3,899,325	95,947	95,947	3,547,219	75,226	75,226
	₩ 9,988,225	₩ 165,659	₩ 165,659	₩ 12,827,237	₩ 212,254	₩ 217,792

(*) The Group included several items among non-operating income and costs as to present its operational performance more effectively in the adjusted operating income (See Note 17).

3.2 Segment assets and liabilities

Segment assets and liabilities of the Group are as follows (Korean won in millions):

	2018		2017	
	Assets	Liabilities	Assets	Liabilities
Resources	₩ 1,487,996	₩ 714,979	₩ 1,504,188	₩ 692,048
Infra-business	1,661,317	1,454,316	1,676,290	1,356,407
Logistics	997,123	726,341	896,342	611,176
Collectively grouped (*)	891,636	592,899	890,782	722,510
	₩ 5,038,072	₩ 3,488,535	₩ 4,967,602	₩ 3,382,141

(*) Assets and liabilities that individually do not have a material effect to a specific operating segment have been collectively grouped. These include cash and cash equivalents, investment assets, property, plant and equipment, and intangible assets.

3.3 Sales by geographic region

Sales by geographic region of the Group are as follows (Korean won in millions):

	2018	2017
Korea	₩ 6,411,154	₩ 6,927,339
Americas	472,356	1,175,357
Europe	713,250	1,234,699
Asia	8,929,472	5,198,081
Others	7,763	120,826
Consolidation adjustments	(6,545,770)	(1,829,065)
	₩ 9,988,225	₩ 12,827,237

3.3 Sales by geographic region (cont'd)

Two major customers (LG Electronics and LG Display) accounted for more than 10% of the Group's total sales for the years ended December 31, 2018 and 2017.

4. Classification of financial instruments

4.1 Financial instruments by category

4.1.1 Financial assets

Financial assets by category as of December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018				
	Financial assets at fair value through profit or loss	Financial assets at fair value through OCI	Financial assets at amortised cost	Hedge accounting-related assets	Total
Cash and cash equivalents	₩ -	₩ -	₩ 342,014	₩ -	₩ 342,014
Short term financial asset	-	-	14,162	-	14,162
Equity instruments held for long-term (*)	10,501	151,154	-	-	161,655
Trade accounts receivable	-	-	1,067,921	-	1,067,921
Other accounts receivable	1,451	-	382,718	-	384,169
Long-term loans	-	-	56,559	-	56,559
Other financial assets	-	-	189,686	497	190,183
	₩ 11,952	₩ 151,154	₩ 2,053,060	₩ 497	₩ 2,216,663

(*) In accordance with the adoption of KIFRS1109, available-for-sale financial assets was reclassified as financial assets at fair value through profit or loss and financial assets at fair value through OCI. Refer to Note 2.4.2

	2017				
	Financial assets at fair value through profit or loss	Loans and receivables	Available-for-sale financial assets	Hedge accounting-related assets	Total
Cash and cash equivalents	₩ -	₩ 395,211	₩ -	₩ -	₩ 395,211
Short term financial asset	-	20,649	-	-	20,649
Available-for-sale financial assets	-	-	140,927	-	140,927
Trade accounts receivable	-	1,276,108	-	-	1,276,108
Other accounts receivable	1,276	52,148	-	-	53,424
Long-term loans	-	78,906	-	-	78,906
Other financial assets	-	140,029	-	218	140,247
	₩ 1,276	₩ 1,963,051	₩ 140,927	₩ 218	₩ 2,105,472

4.1.2 Financial liabilities

Financial liabilities by category as of December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018							
	Financial liabilities at fair value through profit or loss		Financial liabilities measured at amortized cost		Hedge accounting-related liabilities		Total	
Trade accounts payable	₩	-	₩	1,184,020	₩	-	₩	1,184,020
Other accounts payable		574		388,498		-		389,072
Borrowings		-		797,846		-		797,846
Bonds payable		-		389,222		-		389,222
Current portion of bonds payable and long-term borrowings		-		243,582		-		243,582
Other financial liabilities		-		141,169		1,998		143,167
	₩	574	₩	3,144,337	₩	1,998	₩	3,146,909

	2017							
	Financial liabilities at fair value through profit or loss		Financial liabilities measured at amortized cost		Hedge accounting-related liabilities		Total	
Trade accounts payable	₩	-	₩	1,416,001	₩	-	₩	1,416,001
Other accounts payable		4,262		156,880		10		161,152
Borrowings		-		912,506		-		912,506
Bonds payable		-		329,310		-		329,310
Current portion of bonds payable and long-term borrowings		-		164,767		-		164,767
Other financial liabilities		-		140,489		8,770		149,259
	₩	4,262	₩	3,119,953	₩	8,780	₩	3,132,995

4.2 Gains and losses on financial instruments

4.2.1 Gains and losses on financial assets

Gains and losses on financial assets by category for the years ended December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018				
	Financial assets at fair value through profit or loss	Financial assets at fair value through OCI	Financial assets at amortised cost	Hedge accounting-related assets	Total
Net income:					
Interest income	₩ -	₩ -	₩ 20,077	₩ -	₩ 20,077
Dividend income	203	6,604	-	-	6,807
Gain and loss on foreign currency transactions	-	-	14,897	-	14,897
Gain and loss on foreign currency translation	-	-	5,962	-	5,962
Gain and loss on settlement of currency forwards	10,016	-	-	-	10,016
Gain and loss on valuation of currency forwards	1,451	-	-	-	1,451
Gain and loss on valuation of currency swaps	-	-	-	4,670	4,670
Reversal of allowances for doubtful accounts	-	-	1,094	-	1,094
Other allowances for doubtful accounts	-	-	(3,196)	-	(3,196)
Loss on disposal of receivables	-	-	(18,872)	-	(18,872)
Other comprehensive income (*):					
Gain or loss on valuation of financial assets at fair value through OCI	-	8,426	-	-	8,426
Gain on valuation of derivatives designated as cash flow hedges	-	-	-	(148)	(148)
	₩ 11,670	₩ 15,030	₩ 19,962	₩ 4,522	₩ 51,184

(*) Other comprehensive income is the amount before income tax effect.

4.2.1 Gains and losses on financial assets (cont'd)

	2017				
	Financial assets at fair value through profit or loss	Loans and receivables	Available-for-sale financial assets	Hedge accounting-related assets	Total
Net income:					
Interest income	₩ -	₩ 13,930	₩ -	₩ -	₩ 13,930
Dividend income	-	-	6,244	-	6,244
Gain and loss on foreign currency transactions	-	(48,210)	-	-	(48,210)
Gain and loss on foreign currency translation	-	(27,872)	-	-	(27,872)
Gain and loss on settlement of currency forwards	(1,010)	-	-	-	(1,010)
Gain and loss on valuation of currency forwards	1,276	-	-	-	1,276
Gain and loss on settlement of commodity forwards	-	-	-	494	494
Gain and loss on settlement of commodity swaps	-	-	-	5,704	5,704
Reversal of allowances for doubtful accounts	-	7,435	-	-	7,435
Reversal of other allowances for doubtful accounts	-	7,061	-	-	7,061
Loss on disposal of receivables	-	(7,395)	-	-	(7,395)
Gain on disposal of available-for-sale financial assets	-	-	2,937	-	2,937
Other comprehensive income (*):					
Loss on valuation of available-for-sale financial assets	-	-	(15,512)	-	(15,512)
Gain on valuation of derivatives designated as cash flow hedges	-	-	-	4	4
	₩ 266	₩ (55,051)	₩ (6,331)	₩ 6,202	₩ (54,914)

(*) Other comprehensive income is the amount before income tax effect.

4.2.2 Gains and losses on financial liabilities

Gain and loss on financial liabilities by category for the years ended December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018			
	Financial liabilities at fair value through profit or loss	Financial liabilities measured at amortized cost	Hedge accounting-related liabilities	Total
Net income:				
Interest expenses	₩ -	₩ (49,825)	₩ -	₩ (49,825)
Loss on foreign currency transactions	-	(22,697)	-	(22,697)
Loss on foreign currency translation	-	(11,125)	-	(11,125)
Loss on settlement of currency forwards	(10,045)	-	-	(10,045)
Loss on valuation of currency forwards	(574)	-	-	(574)
Other comprehensive income (*):				
Gain on valuation of derivatives designated as cash flow hedges	-	-	2,198	2,198
	₩ (10,619)	₩ (83,647)	₩ 2,198	₩ (92,068)

(*) Other comprehensive income is the amount before income tax effect.

4.2.2 Gains and losses on financial liabilities (cont'd)

	2017			
	Financial liabilities at fair value through profit or loss	Financial liabilities measured at amortized cost	Hedge accounting-related liabilities	Total
Net income:				
Interest expenses	₩ -	₩ (53,121)	₩ -	₩ (53,121)
Gain on foreign currency transactions	-	55,747	-	55,747
Gain on foreign currency translation	-	51,543	-	51,543
Loss on settlement of currency forwards	(12,256)	-	-	(12,256)
Loss on valuation of currency forwards	(4,262)	-	-	(4,262)
Loss on valuation of currency swaps	-	-	(13,710)	(13,710)
Loss on settlement of commodity forwards	-	-	(660)	(660)
Other comprehensive income (*):				
Loss on valuation of derivatives designated as cash flow hedges	-	-	(2,575)	(2,575)
	₩ (16,518)	₩ 54,169	₩ (16,945)	₩ 20,706

(*) Other comprehensive income is the amount before income tax effect.

5. Cash and cash equivalents

Details of cash and cash equivalents as at December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018	2017
Cash on hand	₩ 2,999	₩ 2,767
Short-term deposits	339,015	392,444
	₩ 342,014	₩ 395,211

Outstanding balances on restricted deposits included in long-term financial instruments as at December 31, 2018 amounted to ₩5,370 million (₩5,058 million in 2017) which consisted of mine restoration deposits and others.

6. Derivative financial instruments

6.1 Valuation of derivative financial instruments

Valuation gains and losses arising from derivative financial instruments included in other accounts receivable and payable as at December 31, 2018 and 2017 are presented as follows (Korean won in millions):

	2018			2017		
	Gain on valuation	Loss on valuation	Other comprehensive income(*1)	Gain on valuation	Loss on valuation	Other comprehensive income
Currency forwards	₩ 1,451	₩ 574	₩ -	₩ 1,276	₩ 4,262	₩ -
Currency swaps	4,670	-	(400)	-	13,710	(228)
Interest rate swaps	-	-	2,451	-	-	(2,344)
	₩ 6,121	₩ 574	₩ 2,051	₩ 1,276	₩ 17,972	₩ (2,572)

(*1) Other comprehensive income is the amount before income tax effect.

6.2 Currency forwards

As at December 31, 2018 and 2017, gains and losses on unsettled currency forward contracts are as follows (Korean won in millions and other currencies in thousands):

2018

Position-buy	Buying amount	Position-sell	Selling amount	Contracted exchange rate	Gain on valuation	Loss on valuation
KRW	66,827	USD	59,401	1,109,10 ~ 1,130.50	₩ 499	₩ -
KRW	19	JPY	1,840	10.10	-	-
USD	94,922	KRW	104,935	1,055.60 ~ 1,127.17	952	(553)
KRW	6,130	EUR	4,800	1,277.00	-	(21)
					₩ 1,451	₩ (574)

2017

Position-buy	Buying amount	Position-sell	Selling amount	Contracted exchange rate	Gain on valuation	Loss on valuation
KRW	87,100	USD	80,281	1,068.20 ~ 1,147.20	₩ 1,276	₩ (106)
USD	150,312	KRW	164,549	1,084.25 ~ 1,147.20	-	(4,156)
					₩ 1,276	₩ (4,262)

6.3 Currency swaps

As at December 31, 2018 and 2017, gains and losses on unsettled currency swap contracts are as follows (Korean won in millions and other currencies in thousands):

2018

Contracted party	Buying amount	Selling amount	Contracted exchange rate	Receivable interest rate	Payment interest rate	Contracted term	Gain on valuation	Other comprehensive loss
The Export Import Bank of Korea	USD 100,000	₩ 114,450	1,144.5	3ML + 2.30%	3.20%	2016.4.1 ~ 2021.4.1	₩ 4,670	₩ (400)

2017

Contracted party	Buying amount	Selling amount	Contracted exchange rate	Receivable interest rate	Payment interest rate	Contracted term	Loss on valuation	Other comprehensive loss
The Export Import Bank of Korea	USD 100,000	₩ 114,450	1,144.5	3ML + 2.30%	3.20%	2016.4.1 ~ 2021.4.1	₩ 13,710	₩ (228)

6.4 Interest rate swaps

As at December 31, 2018 and 2017, gains and losses on unsettled interest rate swap contracts are as follows (Korean won in millions and foreign currencies in thousands):

2018							
Contracted party	Contractual principal		Receivable interest rate	Payment interest rate	Contracted term	Other comprehensive income (loss)	
Shinhan Bank	₩	20,000	CD (91 days)	1.21%	2016.06.30 ~ 2019.07.01	₩	(138)
Korea Development Bank	USD	99,713	LIBOR	2.77%	2017.02.27 ~ 2034.09.25		2,589
						₩	2,451

2017							
Contracted party	Contractual principal		Receivable interest rate	Payment interest rate	Contracted term	Other comprehensive income (loss)	
Shinhan Bank	₩	20,000	CD (91 days)	1.21%	2016.06.30 ~ 2019.07.01	₩	4
Shinhan Bank	₩	30,000	CD(91 days)	1.51%	2017.01.24 ~ 2018.01.24		(10)
Korea Development Bank	USD	72,414	LIBOR	2.77%	2017.02.27 ~ 2034.09.25		(2,338)
						₩	(2,344)

7. Inventories

Details of inventories as at December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018					
	Acquisition cost		Valuation allowance		Book value	
Merchandise	₩	188,700	₩	(435)	₩	188,265
Finished goods		27,017		(2,363)		24,654
Raw materials		13,380		(57)		13,323
Stored goods		2,306		-		2,306
Materials in transit		285,553		-		285,553
	₩	516,956	₩	(2,855)	₩	514,101

	2017					
	Acquisition cost		Valuation allowance		Book value	
Merchandise	₩	345,398	₩	(499)	₩	344,899
Finished goods		23,143		-		23,143
Raw materials		14,710		(53)		14,657
Stored goods		1,040		-		1,040
Materials in transit		214,336		-		214,336
	₩	598,627	₩	(552)	₩	598,075

8. Investment assets

Details of investment assets as at December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018	2017
Equity instruments held for long-term	₩	₩
Available-for-sale financial assets	-	140,927
Financial assets at fair value through profit or loss	10,501	-
Financial assets at fair value through OCI	151,154	-
Long-term loans receivable	56,559	78,906
	₩ 218,214	₩ 219,833

8.1 Equity instruments held for long-term

Changes in the net book value of equity instruments held for long-term as at December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018						
	Equity ownership (%)	Jan.1	Effect of change in accounting policy(*1)	Acquisition (disposal) (*2)	Valuation	Translation gain (loss)	Dec. 31 (*3)
Financial assets at fair value through profit or loss							
LS VINA Industrial System Co., Ltd.	10.00	₩ -	₩ 223	₩ (223)	₩ -	₩ -	₩ -
LG VINA Chemical JV Co., Ltd.	10.00	-	299	(299)	-	-	-
Aromatics Oman LLC	1.00	-	4,779	-	-	-	4,779
EIC Properties Pte. Ltd.	15.50	-	5,525	-	(44)	241	5,722
		-	10,826	(522)	(44)	241	10,501
Financial assets at fair value through OCI							
Korea Ras Laffan LNG Limited (Qatar LNG project)	5.60	-	41,747	-	(3,492)	-	38,255
Vietnam Korea Exchange Ltd.	10.00	-	322	-	-	-	322
LG Int'l (Saudi) LLC	90.00	-	118	-	-	-	118
Minera Corocobre S.A.	11.10	-	586	-	-	-	586
Oilhub Korea Yeosu Co., Ltd.	5.00	-	6,810	-	1,038	-	7,848
GS E&R Co, Ltd (*6)	7.50	-	61,602	-	17,242	-	78,844
Tianjin LG Bohai Chemical	10.00	-	16,909	-	200	-	17,109
Cobalt blue holdings Ltd.	6.11	-	-	6,467	(5,321)	-	1,146
Tangshan Caofeidian Steam Coal Storage & Blending Co., Ltd.	1.50	-	1,062	-	-	(6)	1,056
RedcapTour Co., Ltd.	2.97	-	3,876	-	(88)	-	3,788
Chosun Broadcasting Corporation	0.68	-	1,956	-	(449)	-	1,507
Kumkang Logistics	3.43	-	60	-	-	-	60
iPort Co., Ltd.	5.26	-	500	-	-	-	500
Information & Communication Financial Cooperative	-	-	15	-	-	-	15
		-	135,563	6,467	9,130	(6)	151,154
		₩ -	₩ 146,389	₩ 5,945	₩ 9,086	₩ 235	₩ 161,655

8.1 Available-for-sale financial assets (cont'd)

	2017					
	Equity ownership (%)	Jan. 1	Acquisition (disposal)	Valuation (*6)	Translation gain (loss)	Dec. 31 (*1)
LG Fashion Corp. (*4)	0.24	₩ 1,504	₩ (576)	₩ (928)	₩ -	₩ -
LG Uplus Corp. (*4)	0.05	2,271	(913)	(1,358)	-	-
Korea Ras Laffan LNG Limited (Qatar LNG project)	5.60	54,039	-	(12,292)	-	41,747
Vietnam Korea Exchange Ltd.	10.00	322	-	-	-	322
LS VINA Industrial System Co., Ltd.	10.00	223	-	-	-	223
LG VINA Chemical JV Co., Ltd.	10.00	299	-	-	-	299
LG Int'l (Saudi) LLC	90.00	118	-	-	-	118
Minera Corocobre S.A.	11.10	586	-	-	-	586
Aromatics Oman LLC	1.00	4,779	-	-	-	4,779
Oilhub Korea Yeosu Co., Ltd.	5.00	7,205	-	-	-	7,205
GS E&R Co, Ltd (*5)	7.50	53,302	7,500	800	-	61,602
Tianjin LG Bohai Chemical	10.00	11,801	-	-	-	11,801
EIC Properties Pte. Ltd	15.50	5,630	-	(258)	(740)	4,632
Tangshan Caofeidian Steam Coal Storage & Blending Co., Ltd.	1.50	1,124	-	-	(62)	1,062
RedcapTour Co., Ltd.	2.97	4,550	-	(674)	-	3,876
Chosun Broadcasting Corporation	0.68	2,100	-	-	-	2,100
Kumkang Logistics	3.43	60	-	-	-	60
iPort Co., Ltd.	5.26	500		-	-	500
Information & Communication Financial Cooperative	-	15	-	-	-	15
		₩ 150,428	₩ 6,011	₩ (14,710)	₩ (802)	₩ 140,927

(*1) In accordance with the adoption of KIFRS 1109, available-for-sale financial assets were reclassified as financial assets at fair value through profit or loss and financial assets at fair value through OCI. Refer to Note 2.4

(*2) During the year ended December 31, 2018, the Group acquired 6.11% ownership of Cobalt blue holdings Ltd. and disposed all of its equity ownership of VINA Industrial System, LG VINA Chemical Joint Venture Co., Ltd.

(*3) Financial assets measured at fair value through OCI include investments in shares of unlisted companies. The group holds non-controlling interests. Because the Group considers these investments to have strategic attributes, it presents the fair value changes in OCI and opts not to cancel them afterwards.

(*4) In 2017, the Group disposed all of its equity ownership in LF Corp. and LG Uplus Corp.

(*5) During the year ended December 31, 2017, the Group participated in the capital increase with consideration of GS E&R Co., Ltd. without change in its equity ownership. Meanwhile, the Group has the right to purchase 351,111 shares of GS E&R Co., Ltd. held by GS Corp. at ₩62,463 per share, if GS E&R Co., Ltd. cannot undergo an initial public offering of its ordinary shares by February 28, 2019. GS Corp. also has the right to purchase all of the equity ownership in GS E&R Co. Ltd. which the Group holds (1,303,334 shares) at the fair value as of December 31, 2018, if the Group does not exercise the right within the agreed period.

(*6) It includes the reclassification effect of gains and losses on available-for-sale financial assets disposed during previous year

8.2 Investment in associates

As at December 31, 2018 and 2017, details of investments in associates are as follows.

	Domicile	Equity ownership (%) 2018	2017	Reporting date	Principal business activity
Overseas Resources Development Fund (*1)	Korea	7.46	7.46	12.31	Overseas resources development
Heungkuk Investment Fund	Korea	50.00	50.00	12.31	〃
POSCO-IPPC (India Pune Processing Center)	India	35.00	35.00	12.31	Processing and selling steel
POSCO-PWPC (Poland Wroclaw Processing Center)	Poland	40.00	40.00	12.31	〃
LG Holdings (HK) Ltd.	Hong Kong	25.00	25.00	12.31	Leasing real estate
Kernhem B.V.	Netherland	30.00	30.00	12.31	Oil and gas
ADA Oil LLP (*1)	Kazakhstan	12.50	12.50	12.31	〃
GS HP Sunflower Village Int'l Corp.	Vietnam	30.00	30.00	12.31	Leasing real estate
Sal de Vida Korea Corp.	Korea	33.33	33.33	12.31	Mining and selling lithium
United Copper & Moly LLC (Rosemont)	USA	50.00	50.00	12.31	Mining and selling cooper
Dongbu Thai Steel Co., Ltd. (*2)	Thailand	-	22.59	12.31	Processing and selling steel
GeoPark Chile S.A. (*2)	Chile	-	20.00	12.31	Oil and gas
GeoPark TdF S.A. (*1,2)	Chile	-	14.00	12.31	〃
GeoPark Colombia Cooperate U.A. (*2)	Netherland	-	20.00	12.31	〃
Elvatec Co., Ltd.(*2)	Korea	-	26.09	12.31	Rechargeable battery
Oman International Petrochemical Industry Company LLC	Oman	30.00	30.00	12.31	Manufacturing and selling PTA, PET
Musandam Power Company SAOC	Oman	30.00	30.00	12.31	Thermal power plant
Gansu Wuwei Cogeneration Power Plant	China	30.00	30.00	12.31	Generating cogeneration
KM Resources Ltd. (Rapu-Rapu) (*3)	Malaysia	70.00	70.00	12.31	Mining and selling cooper
Mongolia Boyuan Coal Co., Ltd. (Wantugou)	China	30.00	30.00	12.31	Mining and selling coal
Shaanxi BBM Biomass Power Generation Co., Ltd.	China	30.00	30.00	12.31	Generating new & renewable energy
Inner Mongolia BDSD Chemical Co., Ltd.	China	29.00	29.00	12.31	Manufacturing fertilizer
Pantos Logistics Philippines Inc.	Philippine	39.99	39.99	12.31	Logistics
PT. Pantos Express Indonesia	Indonesia	49.00	49.00	12.31	〃

(*1) The entity is classified as an associate even though the Group holds less than 20% equity ownership. As the Group has rights to elect the directors of the entity and its executive participates in management as a director, it is considered that the Group has significant influence over the entities.

(*2) For the year ended December 31, 2018, the Group disposed its equity ownership of Dongbu Thai Steel Co., Ltd, GeoPark Chile S.A., GeoPark TdF S.A. and GeoPark Colombia Cooperate U.A. Elvatec Co., Ltd. was liquidated and excluded from the associates of the Group.

(*3) As major decision making is decided unanimously, it is difficult to judge that control is held, so it has been classified as associate.

8.2 Investment in associates (cont'd)

Details of the investments in associates as at December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018			2017
	Acquisition cost	Net asset value	Net book value	Net book value
Overseas Resources Development Fund	₩ 2,242	₩ (931)	₩ -	₩ 1,495
Heungkuk Investment Fund	4,566	(8,729)	-	2,624
POSCO-IPPC (India Pune Processing Center)	9,184	27,533	9,637	8,166
POSCO-PWPC (Poland Wroclaw Processing Center)	5,244	15,827	6,355	6,367
LG Holdings (HK) Ltd.	37,983	220,671	55,168	50,607
Kernhem B.V.	2,005	(67,165)	-	-
ADA Oil LLP	22,011	(72,677)	3,302	3,324
GS HP Sunflower Village Int'l Corp.	2,911	11,870	3,561	2,756
Sal de Vida Korea Corp.	6,300	188	2,418	2,418
United Copper & Moly LLC (Rosemont)	39,618	74,812	37,406	35,844
Dongbu Thai Steel Co., Ltd.	-	-	-	1,564
GeoPark Chile S.A.	-	-	-	2,011
GeoPark TdF S.A.	-	-	-	-
GeoPark Colombia Cooperate U.A.	-	-	-	31,220
Elvatec Co., Ltd.	-	-	-	207
Oman International Petrochemical Industry Company LLC	19,766	57,596	-	15,142
Musandam Power Company SAOC	6,535	29,501	8,850	7,337
Gansu Wuwei Cogeneration Power Plant	55,932	175,337	53,049	53,677
KM Resources Ltd.(Rapu-Rapu)	40,493	3,666	-	-
Mongolia Boyuan Coal(Wantugou)	54,801	147,276	74,790	74,135
Shaanxi BBM Biomass Power Generation Co., Ltd.	8,255	27,013	8,104	7,765
Inner Mongolia BDSD Chemical Co., Ltd.	97,837	332,933	105,474	93,670
Pantos Logistics Philippines Inc.	1,273	197	79	189
PT. Pantos Express Indonesia	2,212	(717)	-	-
	₩ 419,168	₩ 974,201	₩ 368,193	₩ 400,518

The summarized financial information of associates which were material to the Group as at December 31, 2018 and 2017 is as follows (Korean won in millions):

	2018						
	Current assets	Non-current assets	Current liabilities	Non-current liabilities	Revenue	Profit (loss) for the year	Dividends paid by associates
LG Holdings (HK) Ltd.	₩ 24,133	₩ 196,562	₩ -	₩ 24	₩ -	₩ 18,578	₩ -
Kernhem B.V.	774	67,000	-	134,940	-	(3,587)	-
ADA Oil LLP	9,698	65,572	1,249	146,699	46,444	(1,228)	-
United Copper & Moly LLC. (Rosement)	-	74,814	-	2	-	(11)	-
Mongolia Boyuan Coal Co., Ltd. (Wantugou)	69,457	209,134	130,203	1,113	82,689	883	16,276
Inner Mongolia BDSD Chemical Co., Ltd.	220,517	646,048	486,284	47,348	299,213	41,921	-

	2017						
	Current assets	Non-current assets	Current liabilities	Non-current liabilities	Revenue	Profit (loss) for the year	Dividends paid by associates
LG Holdings (HK) Ltd.	₩ 21,643	₩ 180,784	₩ -	₩ -	₩ -	₩ 13,586	₩ -
Kernhem B.V.	774	62,409	-	133,396	-	(2,468)	-
ADA Oil LLP	10,798	73,948	1,391	163,524	31,519	(2,957)	-
United Copper & Moly LLC. (Rosement)	-	71,689	-	2	-	(86)	-
GeoPark Chile S.A.	8,600	476,644	11,389	339,553	29,652	(27,874)	-
GeoPark Colombia Cooperate U.A.	43,525	217,244	79,776	24,893	228,094	78,614	2,731
Mongolia Boyuan Coal Co., Ltd. (Wantugou)	94,908	207,018	138,216	139	220,409	22,124	-
Inner Mongolia BDSD Chemical Co., Ltd.	101,989	720,946	447,507	81,913	247,489	3,374	-

8.2 Investment in associates (cont'd)

Changes in the net book value of investments in associates for the years ended December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018						
	Jan.1	Acquisition (disposal)	Dividends	Change in equity adjustment in equity method	Share of profit or loss	Impairment and others (*1)	Dec. 31
Overseas Resources development Fund	₩ 1,495	₩ -	₩ -	₩ -	₩ (1,495)	₩ -	₩ -
Heungkuk Investment Fund	2,624	-	-	-	(2,624)	-	-
POSCO-IPPC (India Pune Processing Center)	8,166	-	-	(370)	1,841	-	9,637
POSCO-PWPC (Poland Wroclaw Processing Center)	6,367	-	-	(186)	174	-	6,355
LG Holdings (HK) Ltd. (LG Building Ltd.)	50,607	-	-	(84)	4,645	-	55,168
Kernhem B.V.	-	-	-	1,991	(1,091)	(900)	-
ADA Oil LLP	3,324	-	-	1,090	(1,112)	-	3,302
GS HP Sunflower Village Int'l Corp.	2,756	-	(262)	111	956	-	3,561
Sal de Vida Korea Corp.	2,418	-	-	-	-	-	2,418
United Copper & Moly LLC (Rosemont)	35,844	5	-	1,562	(5)	-	37,406
Dongbu Thai Steel Co., Ltd.	1,564	(1,514)	-	212	(262)	-	-
GeoPark Chile S.A.	2,011	1,508	-	(831)	(2,688)	-	-
GeoPark Colombia Cooperate U.A.	31,220	(50,488)	(8,717)	389	27,596	-	-
Elvatec Co., Ltd.	207	(225)	-	26	(8)	-	-
Oman International Petrochemical Industry Company LLC	15,142	2,794	-	714	(458)	(18,192)	-
Musandam Power Company SAOC	7,337	-	-	339	1,174	-	8,850
Gansu Wuwei Cogeneration Power Plant	53,677	-	-	(282)	(346)	-	53,049
Mongolia Boyuan Coal(Wantugou)	74,135	-	-	(2,483)	(173)	3,311	74,790
Shaanxi BBM Biomass Power Generation Co., Ltd.	7,765	-	-	-	-	339	8,104
Inner Mongolia BDSD Chemical Co., Ltd.	93,670	-	-	(4,745)	12,157	4,392	105,474
Pantos Logistics Philippines Inc.	189	-	-	6	(116)	-	79
	₩ 400,518	₩ (47,920)	₩ (8,979)	₩ (2,541)	₩ 38,165	₩ (11,050)	₩ 368,193

8.2 Investment in associates (cont'd)

	2017						
	Jan.1	Acquisition (disposal)	Dividends	Change in equity adjustment in equity method	Share of profit or loss	Impairment and others	Dec. 31
Overseas Resources development Fund	₩ 1,548	₩ 9	₩ -	₩ -	₩ (62)	₩ -	₩ 1,495
Heungkuk Investment Fund	2,750	18	-	-	(144)	-	2,624
POSCO-IPPC (India Pune Processing Center)	3,346	-	-	(396)	5,216	-	8,166
POSCO-PWPC (Poland Wroclaw Processing Center)	6,124	-	-	389	(146)	-	6,367
LG Holdings (HK) Ltd. (LG Building Ltd.)	70,441	(19,122)	-	(4,109)	3,397	-	50,607
Kernhem B.V.	-	-	-	2,929	(771)	(2,158)	-
ADA Oil LLP	3,989	-	-	1,702	(2,367)	-	3,324
GS HP Sunflower Village Int'l Corp.	2,311	-	(125)	(345)	915	-	2,756
Sal de Vida Korea Corp.	2,418	-	-	-	-	-	2,418
United Copper & Moly LLC (Rosemont)	40,464	14	-	(4,589)	(45)	-	35,844
Dongbu Thai Steel Co., Ltd.	1,532	-	-	(32)	64	-	1,564
GeoPark Chile S.A.	11,405	-	-	(3,820)	(5,574)	-	2,011
GeoPark Colombia Cooperate U.A.	18,992	-	(546)	(2,949)	15,723	-	31,220
Elvatec Co., Ltd.	2,542	-	-	(4)	(2,331)	-	207
Oman International Petrochemical Industry Company LLC	16,630	1,028	-	(1,919)	(597)	-	15,142
Musandam Power Company SAOC	324	6,111	-	(776)	1,678	-	7,337
SLA Global Co., Ltd.	171	(67)	-	-	(104)	-	-
Gansu Wuwei Cogeneration Power Plant	55,546	-	-	(3,084)	1,215	-	53,677
KM Resource Ltd.(Rapu-Rapu)	7,407	-	-	-	(4,264)	(3,143)	-
Mongolia Boyuan Coal(Wantugou)	74,175	-	-	2,934	5,952	(8,926)	74,135
Shaanxi BBM Biomass Power Generation Co., Ltd.	8,759	-	-	-	-	(994)	7,765
Inner Mongolia BDSD Chemical Co., Ltd.	98,754	-	-	5,441	979	(11,504)	93,670
Pantos Logistics Philippines Inc.	657	-	(327)	(62)	(79)	-	189
ZAO Contrans (*2)	1,539	-	-	(95)	(328)	(1,116)	-
	₩ 431,824	₩ (12,009)	₩ (998)	₩ (8,785)	₩ 18,327	₩ (27,841)	₩ 400,518

(*1) Refer to Note. 22

(*2) For the year ended December 31, 2017, the Group had a decision to dispose of share of ZAO CONTRANS. Therefore, the Group reclassified this asset as Non-current assets held for sale.

9. Property, plant and equipment and investment properties

9.1 Property, plant and equipment

Details of property, plant and equipment as at December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018			
	Acquisition cost	Accumulated depreciation	Accumulated impairment loss	Net book value
Land	₩ 130,963	₩ -	₩ -	₩ 130,963
Buildings	264,394	(42,543)	-	221,851
Structures	176,638	(31,791)	-	144,847
Machinery and equipment	104,763	(46,365)	(9,349)	49,049
Vehicles	28,600	(13,831)	-	14,769
Mature biological assets	103,125	(21,610)	-	81,515
Non-mature biological assets	2,110	-	-	2,110
Others	56,529	(44,687)	-	11,842
Construction-in-progress	12,076	-	-	12,076
	₩ 879,198	₩ (200,827)	₩ (9,349)	₩ 669,022

	2017			
	Acquisition cost	Accumulated depreciation	Accumulated impairment loss	Net book value
Land	₩ 120,953	₩ -	₩ -	₩ 120,953
Buildings	178,217	(33,721)	-	144,496
Structures	168,318	(24,449)	-	143,869
Machinery and equipment	82,745	(36,104)	(9,349)	37,292
Vehicles	26,037	(11,501)	-	14,536
Mature biological assets	56,336	(9,423)	-	46,913
Non-mature biological assets	4,608	-	-	4,608
Others	53,047	(41,838)	-	11,209
Construction-in-progress	28,645	-	-	28,645
	₩ 718,906	₩ (157,036)	₩ (9,349)	₩ 552,521

Changes in the net book value of property, plant and equipment for the years ended December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018							
	Jan.1	Addition	Transfer	Disposals	Depreciation /Impairment	Business Combination	Others (*2)	Dec. 31
Land	₩ 120,953	₩ 4,894	₩ -	₩ -	₩ -	₩ 5,103	₩ 13	₩ 130,963
Buildings	144,496	451	80,262	(3)	(6,364)	5,915	(2,906)	221,851
Structures	143,869	1,379	1,948	(55)	(7,256)	344	4,618	144,847
Machinery and equipment	37,292	8,979	4,489	(499)	(5,582)	6,352	(1,982)	49,049
Vehicles	14,536	3,583	(38)	(634)	(2,673)	404	(409)	14,769
Mature biological assets	46,913	-	3,931	-	(3,469)	34,435	(295)	81,515
Non-mature biological assets	4,608	1,462	(3,828)	(22)	-	-	(110)	2,110
Others	11,209	8,606	542	(865)	(6,122)	80	(1,608)	11,842
Construction-in- progress	28,645	73,691	(89,724)	(13)	-	76	(599)	12,076
	₩ 552,521	₩ 103,045	₩ (2,418)	₩ (2,091)	₩ (31,466)	₩ 52,709	₩ (3,278)	₩ 669,022

9.1 Property, plant and equipment (cont'd)

	2017						
	Jan. 1	Additions	Transfer	Disposals / held for sale reclassified	Depreciation	Others (*2)	Dec. 31
Land	₩ 85,549	₩ 25,453	₩ 11,052	₩ -	₩ -	₩ (1,101)	₩ 120,953
Buildings	108,030	4,459	42,720	(676)	(5,184)	(4,853)	144,496
Structures	65,256	742	96,475	(732)	(6,973)	(10,899)	143,869
Machinery and equipment	17,895	2,410	23,269	(70)	(3,692)	(2,520)	37,292
Vehicles	18,848	1,556	(76)	(2,340)	(2,849)	(603)	14,536
Mature biological assets	48,847	-	7,054	-	(2,838)	(6,150)	46,913
Non-mature biological assets	10,042	2,444	(6,930)	(56)	-	(892)	4,608
Others	10,988	6,734	263	(1,188)	(5,985)	397	11,209
Construction-in- progress	186,215	30,556	(182,713)	-	-	(5,413)	28,645
	₩ 551,670	₩ 74,354	₩ (8,886)	₩ (5,062)	₩ (27,521)	₩ (32,034)	₩ 552,521

(*1) Refer to Note 31.

(*2) Includes the effects of fluctuation in foreign currency exchange rates.

9.2 Investment properties

Details of investment properties as at December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018		
	Acquisition cost	Accumulated depreciation	Net book value
Land	₩ 6,672	₩ -	₩ 6,672
Buildings	38,554	(15,058)	23,486
	₩ 45,216	₩ (15,058)	₩ 30,158

	2017		
	Acquisition cost	Accumulated depreciation	Net book value
Land	₩ 6,672	₩ -	₩ 6,672
Buildings	39,407	(14,255)	25,152
	₩ 46,079	₩ (14,255)	₩ 31,824

Changes in the net book value of investment properties for the years ended December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018	2017
Jan. 1	₩ 31,824	₩ 33,258
Additions	-	-
Transfer	101	-
Depreciation	(985)	(984)
Others	(782)	(450)
Dec. 31	₩ 30,158	₩ 31,824

The fair values of investment properties amounted to ₩69,251 million for land and ₩52,029 million for buildings, which were determined based on the market and cost approaches, and the amounts include the properties occupied and used by the Group. The Group elected not to re-measure the fair values as at December 31, 2018 as any changes arising from revaluation would not be material.

10. Intangible assets

Details of intangible assets as at December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018	2017
Goodwill	₩ 178,711	₩ 168,062
Industrial property rights	31	35
License	24,971	23,165
Overseas resources development	406,741	437,069
Others	265,669	253,452
	₩ 876,123	₩ 881,783

Changes in the net book value of intangible assets for the years ended December 31, 2018 and 2017 are as follows (Korean won in millions):

2018	Jan.1	Addition	Disposals/ held for sale reclassified	Transfer (*1)	Amortization /Impairment (*2)	Business Combination (*3)	Others (*4)	Dec. 31
Goodwill	₩ 168,062	₩ -	₩ -	₩ -	₩ -	₩ 10,944	₩ (295)	₩ 178,711
Industrial property rights	35	-	-	-	-	-	(4)	31
License	23,165	1,406	(651)	1,058	(49)	-	42	24,971
Overseas resources development	437,069	11,768	-	-	(55,353)	-	11,257	406,741
Others	253,452	10,048	(24)	12,940	(15,256)	-	4,509	265,669
	₩ 881,783	₩ 23,222	₩ (675)	₩ 13,998	₩ (68,658)	₩ 10,944	₩ 15,509	₩ 876,123

2017	Jan. 1	Additions	Transfer (*1)	Disposals/ held for sale reclassified	Amortization/ impairment (*2)	Others (*4)	Dec. 31
Goodwill	₩ 168,913	₩ -	₩ -	₩ -	₩ -	₩ (851)	₩ 168,062
Industrial property rights	40	-	-	-	(1)	(4)	35
License	24,257	1,670	(134)	(2,360)	(10)	(258)	23,165
Overseas resources development	515,211	21,556	-	-	(53,132)	(46,566)	437,069
Others	236,846	24,323	26,200	47	(16,427)	(17,537)	253,452
	₩ 945,267	₩ 47,549	₩ 26,066	₩ (2,313)	₩ (69,570)	₩ (65,216)	₩ 881,783

(*1) Represents amounts transferred from property, plant and equipment (i.e. construction-in-progress).

(*2) See Note 22.

(*3) See Note 31.

(*4) Represents the effects of fluctuation in foreign currency exchange rates.

11. Trade and other receivables

Details of trade and other receivables as at December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018			2017		
	Total amount	Allowance for doubtful accounts	Net value	Total amount	Allowance for doubtful accounts	Net value
Current:						
Trade accounts receivable	₩ 1,112,858	₩ (44,937)	₩ 1,067,921	₩ 1,326,184	₩ (50,076)	₩ 1,276,108
Other accounts receivable	399,366	(15,197)	384,169	67,450	(14,026)	53,424
Accrued income	20,537	(11,079)	9,458	27,186	(9,584)	17,602
Short-term loans	15,049	(5,700)	9,349	15,371	(7,136)	8,235
Short-term deposits	898	-	898	5,229	-	5,229
	1,548,708	(76,913)	1,471,795	1,441,420	(80,822)	1,360,598
Non-current:						
Long-term receivables	143,402	-	143,402	87,369	-	87,369
Long-term loans	123,071	(66,512)	56,559	144,088	(65,182)	78,906
Long-term bank deposits	5,425	-	5,425	5,062	-	5,062
Long-term deposits	27,540	(1,491)	26,049	20,318	(1,492)	18,826
Long-term other accounts receivable	4,997	(45)	4,952	6,218	(60)	6,158
	304,435	(68,048)	236,387	263,055	(66,734)	196,321
	₩ 1,853,143	₩ (144,961)	₩ 1,708,182	₩ 1,704,475	₩ (147,556)	₩ 1,556,919

Changes in the net book value of allowance for doubtful accounts for the years ended December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018		2017	
	Trade receivables	Other receivables	Trade receivables	Other receivables
As at Jan. 1	₩ 50,076	₩ 97,479	₩ 59,074	₩ 106,666
Bad debt expenses	-	3,197	-	-
Reversal of allowance for doubtful accounts	(1,094)	-	(7,435)	(7,062)
Others	(4,045)	(652)	(1,563)	(2,124)
As at Dec. 31	₩ 44,937	₩ 100,024	₩ 50,076	₩ 97,480

Aging analyses of trade receivables as at December 31, 2018 and 2017 are as follows (Korean won in millions):

	Less than 3 months	3 to 6 months	6 to 12 months	1 to 3 years	More than 3 years	Total
2018	₩ 1,031,298	₩ 15,170	₩ 2,943	₩ 10,700	₩ 52,747	₩ 1,112,858
2017	1,231,006	18,023	13,123	12,475	51,557	1,326,184

Derecognition of financial instruments

As at December 31, 2018 and 2017, details of trade receivables transferred or factored but not derecognized are as follows (Korean won in millions):

	2018	2017	Description
Trade accounts receivable	₩ 82	₩ 2,264	Recourse

12. Borrowings and bonds

12.1 Short-term borrowings

Details of short-term borrowings as at December 31, 2018 and 2017 are as follows (Korean won in millions):

	Description	Annual interest rate as at Dec. 31, 2018		2018		2017
Short-term operating loans	KDB and Others	2.56% and others	₩	54,898	₩	122,741
Banker's usance	KEB Hana Bank	2.72% ~ 3.08%		383		858
Commercial paper discount (*)	URI Bank	-		82		2,264
Others	-	-		7,955		4,829
			₩	63,318	₩	130,692

(*) The Group has contracts commercial paper discount with URI, SHINHAN, KEB Hana and KDB bank.

12.2 Long-term borrowings

Details of long-term borrowings as at December 31, 2018 and 2017 are as follows (Korean won in millions):

	Financial institution	Annual interest rate as at Dec. 31, 2018		2018		2017
Local currency	Woori International the 1st Co., Ltd and others	2.89% and others	₩	588,863	₩	484,124
Foreign currency	The Export-Import Bank of Korea and others	6ML+(2.1% ~ 2.62%) and others		299,323		362,486
				888,186		846,610
Less: current portion				(153,657)		(64,796)
			₩	734,529	₩	781,814

12.3 Bonds

Details of bonds as at December 31, 2018 and 2017 are as follows (Korean won in millions):

		Annual interest rate as at Dec. 31, 2018		2018		2017
Bonds		1.74%~3.11%	₩	479,147	₩	429,281
Less: current portion				(89,925)		(99,971)
			₩	389,222	₩	329,310

13. Provisions

Details of provisions as at December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018									
		Jan. 1		Recognition		Used		Others		Dec. 31
Rehabilitation provisions	₩	19,013	₩	8,006	₩	(1,118)	₩	818	₩	26,719
Onerous contracts		-		38,099		-		-		38,099
Others		2,020		2,539		(2,043)		(2,509)		7
	₩	21,033	₩	48,644	₩	(3,161)	₩	(1,691)	₩	64,825

13. Provisions (cont'd)

	2017									
	Jan. 1		Recognition		Used		Others		Dec. 31	
Rehabilitation provisions	₩	13,730	₩	7,660	₩	(447)	₩	(1,930)	₩	19,013
Others		-		2,219		(343)		144		2,020
	₩	13,730	₩	9,879	₩	(790)	₩	(1,786)	₩	21,033

14. Issued capital and others

14.1 Issued capital

Details of issued capital as at December 31, 2018 and 2017 are as follows (Korean won in millions, except per share amounts):

	2018		2017	
Ordinary shares issued		38,760,000		38,760,000
Par value per share	₩	5,000	₩	5,000
	₩	193,800	₩	193,800

14.2 Share premium

Details of share premium as at December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018		2017	
Paid-in capital in excess of par value	₩	47,106	₩	47,106
Asset revaluation reserves (*1)		37,286		37,286
Other capital reserves		16,771		16,539
	₩	101,163	₩	100,931

(*1) The Group revalued its property, plant and equipment on July 1, 1998 in accordance with the Assets Revaluation Act, and the revaluation difference amounted to ₩87,151 million. The revaluation reserve was calculated by deducting the revaluation tax and the exchange rate adjustment difference from the revaluation difference.

14.3 Other components of equity

Details of other components of equity as at December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018		2017	
Treasury stock	₩	(968)	₩	(968)
Other capital adjustments		(611)		(611)
	₩	(1,579)	₩	(1,579)

14.4 Accumulated other comprehensive income or loss

Details of accumulated other comprehensive income or loss as at December 31, 2018 and 2017 are as follows (Korean won in millions):

		2018		2017
Net gain on valuation of available-for-sale financial assets	₩	-	₩	22,305
Gain on valuation of financial assets at fair value through OCI		29,983		-
Gain(loss) on valuation of derivatives designated as cash flow hedges		729		(825)
Changes in equity arising from equity method investments		14,805		16,198
Negative changes in equity arising from equity method investments		(42,505)		(39,787)
Exchange differences on translation of foreign operations		(48,044)		(57,640)
	₩	(45,032)	₩	(59,749)

14.5 Retained earnings

Details of retained earnings as at December 31, 2018 and 2017 are as follows (Korean won in millions):

		2018		2017
Legal reserve	₩	40,900	₩	39,608
Business rationalization reserve		1,511		1,511
Improvement of financial structure reserve		13,693		13,693
Other legal reserve		2,211		2,211
Retained earnings before appropriations		821,829		903,965
	₩	880,144	₩	960,988

14.6 Earnings per share

Earnings per share attributable to the owners of the parent for the years ended December 31, 2018 and 2017 are computed as follows (Korean won):

		2018		2017
Profit (loss) for the year attributable to the owners of the parent	₩	(70,364,878,626)	₩	60,209,850,285
Weighted-average number of ordinary shares outstanding (*)		38,659,249		38,659,249
Basic and diluted earnings (loss) per share	₩	(1,820)	₩	1,557

(*) The weighted-average number of ordinary shares outstanding for the years ended December 31, 2018 and 2017 are as follows:

	2018	2017
Number of ordinary shares issued	38,760,000	38,760,000
Number of treasury shares	100,751	100,751
	38,659,249	38,659,249

15. Dividends

For the years ended December 31, 2018 and 2017, dividends attributable to the owners of the parent are as follows (Korean won in millions, except per share amounts):

	2018	2017
Dividend per share	₩ 250	₩ 250
Dividends paid	9,665	9,665

As at December 31, proposed dividends to be approved at the general meeting of shareholders are as follows (Korean won in millions, except per share amounts):

	2018	2017
Dividend per share	₩ 250	₩ 250
Dividends paid	9,665	9,665

16. Sales

Revenue from contracts with customers for the years ended December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018			2017		
	Resources	Infra-business	Logistics	Resources	Infra-business	Logistics
Revenue recognized at a point of time						
Sales of goods	₩ 1,046,342	₩ 4,910,607	₩ 16,441	₩ 1,035,298	₩ 8,094,634	₩ 19,809
Sales of services	10,746	33,603	-	12,189	23,818	-
	1,057,088	4,944,210	16,441	1,047,487	8,118,452	19,809
Revenue recognized over period						
Sales of services	1,996	85,606	3,882,884	2,069	112,010	3,527,410
	₩ 1,059,084	₩ 5,029,816	₩ 3,899,325	₩ 1,049,556	₩ 8,230,462	₩ 3,547,219

Contract liabilities arising from contracts with customers (advance payment, prepaid income) as at December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018	2017
Resources	₩ 60,867	₩ 44,780
Infra-business	4,593	2,133
Logistics	55,998	48,386
	₩ 121,458	₩ 95,299

17. Adjusted operating income

Adjusted operating income by adding several items among non-operating income and costs to present the Group's operational performance more effectively to the operating income in the statements of profit or loss for the years ended December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018	2017
Operating income	₩ 165,659	₩ 212,254
Related gain (*)	-	6,198
Related loss (*)	-	(660)
Adjusted operating income	₩ 165,659	₩ 217,792

(*) Gain (loss) on valuation of commodity futures, swaps, options and settlement of commodity futures, swaps and options.

18. Selling and administrative expenses

Details of selling and administrative expenses for the years ended December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018		2017	
Salaries	₩	217,355	₩	219,677
Pension benefits		15,612		15,459
Employee welfare benefits		54,029		49,421
Travel		12,533		11,005
Taxes and dues		9,513		5,793
Rents		24,470		23,994
Depreciation		9,009		9,439
Amortization		20,210		20,715
Advertising and marketing		2,116		2,594
Insurance		5,812		7,934
Custody		1,699		2,385
Freight		60,415		56,037
Loading and unloading expenses		333		837
Service		82,745		85,765
Bad debt expenses (reversal of allowance for doubtful accounts)		(1,094)		(7,435)
Expenses for overseas branch office		11,357		12,338
Others		19,284		22,369
	₩	545,398	₩	538,327

19. Expenses classified by nature

Expenses classified by nature for the years ended December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018		2017	
Cost of merchandise sales	₩	5,257,462	₩	8,434,058
Use of raw materials and supplies		395,846		336,615
Employee benefits (salaries, retirement benefits)		307,005		295,874
Distribution costs (custody charges, packaging costs, transportation expenses)		67,777		63,332
Depreciation and amortization		71,993		79,556
Others		3,722,483		3,405,548
	₩	9,822,566	₩	12,614,983

20. Pension benefits

The Group has two defined benefit plans, the final salary plan and the average salary plan covering substantially all of the Group's employees. Both plans require contributions to be made to separately administered funds.

Details of employee benefit liabilities as at December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018		2017	
Present value of defined benefit obligation	₩	114,563	₩	98,091
Fair value of plan assets		(88,146)		(82,495)
	₩	26,417	₩	15,596

20. Pension benefits (cont'd)

Expenses recognized in respect of the defined benefit plans for the years ended December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018	2017
Current service costs	₩ 14,524	₩ 14,127
Net interest costs	268	332
Management cost of plan assets	172	180
	₩ 14,964	₩ 14,639

Changes in the present value of defined benefit obligation for the years ended December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018	2017
As at January 1	₩ 98,091	₩ 91,586
Current service costs	14,524	14,127
Interest costs	2,589	2,151
Benefits paid	(8,027)	(8,755)
Transfer out	541	327
Re-measurement gain on defined benefit plans	6,659	(1,147)
Others	186	(198)
As at December 31	₩ 114,563	₩ 98,091

Changes in the fair value of plan assets for the years ended December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018	2017
As at January 1	₩ 82,495	₩ 73,084
Return on plan assets	2,321	1,819
Contribution payable	11,590	15,585
Benefits paid	(7,186)	(7,273)
Transfer in (out)	(50)	-
Re-measurement loss on defined benefit plans	(809)	(540)
Management costs of plan assets	(172)	(180)
Others	(43)	-
As at December 31	₩ 88,146	₩ 82,495

The principal assumptions used in actuarial calculation as at December 31, 2018 and 2017 are as follows:

	2018	2017
Salary increase rate	4.80% ~ 6.29%	5.00% ~ 5.67%
Discount rate	2.39% ~ 2.55%	2.82% ~ 3.03%

Sensitivity analyses on the principal assumptions used in actuarial calculation as at December 31, 2018 are as follows (Korean won in millions):

	Defined benefit obligation		
	Dec. 31	Increase by 1%	Decrease by 1%
Salary increase rate	₩ 114,563	₩ 123,835	₩ 106,275
Discount rate	114,563	106,179	124,163

The Group operates defined contribution plans for certain employees of which expenses amounting to ₩581 million and ₩246 million were recognized in 2018 and 2017, respectively.

21. Other non-operating income and costs

21.1 Finance income

Details of finance income for the years ended December 31, 2018 and 2017 are as follows (Korean won in millions):

		2018		2017
Interest income	₩	20,077	₩	13,930
Gain on foreign currency transactions		110,977		129,759
Gain on foreign currency translation		44,066		72,250
Gain on settlement of currency forwards		10,016		6,313
Gain on valuation of currency forwards		1,451		1,276
Gain on valuation of currency swaps		4,670		-
Dividend income		6,807		6,244
Commission revenue from guarantees		557		533
	₩	198,621	₩	230,305

21.2 Finance costs

Details of finance costs for the years ended December 31, 2018 and 2017 are as follows (Korean won in millions):

		2018		2017
Interest expenses	₩	49,825	₩	53,121
Loss on foreign currency transactions		118,776		122,222
Loss on foreign currency translation		49,229		48,578
Loss on settlement of currency forwards		10,045		19,579
Loss on valuation of currency forwards		574		4,262
Loss on valuation of currency swaps		-		13,710
Loss on disposal of trade accounts receivable		18,872		7,395
	₩	247,321	₩	268,867

21.3 Share of profit or loss in associates

Details of share of profit or loss in associates for the years ended December 31, 2018 and 2017 are as follows (Korean won in millions):

		2018		2017
Share of profit in associates	₩	48,425	₩	35,059
Share of loss in associates		(10,261)		(16,733)
Gain on disposal of investment in subsidiaries or associates		89,161		3
Loss on disposal of investment in subsidiaries or associates		(40)		(701)
Impairment loss on investment in associates (*)		(18,192)		(2,566)
	₩	109,093	₩	15,062

(*) Refer to Note 22.

21.4 Other non-operating income and expenses

Other non-operating income and expenses for the years ended December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018	2017
Gain on settlement of commodity futures	₩ -	₩ 494
Gain on settlement of commodity swaps	-	5,704
Loss on settlement of commodity futures	-	(660)
Reversal of allowance for doubtful accounts (Other bad debt expenses)	(3,196)	7,061
Impairment loss on intangible assets (*1)	(29,116)	(18,521)
Loss on disposal of other investments (*2)	(35,825)	-
Others	(1,320)	(4,940)
	₩ (69,457)	₩ (10,862)

(*1) Note 22.

(*2) This is the loss on disposal of the long-term loan to GeoPark Chile S.A. during the year ended December 31, 2018.

22. Impairment

Details of impairment recognized for the years ended December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018		
	Investment in associates	Intangible assets (*)	Intangible assets
Segment	Infra-business	Resources	Logistics
Cause of impairment	Decline in business performances	Decline in business performances	Significant decrease in price
Assets	Chemical plant	Crude oil / Gas	Membership
Area	Middle East	Asia	Asia
Impairment loss	₩ 18,192	₩ 29,066	₩ 49
Measuring of recoverable amount	Value in use	Value in use	Fair value less costs to sell
Basis of estimates	-	-	-
Discount rate	-	-	-

(*) The Group has recognized a provision amounting to ₩38,099 million as the present value of expected net loss to observe the onerous contracts related to the impaired assets, the contributed amount of which was recognized as cost of sales considering its business relatedness.

	2017		
	Investment in associates	Intangible assets	Intangible assets
Segment	Resources		Logistics
Cause of impairment	Decline in business performances	Decline in business performances	Significant decrease in price
Assets	Crude oil / Gas	Crude oil / Gas	Membership
Area	Asia	Asia	Asia
Impairment loss	₩ 2,566	₩ 18,511	₩ 10
Measuring of recoverable amount	Value in use	Value in use	Fair value less costs to sell
Basis of estimates	-	-	-
Discount rate	-	-	-

23. Income tax

The major components of income tax expenses for the years ended December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018	2017
Current income tax (*1)	₩ 117,180	₩ 63,392
Changes in deferred tax (*2)	80,070	10,076
Deferred tax related to items recognized in other comprehensive income	(4,663)	16,239
Income tax expenses reported in the statement of profit or loss	₩ 192,587	₩ 89,707

(*1) The amount includes the imposed tax amount of ₩71,129 million as the result of the periodic tax investigation for the years from 2012 to 2016 and the related local income tax amount.

(*2) Decrease in deferred tax assets (₩55,187 million) related to the un-deducted and carried over foreign tax paid is included.

Reconciliations between income tax expense at the effective income tax rate and profit before tax at the Korea statutory tax rate for the years ended December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018	2017
Profit before income tax	₩ 156,595	₩ 177,891
Statutory income tax at the tax rate of 23.9% (23.9% in 2017)	37,434	42,588
Adjustments:		
Effect of unrecognized deferred tax for temporary differences	55,119	14,669
Current year adjustment related to the income tax on previous years	74,475	
Effect of non-deductible expenses for tax purposes	1,544	5,875
Tax credit	(9,307)	(10,777)
Foreign income tax directly charged	6,583	7,976
Others	26,739	29,376
Income tax expenses reported in the statement of profit or loss	₩ 192,587	₩ 89,707
Effective tax rate (income tax expenses/ profit before income tax)	122.98%	50.4%

The major components of deferred income tax charged directly to equity for the years ended December 31, 2018 and 2017 are follows (Korean won in millions):

	2018	2017
Gain on valuation of financial assets at fair value through OCI	₩ (3,315)	₩ -
Unrealized gain (loss) on valuation of available-for-sale financial assets	-	3,498
Changes in equity arising from equity method investment	312	846
Negative changes in equity arising from equity method investment	(3,522)	921
Exchange differences on translation of foreign operations	(39)	11,331
Gains and losses on valuation of derivatives	130	(303)
Re-measurement loss on defined benefit plans	1,771	(55)
	₩ (4,663)	₩ 16,238

23. Income tax (cont'd)

Temporary differences and deferred taxes for the years ended December 31, 2018 and 2017 consist of the following (Korean won in millions):

	Accumulated temporary differences				Deferred tax assets (liabilities)	
	Jan. 1, 2018	Effect of adoption of new accounting standards	Net changes	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2018
Deferred income tax due to temporary differences:						
Impairment of available-for-sale financial assets	₩ 199,153	₩ -	₩ (164,770)	₩ 34,383	₩ 46,984	₩ 7,110
Stock dividend	12,999	-	-	12,999	3,146	3,146
Allowance for doubtful accounts	145,932	-	(22,757)	123,775	34,329	28,737
Bad debt expenses	-	-	3,492	3,492	-	845
Accrued income	(42)	-	38	(4)	(10)	(1)
Interest income	2,540	-	164	2,704	615	654
Allowance for inventories	13	-	(13)	-	3	-
Gain on commodity futures	(1,250)	-	538	(712)	(303)	(172)
Reserve fund of compressed register(land)	(8,601)	-	-	(8,601)	(2,081)	(2,081)
Accrued expenses	1,524	-	29	1,553	369	376
Admission and denial on depreciation cost	6,240	-	-	6,240	1,510	1,510
Bonus	13,657	-	(7,406)	6,251	3,305	1,513
Interest related to loans or construction	(618)	-	135	(483)	(150)	(117)
Brand loyalty	(490)	-	412	(78)	(119)	(19)
Present value of defined benefit obligation	32,471	-	7,743	40,214	7,858	9,732
Fair value of plan assets	(27,617)	-	(4,830)	(32,447)	(6,683)	(7,852)
Gain (loss) on foreign currency translation	(28,108)	-	10,888	(17,220)	(6,802)	(4,167)
Interest and translation of debt related on success	3,437	-	486	3,923	832	949
Rewards for long term employee	804	-	146	950	194	230
Impairment right of membership	4,239	-	(990)	3,249	1,026	786
Investment in subsidiaries and associates	113,551	-	(104,141)	9,410	4,144	(17,387)
Available-for-sale financial assets	(27,373)	27,373	-	-	-	-
Financial assets at fair value through OCI.	-	(27,373)	(14,379)	(41,752)	(6,624)	(11,392)
Impairment loss	183,538	-	28,787	212,325	44,416	51,383
Provisions	-	-	44,400	44,400	-	10,745
Taxes and dues	8,968	-	(3,715)	5,253	1,696	796
Guarantee commission	22,483	-	(664)	21,819	536	375
Deemed dividend	13,898	-	(6,982)	6,916	3,363	1,673

23. Income tax (cont'd)

	Accumulated temporary differences				Deferred tax assets (liabilities)	
	Jan. 1, 2018	Effect of adoption of new accounting standards	Net changes	Dec. 31, 2018	Dec. 31, 2017	Dec. 31, 2018
Gains from assets contributed	-	-	1,529	1,529	-	370
Amount exceeding limit of donation	-	-	567	567	-	137
Transfer price	-	-	7,423	7,423	-	-
Commission fees	9,103	-	(678)	8,425	834	654
Others	(355,128)	-	(10,512)	(365,640)	(85,941)	(88,485)
	325,323	-	(234,460)	90,863	46,447	(9,952)
Tax Credit carry forward	115,285	-	(87,699)	27,586	73,278	23,913
Losses	-	-	106,174	106,174	-	25,694
					₩ 119,725	₩ 39,655

Temporary differences for which the deferred tax assets (liabilities) have not been recognized for the years ended December 31, 2018 and 2017 consist of the following (Korean won in millions):

	2018	2017
Investment in subsidiaries, associates or joint venture (*)	₩ 129,722	₩ 78,113
Commissions and others	29,653	7,931
	₩ 159,374	₩ 86,044

(*) The Group did not recognize deferred tax assets (liabilities) related to temporary differences due to accumulated other comprehensive income and accumulated losses from investment in subsidiaries or associates in which the Group has no plan for disposal in the foreseeable future.

24. Related party disclosures

Transactions with related parties for the years ended December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018			2017		
	Sales	Purchase	Service	Sales	Purchase	Service
Corporations that have significant influence on the Company at the end of the current year:						
LG Corp. (*1)	₩ 5	₩ -	₩ 7,446	₩ 22	₩ -	₩ 2,927
	5	-	7,446	22	-	2,927
Associates:						
POSCO-IPPC (India Pune Processing Center)	147	-	-	1,716	-	-
POSCO-PWPC (Poland Wroclaw Steel Processing Center)	-	-	13	-	-	10
Dongbu Thai Steel Co., Ltd.	-	-	-	-	96	-
LG Holdings(HK) Ltd.(LG Building Ltd.)	7	-	-	7	-	-
Kernhem B.V.	2,627	-	-	667	-	-
ADA Oil LLP	639	-	-	154	-	-
GeoPark Chile S.A. (*1)	1,993	-	-	1,670	-	-
GeoPark Colombia Cooperate U.A (*2)	140	-	24	105	-	29
Musandam Power Company SAOC	244	-	-	25	-	-
Pantos Logistics Philippines Inc.	2,623	-	2,353	2,623	-	2,561
PT. Pantos Express Indonesia	161	-	55	85	-	138
ZAO Contrans (*3)	-	-	-	-	-	121
	8,581	-	2,445	7,052	96	2,859
Other related parties (*4):						
LG Electronics Inc. and its subsidiaries	4,786,683	101,152	5,403	5,520,075	174,090	4,873
LG Display Co., Ltd. and its subsidiaries	578,582	723,285	263	1,899,007	731,104	260
LG Chem. Ltd. and its subsidiaries	1,003,271	289,995	640	848,775	299,862	989
Others	129,766	2,862	39,948	125,579	3,025	34,975
	6,498,302	1,117,294	46,254	8,393,436	1,208,081	41,097
	₩ 6,506,888	₩ 1,117,294	₩ 56,145	₩ 8,400,510	₩ 1,208,177	₩ 46,883

(*1) LG Corp. acquired the Company's common stock during the previous year and holds 24.69% of the Company's common stock as at December 31, 2018.

(*2) During the year ended December 31, 2018, the shares of GeoPark Chile S.A. and GeoPark Columbia Cooperate U.A. were sold and excluded from the list of associates.

(*3) During the year ended December 31, 2017, the Group decided to sell the stock of ZAO Contrans and classified it as assets held for sales.

(*4) It is not included in the scope of related parties per K-IFRS 1024, Disclosure of Related Parties, but it belongs to the same large-scale business groups under the Act on Monopoly Regulation and Fair Trade.

24. Related party disclosures (cont'd)

Outstanding balances from transactions with the related parties as at December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018				
	Accounts receivable	Loans	Other receivables	Accounts payable	Other payables
Corporations that have significant influence on the Company at the end of the current year:					
LG Corp.	₩ 1	₩ -	₩ 4,695	₩ -	₩ 63
	1	-	4,695	-	63
Associates:					
Kernhem B.V.	-	44,526	6,680	-	-
ADA Oil LLP	-	11,051	731	-	-
Musandam Power Company SAOC	-	2,663	23	-	-
PT. Pantos Express Indonesia	10	1,359	16	9	-
Pantos Logistics Philippines Inc.	660	152	23	189	-
	670	59,751	7,473	198	-
Other related parties:					
LG Electronics Inc. and its subsidiaries	376,041	-	97,129	17,463	16,897
LG Display Co., Ltd. and its subsidiaries	63,644	-	84,427	122,528	61,878
LG Chem. Ltd. and its subsidiaries	98,841	-	1,782	43,355	728
Others	12,217	-	10,753	953	10,191
	550,743	-	194,091	184,299	89,694
	₩ 551,414	₩ 59,751	₩ 206,259	₩ 184,497	₩ 89,757

	2017				
	Accounts receivable	Loans	Other receivables	Accounts payable	Other payables
Corporations that have significant influence on the Company at the end of the current year:					
LG Corp.	₩ 15	₩ -	₩ 907	₩ -	₩ -
	15	-	907	-	-
Associates:					
POSCO-IPPC (India Pune Steel Processing Center)	-	-	-	-	1
Kernhem B.V.	-	42,667	8,050	-	-
ADA Oil LLP	-	10,590	1,883	-	-
GeoPark Chile S.A.	-	27,771	5,679	-	-
Musandam Power Company SAOC	-	5,459	25	-	-
GeoPark Colombia Cooperate U.A	23	-	-	-	-
Pantos Logistics Philippines Inc.	170	161	29	251	-
PT. Pantos Express Indonesia	10	1,393	5	28	-
	203	88,041	15,671	279	1
Other related parties:					
LG Electronics Inc. and its subsidiaries	366,881	-	6,939	26,081	11,254
LG Display Co., Ltd. and its subsidiaries	178,260	-	3,527	109,923	43,581
LG Chem. Ltd. and its subsidiaries	74,731	-	134	47,938	710
Others	14,785	-	10,893	18,706	11,994
	634,657	-	21,493	202,648	67,539
	₩ 634,875	₩ 88,041	₩ 38,071	₩ 202,927	₩ 67,540

The Group recognized reversal of allowance for doubtful accounts of ₩4,139 million for the year ended December 31, 2018 (2017: ₩1,631 million as bad debt expenses) and recognized allowance for doubtful accounts of ₩21,320 million as at December 31, 2018 (2017: ₩26,359 million) for the trade accounts and other receivables from the related parties.

24. Related party disclosures (cont'd)

Transfers under finance arrangements with the related parties for the years ended December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018			
	Dividends	Investment in cash	Loans	Collection
Associates:				
United Copper & Moly LLC (Rosemont)	₩ -	₩ 5	₩ -	₩ -
GeoPark Colombia Cooperate U.A.	8,717	-	-	-
GeoPark Chile S.A.	-	-	-	1,130
Oman International Petrochemical Industry Company L.L.C	-	2,794	-	-
GS HP Sunflower Village Int'l Corp.	262	-	-	-
Musandam Power Company SAOC	-	-	-	2,908
	8,979	2,799	-	4,038
Other related parties:				
Others	203	-	-	-
	₩ 9,182	₩ 2,799	₩ -	₩ 4,038

	2017			
	Dividends	Investment in cash (capital reduction)	Loans	Collection
Associates:				
Overseas Resources Development Fund	₩ -	₩ 9	₩ -	₩ -
Heungkuk Investment Fund	-	18	-	-
LG Holdings(HK) Ltd.(LG Building Ltd.)	-	(19,122)	-	-
GS HP Sunflower Int'l Village Corp.	125	-	-	-
United Copper & Moly LLC (Rosemont)	-	14	-	-
GeoPark Colombia Cooperate U.A.	546	-	-	-
GeoPark Chile S.A.	-	-	1,256	-
Oman International Petrochemical Industry Company L.L.C	-	1,028	-	-
Musandam Power Company SAOC	-	6,111	5,545	-
Pantos Logistics Philippines Inc.	327	-	-	-
PT. Pantos Express Indonesia	-	-	1,400	1,745
	998	(11,942)	8,201	1,745
Other related parties:				
Others	69	-	-	-
	₩ 1,067	₩ (11,942)	₩ 8,201	₩ 1,745

Details of compensation for key management personnel are as follows (Korean won in millions):

	2018	2017
Short-term employee benefits	₩ 13,840	₩ 12,312
Pension benefits	1,935	1,437
	₩ 15,775	₩ 13,749

25. Commitments and contingencies

25.1 Guarantees provided

The Company is contingently liable for payment guarantees issued on behalf of a subsidiary, PT. Ganda Alam Markmur (GAM), amounting to ₩60,546 million (equivalent to the Company's proportion of equity interest) and each stockholder of this subsidiary is jointly liable to provide additional capital related to guarantees.

25.2 Guarantees received

Guarantees received by the Group as at December 31, 2018 and 2017 are as follows (Korean won in millions and foreign currencies in thousands):

	Financial institution	Guarantee amount		Description
Bonds	Korea Development Bank	₩	12,390	KRW 12,390
	Others		45,628	KRW 26,898 USD 13,972 EUR 400, PHP 54,000, VND 30,000,000
		₩	58,018	

25.3 Pledged notes and checks

The Group pledged 23 notes and 15 checks as collateral to its customers, creditors and guarantors related to various guarantees and borrowings as at December 31, 2018.

25.4 License agreement

As at December 31, 2018, the Group maintains a license agreement with LG Corp. for the use of the "LG" brand name.

25.5 Joint and several liability on guarantees

The Group and newly incorporated entity, LF Corp. (formerly LG Fashion Corporation), are jointly and severally liable for the obligations of LGI existing prior to the spin-off.

25.6 Pending lawsuits

The Group is a defendant in various lawsuits with claims aggregating to ₩17,355 million, and as at December 31, 2018, the outcomes of litigation cannot be reliably determinable.

The Group has been imposed income tax amounting to ₩71,129 million as a result of periodic tax investigation for the years from 2012 to 2016. The Group filed a petition for a tax referee claim during the year with respect to the objection of the imposed charges. The Group received a notice of citation on February 15, 2019, of ₩47,547 million among the petitioned amount, which was refunded on February 28, 2019. The Group has not been able to estimate the outcome of the appeal reasonably as of end of the reporting period and therefore did not reflect any effect related to the tax referee claim in the financial statements for the year ended December 31, 2018.

26. Financial risk management objectives and policies

The Group's principal financial liabilities, other than derivatives, comprise loans and borrowings, trade and other payables. The main purpose of these financial liabilities is to finance the Group's operations. The Group has loans and other receivables, trade and other receivables, and cash and short-term deposits that derive directly from its operations. The Group also holds financial assets at fair value through profit or loss and financial assets at fair value through OCI and enters into derivative transactions.

The Group is exposed to market risk, credit risk and liquidity risk.

The Board of Directors reviews and agrees policies for managing each of these risks which are summarized below. It is the Group's policy that no trading in derivatives for speculative purposes is to be undertaken.

26.1 Market risk

Market risk is the risk that the fair value of future cash flows of a financial instrument will fluctuate because of changes in market prices. Market prices comprise three types of risk: interest rate risk and translation on currency risk, commodity price risk and other price risk, such as equity risk. Financial instruments affected by market risk include loans and borrowings, deposits, equity instruments held for long-term, and derivative financial instruments

The sensitivity analysis in the following sections relates to the financial position as at December 31, 2018 and 2017.

The sensitivity analysis has been prepared on the basis that the amount of net debt, the ratio of fixed to floating interest rates of the debt and derivatives and the proportion of financial instruments in foreign currencies are all held constant and on the basis of the hedge designations in place at December 31, 2018.

The analysis excludes the impact of movements in market variables on the carrying value of pension and other post-retirement obligations, provisions and on the non-financial assets and liabilities of foreign operations.

The following assumptions have been made in calculating the sensitivity analyses:

- The statement of financial position sensitivity relates to derivatives and available-for-sale debt instruments.
- The sensitivity of the relevant income statement item is the effect of the assumed changes in respective market risks. This is based on the financial assets and financial liabilities held at December 31, 2018 and 2017 including the effect of hedge accounting.
- The sensitivity of equity is calculated by taking into account the effect of any associated cash flow hedges and hedges of a net investment in a foreign subsidiary at December 31, 2018 associate with changes in underlying assets.

26.1.1 Interest rate risk

Interest rate risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market interest rates. The Group's exposure to the risk of changes in market interest rates relates primarily to the Group's long-term debt obligations with floating interest rates.

The Group is exposed to interest rate risk due to its long-term debt. The Group is exposed to cash flow interest rate risk due to its borrowings with floating interest rates and fair value interest rate risk due to its borrowings with fixed interest rates.

The Group's position with regard to interest rate risk exposure is mainly related to debt obligations such as bonds and interest-bearing deposits and investments. The Group has a risk management program in place to monitor and actively manage such risks.

The Group manages its interest rate risk by establishing regional and global working capital sharing systems, regularly monitoring market interest rates, and preparing action plans.

26.1.1 Interest rate risk (cont'd)

Interest rate sensitivity
The following table demonstrates the sensitivity to a reasonably possible change in interest rates on that portion of loans and borrowings, after the impact of hedge accounting. With all other variables held constant, the Group's profit before tax is affected through the impact on floating rate borrowings as follows. The Group's exposure to interest rate risk is considered to have an immaterial impact on equity (Korean won in millions).

	2018				2017			
	Increase by 1%		Decrease by 1%		Increase by 1%		Decrease by 1%	
Interest income	₩	2,871	₩	(2,871)	₩	2,044	₩	(2,044)
Interest expenses		(4,742)		4,742		(5,518)		5,518
Net effect	₩	(1,871)	₩	1,871	₩	(3,474)	₩	3,474

The assumed movement in basis points for interest rate sensitivity analysis is based on the currently observable market environment.

26.1.2 Foreign currency risk

Foreign currency risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in foreign exchange rates. The Group's exposure to the risk of changes in foreign exchange rates relates primarily to the Group's operating activities (when revenue or expense are denominated in a different currency from the Group's functional currency) and the Group's net investments in foreign subsidiaries.

The Group is exposed to foreign exchange risk arising from international operations and transactions with different foreign currencies. The most prevalent foreign currencies used are the US Dollar, Euro, Japanese Yen and others.

The Group manages its foreign currency risk for each subsidiary. Each subsidiary manages its foreign currency risk by entering into hedge agreements such as, a forward contract or foreign currency loans with the Group. Exposure to currency translation risk is largely dependent on the accounting standards of the local jurisdiction and the translation methods required by such jurisdiction.

Foreign currency sensitivity
The following table demonstrates the sensitivity to a reasonably possible change in the exchange rate, with all other variables held constant, on the Group's profit before tax (due to changes in the fair value of monetary assets and liabilities including non-designated foreign currency derivatives) (Korean won in millions):

	2018				2017			
	Increase by 10%		Decrease by 10%		Increase by 10%		Decrease by 10%	
Gain (loss) on foreign currency translation	₩	(5,964)	₩	5,964	₩	(1,442)	₩	1,442
Gain (loss) on valuation of derivative financial instruments		3,278		(3,278)		7,389		(7,389)
Net effect (*)	₩	(2,686)	₩	2,686	₩	5,947	₩	(5,947)

(*) The Group manages its exchange rate risk arising from assets and liabilities denominated in foreign currencies through derivative contracts.

26.2 Credit risk

Credit risk is the risk that a counterparty will not meet its obligations under a financial instrument or customer contract, leading to a financial loss. The Group is exposed to credit risk from its operating activities (primarily for trade receivables and loan notes) and from its financing activities, including deposits with banks and financial institutions, foreign exchange transactions and other financial instruments.

26.2 Credit risk (cont'd)

The book value of financial assets represents maximum exposure to credit risk. The maximum exposures to credit risk as at December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018	2017
Cash equivalents (*)	₩ 339,015	₩ 392,444
Short-term financial instruments	14,162	20,649
Equity instruments held for long-term	161,655	140,927
Trade accounts receivable	1,067,921	1,276,108
Other accounts receivable	384,169	53,424
Long-term loans	56,559	78,906
Other financial assets	190,183	140,247
	₩ 2,213,664	₩ 2,102,705

(*) Excludes cash on hand

26.3 Maturity profile of financial assets

The table below summarizes the maturity profile of the Group's financial assets based on contractual undiscounted payments (Korean won in millions):

	2018				
	Less than 1 year	1 to 3 years	3 to 5 years	More than 5 years	Total
Cash and cash equivalents	₩ 342,014	₩ -	₩ -	₩ -	₩ 342,014
Short-term financial instruments	14,162	-	-	-	14,162
Trade accounts receivable	1,049,984	17,122	424	391	1,067,921
Other accounts receivable	374,252	9,917	-	-	384,169
Long-term loans	-	51,817	4,742	-	56,559
Other financial assets	10,356	30,979	5,446	143,402	190,183
	₩ 1,790,768	₩ 109,835	₩ 10,612	₩ 143,793	₩ 2,055,008

	2017				
	Less than 1 year	1 to 3 years	3 to 5 years	More than 5 years	Total
Cash and cash equivalents	₩ 395,211	₩ -	₩ -	₩ -	₩ 395,211
Short-term financial instruments	20,649	-	-	-	20,649
Trade accounts receivable	1,256,623	19,083	402	-	1,276,108
Other accounts receivable	53,424	-	-	-	53,424
Long-term loans	-	1,878	77,028	-	78,906
Other financial assets	22,831	24,963	5,084	87,369	140,247
	₩ 1,748,738	₩ 45,924	₩ 82,514	₩ 87,369	₩ 1,964,545

26.4 Liquidity risk

Liquidity risk refers to the risk that the Group may default on the contractual obligations that become due.

The table below summarizes the maturity profile of the Group's financial liabilities based on contractual undiscounted payments (Korean won in millions):

	2018				
	Less than 1 year	1 to 3 years	3 to 5 years	More than 5 years	Total
Borrowings	₩ 216,974	₩ 193,397	₩ 158,364	₩ 382,768	₩ 951,503
Bonds	89,925	219,572	169,650	-	479,147
Other financial liabilities	1,708,415	7,844	-	-	1,716,259
	₩ 2,015,314	₩ 420,813	₩ 328,014	₩ 382,768	₩ 3,146,909

	2017				
	Less than 1 year	1 to 3 years	3 to 5 years	More than 5 years	Total
Borrowings	₩ 195,488	₩ 289,137	₩ 140,517	₩ 352,159	₩ 977,301
Bonds	99,971	159,705	169,606	-	429,282
Other financial liabilities	1,711,801	14,611	-	-	1,726,412
	₩ 2,007,260	₩ 463,453	₩ 310,123	₩ 352,159	₩ 3,132,995

The table above represents the maturities of the financial liabilities at each reporting date.

26.5 Capital management

The primary objective of the Group's capital management is to ensure that it maintains a strong credit rating and healthy capital ratios in order to support its business and maximize its shareholders' value.

The Group manages its capital structure and makes adjustments to it in light of changes in economic conditions. To maintain or adjust the capital structure, the Group may adjust dividend distributions, return capital or issue new shares.

The Group monitors capital using a gearing ratio including debt and net debt ratios. The Group includes within total borrowings, interest bearing loans and borrowings, trade and other payables.

Details of gearing ratios as at December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018	2017
Total liabilities (A)	₩ 3,488,535	₩ 3,382,141
Total equity (B)	1,549,538	1,585,460
Cash and cash equivalents (C)	342,014	395,211
Total borrowings (D)	1,430,650	1,406,582
Debt ratio (A / B)	225.13%	213.32%
Net borrowing ratio ((D-C) / B)	70.26%	63.79%

27. Fair value

27.1 Fair value of financial instruments

The book value and fair value of financial instruments as at December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018		2017	
	Book value	Fair value	Book value	Fair value
Financial assets:				
Financial assets measured at amortized cost:				
Cash and cash equivalents	₩ 342,014	₩ 342,014	₩ 395,211	₩ 395,211
Short-term financial assets	14,162	14,162	20,649	20,649
Trade accounts receivable	1,067,921	1,067,921	1,276,108	1,276,108
Long-term loans	56,559	56,559	78,906	78,906
Other accounts receivable	382,718	382,718	52,148	52,148
Other financial assets	189,686	189,686	140,029	140,029
	2,053,060	2,053,060	1,963,051	1,963,051
Financial assets recognized at fair value:				
Other accounts receivable related derivatives	1,451	1,451	1,276	1,276
Equity instruments held for long-term	161,655	161,655	140,927	140,927
Other financial assets	497	497	218	218
	163,603	163,603	142,421	142,421
	₩ 2,216,663	₩ 2,216,663	₩ 2,105,472	₩ 2,105,472

	2018		2017	
	Book value	Fair value	Book value	Fair value
Financial liabilities:				
Financial liabilities measured at amortized cost:				
Borrowings	₩ 797,846	₩ 797,846	₩ 912,506	₩ 912,506
Bonds	389,222	389,222	329,310	329,310
Current portion of bonds and long-term borrowings	243,582	243,582	164,767	164,767
Other financial liabilities	1,713,687	1,713,687	1,713,370	1,713,370
	3,144,337	3,144,337	3,119,953	3,119,953
Financial liabilities recognized at fair value:				
Accounts payable related derivatives	574	574	4,272	4,272
Others	1,998	1,998	8,770	8,770
	2,572	2,572	13,042	13,042
	₩ 3,146,909	₩ 3,146,909	₩ 3,132,995	₩ 3,132,995

27.2 Fair value measurement of assets and liabilities on the statements of financial position

The Group uses the following hierarchy for determining and disclosing the fair value of financial instruments by valuation technique:

- Level 1: quoted (unadjusted) prices in active markets for identical assets or liabilities
- Level 2: other techniques for which all inputs which have a significant effect on the recorded fair value are observable, either directly or indirectly
- Level 3: techniques which use inputs that have a significant effect on the recorded fair value that are not based on observable market data.

As at December 31, 2018 and 2017, the Group holds assets and liabilities measured at fair value on the statements of financial position, and assets and liabilities for which the fair values were disclosed as following (Korean won in millions):

	2018		
	Level 1	Level 2	Level 3
Assets and liabilities measured at fair value:			
Financial assets at fair value through profit or loss:			
Accounts receivable related to derivatives	-	1,451	-
Equity securities (*)	-	-	5,722
Financial assets at fair value through OCI:			
Equity securities (*)	4,934	-	143,564
Financial liabilities at fair value through profit or loss:			
Accounts payable related to derivatives	-	574	-
Derivatives related to hedge accounting:			
Other financial assets	-	497	-
Other financial liabilities	-	1,998	-
Assets and liabilities for which fair values are disclosed:			
Cash and cash equivalents	342,014	-	-
Short-term financial assets	-	14,162	-
Trade accounts receivable		-	1,067,921
Long-term loans	-	-	56,559
Other accounts receivable	-	-	382,718
Other financial assets	-	-	189,686
Investment properties	-	-	121,280
Borrowings	-	797,846	-
Bonds payable	-	389,222	-
Current portion of bonds payable and long-term borrowings	-	243,582	-
Other financial liabilities	-	-	1,713,687

(*) Equity securities whose fair value cannot be measured reliably was measured at cost after recognizing the impairment loss. Accordingly, it has been excluded from the above fair value hierarchy.

There were no movements between the levels of the fair value hierarchy for the year ended December 31, 2018.

27.2 Fair value measurement of assets and liabilities on the statements of financial position (cont'd)

	2017		
	Level 1	Level 2	Level 3
Assets and liabilities measured at fair value:			
Financial assets at fair value through profit or loss:			
Accounts receivable related to derivatives	-	1,276	-
Available-for-sale financial assets:			
Equity securities (*)	3,875	-	107,982
Financial liabilities at fair value through profit or loss:			
Accounts payable related to derivatives	-	4,262	-
Derivatives related to hedge accounting:			
Other accounts payables related to derivatives	-	10	-
Other financial assets	-	218	-
Other financial liabilities	-	8,770	-
Assets and liabilities for which fair values are disclosed:			
Cash and cash equivalents	395,211	-	-
Short-term financial assets	-	20,649	-
Trade accounts receivable	-	-	1,276,108
Long-term loans	-	-	78,906
Other accounts receivable	-	-	52,148
Other financial assets	-	-	140,029
Available-for-sale financial assets	-	-	29,070
Investment properties	-	-	121,280
Borrowings	-	912,506	-
Bonds payable	-	329,310	-
Current portion of bonds payable and long-term borrowings	-	164,767	-
Other financial liabilities	-	-	1,713,370

(*) Available-for-sale financial assets (equity securities) whose fair value cannot be measured reliably because they are not traded in an active market was measured at cost after recognizing the impairment loss. Accordingly, it has been excluded from the above fair value hierarchy.

Valuation method and interest rate used to determine fair value

Equity securities within level 1 are traded in active markets (such as the Korea Exchange) for marketable equity securities, which were evaluated based on the closing price as at the end of the reporting period.

Derivative instruments within level 2, after calculating the expected cash flow by using the current exchange rate at the end of the reporting period, were measured at present value, and the discount rate applied was 1.93% during the period (2017: 1.66%).

Equity securities within level 3 were evaluated using the DCF as an active market does not exist for non-marketable equity securities. The discount rate applied was 5.80~10.75% during the period (2017: 5.29~9.7%).

Investment properties were evaluated by an independent appraiser (Note 9.2.2).

28. Statements of cash flows

Non-cash adjustments to reconcile profit for the year to net cash flows for the years ended December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018	2017
Depreciation	₩ 32,451	₩ 28,505
Amortization	39,542	51,049
Pension benefits	14,964	14,638
Bad debt expenses(reversal of bad debt allowances)	2,103	(14,495)
Interest income	(20,077)	(13,930)
Gain on foreign currency translation	(44,066)	(72,250)
Interest expenses	49,825	53,121
Loss on foreign currency translation	49,229	48,578
Others	194,448	101,729
	₩ 318,419	₩ 196,945

Working capital adjustments for the years ended December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018	2017
Decrease in trade accounts receivable	₩ (72,752)	₩ 81,613
Decrease (increase) in other accounts receivable	22,778	(8,082)
Increase (decrease) in advance payments	(23,494)	79,227
Decrease (increase) in inventories	(78,341)	(80,884)
Increase in other operating assets	(42,852)	(59,275)
Increase (decrease) in trade accounts payable	194,080	46,034
Increase (decrease) in other accounts payable	(116,638)	21,537
Increase (decrease) in advance received	20,449	(78,296)
Pension benefits paid	(7,486)	(8,427)
Increase in plan assets	(4,353)	(8,312)
Decrease in provisions	(853)	(790)
Increase in other operating liabilities	(7,690)	10,522
	₩ (117,152)	₩ (5,133)

The adjustment of liabilities arising from financing activities for the years ended December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018				
			Non-cash changes		
	Jan. 1	Cash flows in financing activities	Foreign currency translation	Others	Dec. 31
Short-term borrowings	₩ 130,692	₩ (59,196)	₩ 796	₩ (8,974)	₩ 63,318
Long-term borrowings	846,610	20,426	20,241	909	888,186
Bonds payable	429,281	49,450	-	416	479,147
	₩ 1,406,583	₩ 10,680	₩ 21,037	₩ (7,649)	₩ 1,430,651

	2017				
			Non-cash changes		
	Jan. 1	Cash flows in financing activities	Foreign currency translation	Others	Dec. 31
Short-term borrowings	₩ 197,215	₩ (57,309)	₩ (9,214)	₩ -	₩ 130,692
Long-term borrowings	901,865	9,457	(62,972)	(1,740)	846,610
Bonds payable	428,932	-	349	-	429,281
	₩ 1,528,012	₩ (47,852)	₩ (71,837)	₩ (1,740)	₩ 1,406,583

29. Service concession arrangements

As at December 31, 2018, details of Service Concession Arrangements of the Group are as follows:

Content of contract	The Group entered into a contract to build a hydroelectric power plant in Sumatra, Indonesia, and to conduct electricity sales business which is generated by the facility.
Project period	In accordance with this agreement, for 30 years from the commencement date of electricity sales (based on electricity sales contract)
Classification	BOO (Build-Own-Operate)
Accounting standard	KIFRS 2112 *Service Concession Arrangements*
Others	The Group has recognized the minimum guaranteed price and operating rights of the facility as financial assets and intangible assets, respectively, which are acquired in exchange for the construction services for the hydroelectric power plants. Revenue and costs recognized as construction services in 2018 amounted to ₩51,634 million and ₩51,634 million, respectively.

30. Non-current assets held for sale

During the year ended December 31, 2017, the Group has decided to sell 51% of its equity in ZAO CONTRANS. Accordingly, the assets recognized as investment assets on associate are reclassified as non-current assets held for sale. The details of non-current assets held for sale as at December 31, 2018 and 2017 are as follows (Korean won in millions):

	2018		2017	
Assets:	₩		₩	
Investments on associates		1,116		1,116
Assets		1,116		1,116
Liabilities		-		-
Net book value	₩	1,116	₩	1,116

31. Business combination

The Group acquired 95% stock of PT.Grand Utama Mandiri (GUM) and PT. Tintin Boyok Sawit Makmur (TBSM) respectively on September 30, 2018, which are located in Indonesia, in order to enhance the Palm Oil business and transferred it to the consolidated subsidiary.

The Group has selected to measure the non-controlling interests of the entity at fair value.

The details of PT. Grand Utama Mandiri (GUM) and Tintin Boyok Sawit Makmur (TBSM)'s fair value of the identifiable assets and acquired debt are as follows.

	GUM	TBSM	Total
Assets			
Current assets			
Cash and cash equivalents	₩ 2,481	₩ 3,114	₩ 5,595
Trade accounts receivable, net	-	131	131
Other accounts receivable, net	11,199	5,802	17,001
Advance payments	34	26	60
Prepaid expenses	88	9	97
Other current assets	2,336	6,424	8,760
Inventories, net	778	2,289	3,067
Non-current assets			
Property, plant and equipment, net	28,313	24,397	52,710
Other non-current assets	15	10	25
Total assets	45,244	42,202	87,446
Liabilities			
Current liabilities			
Trade accounts payable	2,270	2,306	4,576
Other accounts payable	172	780	952
Accrued expenses	68	78	146
Other current liabilities	2,256	6,507	8,763
Non-current liabilities			
Long-term borrowings	2,790	3,327	6,117
Total liabilities	7,556	12,998	20,554
Total identifiable net assets	₩ 37,688	₩ 29,204	₩ 66,892
Portion of controlling interest	₩ 35,804	₩ 27,381	₩ 63,185
Purchase consideration transferred	41,883	32,246	74,129
Goodwill	₩ 6,079	₩ 4,865	₩ 10,944

32. Approval of financial statements

The consolidated financial statements of the Group for the year ended December 31, 2018 were approved by the Board of Directors on January 31, 2019.