LG International Corp.

Separate financial statements for the years ended December 31, 2019 and 2018 with the independent auditors' report



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Independent auditor's report

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한영회계법인 서울특별시 영등포구 여의공원로 111, 태영빌딩 3-8F 07*2*41

Tel: 02 3787 6600 Fax: 02 783 5890 ey.com/kr Ernst & Young Han Young Taeyoung Building, 111, Yeouigongwon-ro, Yeongdeungpo-gu, Seoul 07241 Korea

Tel: +82 2 3787 6600 Fax: +82 2 783 5890 ev.com/kr

Independent auditor's report

The Stockholders and Board of Directors LG International Corp.

Opinion

We have audited the separate financial statements of LG International Corp. (the "Company"), which comprise the separate statements of financial position as of December 31, 2019 and 2018, and the separate statements of profit or loss, separate statements of other comprehensive income or loss, separate statements of changes in equity and separate statements of cash flows for the years then ended, and the notes to the separate financial statements, including a summary of significant accounting policies.

In our opinion, the separate financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and its financial performance and its cash flows for the years then ended in accordance with Korean International Financial Reporting Standards (KIFRS).

We also have audited, in accordance with Korean Auditing Standards (KGAAS), the Company's internal control over financial reporting (ICFR) as of December 31, 2019, based on the Conceptual Framework for designing and operating ICFR established by the Operating Committee of ICFR (the ICFR Committee), and our report dated March 17, 2020 expressed an unqualified opinion thereon.

Basis for opinion

We conducted our audits in accordance with KGAAS. Our responsibilities under those standards are further described in the Auditor's responsibilities for the audit of the separate financial statements section of our report. We are independent of the Company in accordance with the ethical requirements that are relevant to our audits of the separate 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

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the separate financial statements of the current period. These matters were addressed in the context of our audit of the separate financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters. For each matter below, our description of how our audit addressed the matter is provided in that context.

(1) Revenue recognition of overseas export sales

As mentioned in Note 2 to the separate financial statements, the Company 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. The Company's overseas export sales are $\pm 2,034,944$ million in total, accounting for approximately 66% of total sales. The Company recognizes revenue on overseas export sales when the control of goods is transferred to the customers.

Accordingly, we have selected the adequacy of the Company's revenue recognition in overseas export sales is a key audit matter since the management's judgment on the timing of revenue recognition has a significant effect on the sales revenue.



The major audit procedures we have conducted in relation to this key audit matter are as follows:

- Analyze accounting policies of revenue recognition for major types of sales contracts and changes therein, if any
- Assess the design and operating effectiveness of internal controls in relation to overseas export sales recognition
- Analyze contracts by type of overseas export sales (identification of performance obligation, measurement of transaction amount, allocation of transaction price, review of the appropriateness in timing of revenue recognition)
- Perform test of transaction by reconciling the records and the related evidences.
- Assess the appropriateness of timing of revenue recognition for the transactions occurred around reporting period end

(2) PT. Ganda Alam Makmur ("GAM") related subsidiary investment impairment assessment

The Company holds a 60% stake in PT. Ganda Alam Makmur ("GAM"), which is engaged in exploration / development and production activities for bituminous coal in Indonesia. As mentioned in Note 9 to the separate financial statements, the Company recognizes equity investment in GAM as an investment in subsidiaries and applies the equity method in separate financial statements.

The operating performance of GAM is sensitive to the international price of coal, exploration / development and production technology, and potential reserves of economically producible resources, and the collection period of related investment in a subsidiary is also generally long-term.

As of December 31, 2019, the Company has investment in a subsidiary amounting to \$168,563 million in relation to GAM, and the Company assesses at the end of each reporting period whether there is any impairment indication. If impairment is identified, the Company measures the estimated recoverable amount and recognizes impairment loss. This procedure requires professional estimation and cash flows assumptions on potential reserves of resources, economic output, and international price outlook during the recoverable period. In conclusion, we identified that there is a significant risk in the Company's assessment of impairment indication and estimation of recoverable amount for the investment in a subsidiary related to GAM considering the materiality of amounts, uncertainty of estimation and the subjectivity of the assumptions by management.

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

- Analysis by understanding the process related to the impairment test
- Evaluation of the effectiveness of designing and operating internal controls related to impairment test
- Assessment of management's evaluation on whether there is an indication of impairment
- Analysis on whether the assumptions used in the valuation report (future cash flow model) are consistent with the approved budget and business plan
- Analysis by comparing the future estimates of short-term and long-term prices used in the valuation report with the estimates conducted by an independent external institution
- Analysis for the consistency and validity of the assumptions applied to the estimate of cash flows for the measurement of the recoverable amounts

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

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



In preparing the separate financial statements, management is responsible for assessing the Company'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 Company 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 separate financial statements

Our objectives are to obtain reasonable assurance about whether the separate 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 KGAAS 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 separate financial statements.

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

- Identify and assess the risks of material misstatement of the separate 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.
- 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 Company'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 separate 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 Company to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the separate financial statements, including
 the disclosures, and whether the separate financial statements represent the underlying transactions
 and events in a manner that achieves fair presentation.

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 separate 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 engagement partner on the audit resulting in this independent auditor's report is Jung Ho Chae.

Ernoth Joung Han Young

March 17, 2020

This audit report is effective as of March 17, 2020, 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 separate financial statements and may result in modifications to this report.

LG International Corp.

Separate financial statements for the years ended December 31, 2019 and 2018

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

Chun-sung Yoon Chief Executive Officer LG International Corp.

LG International Corp. Separate statements of financial position as of December 31, 2019 and 2018 (Korean won in millions)

	Notes		2019		2019		2018
Assets							
Current assets							
Cash and cash equivalents	4, 5, 26, 27	₩	88,140	₩	80,089		
Short-term financial assets	4, 12, 26, 27		13,460		2,663		
Trade accounts receivable	4, 12, 24, 26, 27		261,192		302,456		
Other accounts receivable	4, 6, 12, 24, 26, 27		52,161		83,147		
Accrued income	4, 12, 24, 26, 27		29,381		24,927		
Advance payments	24		7,825		14,334		
Prepaid expenses			1,042		1,702		
Other current assets	4, 12, 24		6,656		4,827		
Inventories, net	7		132,381		126,651		
Assets held for sale	30		18,888		-		
			611,126	-	640,796		
Non-current assets							
Investment assets	4, 8, 12, 24, 26, 27		323,765		325,774		
Investment in subsidiaries	9		1,273,969		1,344,007		
Investment in associates	9		125,146		179,746		
Property, plant and equipment, net	10, 29		18,888		27,706		
Investment properties, net	10		-		24,800		
Intangible assets, net	11		18,860		18,300		
Deferred tax assets	23		141,086		128,140		
Other non-current assets	4, 5, 6, 12, 24		15,086		7,954		
			1,916,800		2,056,427		
Total assets		₩	2,527,926	₩	2,697,223		

(Continued)

LG International Corp. Separate statements of financial position as of December 31, 2019 and 2018 (cont'd)

(Korean won in millions)

	Notes	2019		019 2018	
Liabilities					
Current liabilities					
Short-term borrowings	4, 13, 26, 27, 28	₩	73,684	₩	466
Trade accounts payable	4, 24, 26, 27		275,490		325,630
Other accounts payable	4, 6, 24, 26, 27		59,592		112,402
Advance received	17, 24		1,761		896
Withholdings	4, 26, 27		998		2,192
Accrued expenses	4, 26, 27		33,807		33,650
Current portion of bonds and long-term borrowings	4, 13, 26, 27		204,135		225,875
Deposits received	4		-		4,879
Lease liabilities	4, 26, 27, 28, 29		6,009		
			655,476		705,990
Non-current liabilities					
Bonds	4, 13, 26, 27		269,617		339,345
Long-term borrowings	4, 13, 26, 27		332,641		462,845
Defined benefit liabilities	20		8,801		8,639
Lease liabilities	4, 26, 27, 28, 29		2,155		-
Provision	14, 22		45,626		38,099
Other non-current liabilities	4, 26, 27		5,656		7,653
			664,496		856,581
Total liabilities			1,319,972		1,562,571
Equity					
Issued capital	15		193,800		193,800
Share premium	15		102,125		102,125
Other components of equity	15		(968)		(968)
Accumulated other comprehensive income (loss)	15		(17,738)		(43,568)
Retained earnings	15		930,735		883,263
Total equity	10		1,207,954		1,134,652
Total liabilities and equity		₩	2,527,926	₩	2,697,223
			_,0,00		_,00.,0

LG International Corp. Separate statements of profit or loss for the years ended December 31, 2019 and 2018

(Korean won in millions, except per share amounts)

	Notes	2019	2018
Sales	3, 17, 24	₩ 3,080,464	₩ 2,904,287
Cost of sales	19, 24	(2,946,082)	(2,779,299)
Gross profit		134,382	124,988
Selling and administrative expenses	18, 19	(145,844)	(146,020)
Operating loss	3	(11,462)	(21,032)
Finance income	4, 6, 21	128,134	98,660
Finance costs	4, 6, 21	(144,653)	(116,606)
Share of profit of subsidiaries and associates	9, 21	(72,751)	189,016
Other non-operating expenses, net	21, 22	86,510	(71,689)
Profit (loss) before tax		(14,222)	78,349
Income tax expenses	23	73,108	(148,278)
Profit (loss) for the year		₩ 58,886	₩ (69,929)
Earnings (loss) per share:			
Basic and diluted, profit (loss) for the year	15	₩ 1,523	₩ (1,809)

LG International Corp. Separate statements of other comprehensive income or loss for the years ended December 31, 2019 and 2018

(Korean won in millions)

	Notes		019		2018
Profit (loss) for the year		₩	58,886	₩	(69,929)
Other comprehensive income (loss)					
that may be reclassified to profit or loss					
in subsequent periods:					
Loss on valuation of derivatives designated as					
cash flow hedges	4, 6		(339)		(408)
Positive adjustments of equity in equity method	9		7,731		6,415
Negative adjustments of equity in equity method	9		18,299		2,855
Exchange differences on translation of foreign operations			3,512		122
			29,203		8,984
Other comprehensive income (loss)					
that will not be reclassified to profit or loss					
in subsequent periods:					
Gain on valuation of FVOCI	4, 8		(3,373)		7,327
Re-measurement loss on defined benefit plans	20		(489)		(4,013)
Change in retained earnings in equity method	9		(1,260)		(757)
			(5,122)		2,557
Other comprehensive income for the year, net of tax			24,081		11,541
Total comprehensive income (loss)					
for the year, net of tax		₩	82,967	₩	(58,388)

LG International Corp. Separate statements of changes in equity for the years ended December 31, 2019 and 2018 (Korean won in millions)

	Issu	ıed capital	Share premium		Other components of equity	Accumulated other comprehensive income (loss)		Retained earnings	Tc	otal equity
As of January 1, 2018	₩	193,800	₩ 102,12	5 ₩	(968)	₩ (59,619)	₩	963,850	₩	1,199,188
Effect of adoption of new accounting standards		-		-	-	(259)		3,778		3,519
As of January 1, 2018 (restated)		193,800	102,12	5	(968)	(59,878)		967,628		1,202,707
Loss for the year		-		-	-	-		(69,929)		(69,929)
Loss on valuation of derivatives designated										
as cash flow hedges		-		-	-	(408)		-		(408)
Positive adjustments of equity in equity method		-		-	-	6,415		-		6,415
Negative adjustments of equity in equity method		-		-	-	2,855		-		2,855
Exchange differences on translation of foreign operations		-		-	-	122		-		122
Gain on valuation of FVOCI		-		-	-	7,327		-		7,327
Re-measurement loss on defined benefit plans		-		-	-	-		(4,013)		(4,013)
Change in retained earnings in equity method		-						(758)		(758)
Total comprehensive income (loss)		-			-	16,311		(74,700)		(58,389)
Dividends (Note 16)		-			-			(9,665)		(9,665)
As of December 31, 2018	₩	193,800	₩ 102,12	5 ₩	(968)	₩ (43,568)	₩	883,263	₩	1,134,652

(Continued)

LG International Corp. Separate statements of changes in equity for the years ended December 31, 2019 and 2018 (cont'd)

(Korean won in millions)

						045	Accumul					
					cor	Other nponents of	other comprehe			Retained		
	Issu	ed capital	Share prer	nium		equity	income (I			earnings	T	otal equity
As of January 1, 2019	₩	193,800	₩ 10	2,125	₩	(968)	₩ (4	3,568)	₩	883,263	₩	1,134,652
Profit for the year		-		-		-		-		58,886		58,886
Loss on valuation of derivatives designated												
as cash flow hedges		-		-		-		(339)		-		(339)
Positive adjustments of equity in equity method		-		-		-		7,731		-		7,731
Negative adjustments of equity in equity method		-		-		-	1	8,299		-		18,299
Exchange differences on translation of foreign operations		-		-		-		3,512		-		3,512
Gain on valuation of FVOCI		-		-		-	(3,373)		-		(3,373)
Re-measurement loss on defined benefit plans		-		-		-		-		(489)		(489)
Change in retained earnings in equity method		-		-				-		(1,260)		(1,260)
Total comprehensive income (loss)		-		-		-	2	5,830		57,137		82,967
Dividends (Note 16)		-		_				-		(9,665)		(9,665)
As of December 31, 2019	₩	193,800	₩ 10	2,125	₩	(968)	₩ (1	7,738)	₩	930,735	₩	1,207,954

	Notes	2019	2018
Cash flows from operating activities:		50,000	(00.000)
Profit (loss) for the year		₩ 58,886	₩ (69,929)
Non-cash adjustments to reconcile gain (loss)	00	(57.570	100.074
for the year to net cash flows provided by operating activties	28	(57,573	•
Working capital adjustments	28	(49,155	
Interest received		7,016	
Interest paid		(28,664	,
Dividends received		30,693	
Income tax paid		54,304	
Net cash flows provided by operating activities		15,507	34,794
Cash flows from investing activities:			
Decrease in loans		2,663	4,037
Decrease in guarantee deposits		610	71
Proceeds from disposal and capital reduction			
of investment in associates		61,860	128,052
Proceeds from disposal of equity instruments held for long-term		586	2,197
Proceeds from disposal of property, plant and equipment		373	90
Proceeds from disposal of Investment properties		133,547	-
Proceeds from disposal of intangible assets		642	470
Increase in loans		(9,427) -
Increase in guarantee deposits		(2,964	(48)
Acquisition of equity instruments held for long-term		(21,931	(6,467)
Acquisition of investment in subsidiaries	9	(2,588	(98,031)
Acquisition of investment in associates		(9	(2,799)
Acquisition of property, plant and equipment		(5,561	
Acquisition of intangible assets		(64	
Net cash flows provided by investing activities		157,737	25,247
Cash flows from financing activities:			
Proceeds from financial liabilities	28	264,258	737,385
Repayments of financial liabilities	28	(416,981	•
Payment of principal portion of lease liabilities	20	(2,852	
Dividends paid to stockholders		(9,665	
Net cash flows used in financing activities		(165,240	
Net cash nows used in infancing activities		(105,240	(94,529)
Net increase (decrease) in cash and cash equivalents		8,004	. , ,
Cash and cash equivalents at January 1		80,089	·
Exchange differences on translation of cash and cash equival	ents	47	
Cash and cash equivalents at December 31		₩ 88,140	₩ 80,089

1. Corporate information

LG International Corp. (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.

The Company 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.

The Company is currently engaged in the import and export of goods, and other business activities. The Company is located in Seoul and operates 19 overseas branch offices, 5 liaison offices and 85 subsidiaries (including 59 sub-subsidiaries) as of December 31, 2019.

LG Corp. holds 24.69% of the Company's common stock as of the end of the reporting period. The remaining equity shares are held by institutional investors, overseas investors, and minority shareholders and so on.

2. Basis of preparation and summary of significant accounting policies

2.1 Basis of preparation

The Company prepares statutory 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 financial statements have been translated into English from the Korean language financial statements. In the event of any differences in interpreting the financial statements or the independent auditors' report thereon, the Korean version, which is used for regulatory reporting purposes, shall prevail.

The separate financial statements have been prepared on a historical cost basis, except for debt and equity financial assets and derivative financial instruments that are valued at fair value. 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 separate financial statements are presented in Korean won and all values are rounded to the nearest won except when otherwise indicated.

LG International Corp. is the parent company of its subsidiaries (collectively referred to as the "Group") and the consolidated financial statements of the Company prepared in accordance with KIFRS have been issued separately.

2.2 Summary of significant accounting policies

2.2.1 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. There are stated of cash on the statement of cash flows.

2.2.2 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.

2.2.3 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.

2.2.3.1 Financial assets

2.2.3.1.1 Initial recognition and measurement

The classification of financial assets at initial recognition depends on the financial asset's contractual cash flow characteristics and the Company's business model for managing them. With the exception of trade receivables that do not contain a significant financing component or for which the Company has applied the practical expedient, the Company 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 Company has applied the practical expedient are measured at the transaction price determined under KIFRS 1115.

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 Company'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 Company commits to purchase or sell the asset.

2.2.3.1.2 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

Financial assets at amortised cost (debt instruments)

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

2.2.3.1.2 Subsequent measurement (cont'd)

Financial assets designated at fair value through OCI (equity instruments)

Upon initial recognition, the Company 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 Company 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.

The Company elected to classify irrevocably its non-listed equity investments under this category.

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.

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.

2.2.3.1.3 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 Company 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 Company has transferred substantially all the risks and rewards of the asset, or (b) the Company has neither transferred nor retained substantially all the risks and rewards of the asset, but has transferred control of the asset.

When the Company 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 Company's continuing involvement in the asset. In that case, the Company 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 Company has retained.

2.2.3.2 Impairment of financial assets

Further disclosures relating to impairment of financial assets are also provided in Note 12.

The Company 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 Company 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 Company applies a simplified approach in calculating ECLs. Therefore, the Company does not track changes in credit risk, but instead recognises a loss allowance based on lifetime ECLs at each reporting date. The Company 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.

For debt instruments at fair value through OCI, the Company applies the low credit risk simplification. At every reporting date, the Company 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 Company reassesses the internal credit rating of the debt instrument. In addition, the Company considers that there has been a significant increase in credit risk when contractual payments are more than 30 days past due.

The Company's debt instruments at fair value through OCI comprise solely of quoted bonds that are graded in the top investment category and, therefore, are considered to be low credit risk investments. It is the Company'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 Company uses the ratings from the external independent credit rating agency both to determine whether the debt instrument has significantly increased in credit risk and to estimate ECLs.

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

2.2.3.3 Financial liabilities

2.2.3.3.1 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 Company's financial liabilities include trade and other payables, bonds, borrowings and derivative financial liabilities.

2.2.3.3.2 Subsequent measurement

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

2.2.3.3.2 Subsequent measurement (cont'd)

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 Company 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.

2.2.3.3.3 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.

2.2.3.4 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.

2.2.4 Derivative financial instruments and hedge accounting

2.2.4.1 Initial recognition and subsequent measurement

The Company uses derivative financial instruments such as forward currency contracts, swap currency and interest rate swaps to hedge its foreign currency risks and interest rate 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 Company formally designates and documents the hedge relationship to which the Company wishes to apply hedge accounting and the risk management objective and strategy for undertaking the hedge.

2.2.4.1 Initial recognition and subsequent measurement (cont'd)

The documentation includes identification of the hedging instrument, the hedged item, the nature of the risk being hedged and how the Company 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 Company actually hedges and the quantity of the hedging instrument that the Company 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.

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 Company 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 recognized as other expense and the ineffective portion relating to commodity contracts is recognized in other operating income or expenses.

The Company designates only the spot element of forward contracts as a hedging instrument. The forward element is recognized 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.

2.2.4.1 Initial recognition and subsequent measurement (cont'd)

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.

2.2.5 Investment in subsidiaries and associates

The Company's investments in its subsidiaries, associates and joint ventures are accounted for using the equity method.

Under the equity method, the investment in a subsidiary, an associate or a joint venture is initially recognized at cost. The carrying amount of the investment is adjusted to recognize changes in the Company's share of net assets of the subsidiary, associate or joint venture since the acquisition date. Goodwill relating to the subsidiary, associate or joint venture is included in the carrying amount of the investment and is not tested for impairment separately.

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

The aggregate of the Company's share of profit or loss of a subsidiary, associate and a joint venture is shown on the face of the statement of profit or loss and other comprehensive income outside operating profit and represents profit or loss after tax and non-controlling interests in the subsidiaries of the subsidiary, associate or joint venture.

The financial statements of the subsidiary, associate or joint venture are prepared for the same reporting period as the Company. When necessary, adjustments are made to bring the accounting policies in line with those of the Company.

After application of the equity method, the Company determines whether it is necessary to recognize an impairment loss on its investment in its subsidiary, associate or joint venture. At each reporting date, the Company determines whether there is objective evidence that the investment in the subsidiary, associate or joint venture is impaired. If there is such evidence, the Company calculates the amount of impairment as the difference between the recoverable amount of the associate or joint venture and its carrying value, and then recognizes the loss as 'Share of profit of a subsidiary, associate and a joint venture' in the statement of profit or loss.

Upon loss of control, significant influence or joint control over the subsidiary, associate or joint control over the joint venture, the Company measures and recognizes any retained investment at its fair value. Any difference between the carrying amount of the subsidiary, associate or joint venture upon loss of control, significant influence or joint control and the fair value of the retained investment and proceeds from disposal is recognized in the statement of profit or loss.

2.2.6 Non-current assets held for sale (or distribution to equity holders) and discontinued operations

The Company classifies non-current assets and disposal groups as held for sale 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 are measured at the lower of their carrying amount and fair value less costs to sell. Costs to sell are the incremental costs directly attributable to the disposal of an asset (disposal group), excluding the finance costs and income tax expense.

The criteria for held for sale classification is regarded as met only when the disposal is highly probable and the asset or disposal group is available for immediate disposal in its present condition. Actions required to complete the disposal should indicate that it is unlikely that significant changes to the disposal will be made or that the disposal will be withdrawn. Management must be committed to the disposal expected within one year from the date of the classification.

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.

2.2.7 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 Company 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 incurred. The present value of the expected cost for the decommissioning of an 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	20 ~ 40	Straight-line method
Structures	20 ~ 40	ш
Machinery	5 ~ 8	"
Vehicles	5 ~ 12	u
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 (loss) arising on derecognition of the asset (calculated as the difference between the net disposal proceeds and the carrying amount of the asset) is included in the statement of profit or loss when the asset is derecognized.

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

2.2.8 Leases

At inception of a contract, the Company assesses whether the contract is or contains, a lease. A contract is, or contains, a lease if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration.

Company as a lessee

The Company applies a single recognition and measurement approach for all leases, except for short-term leases and leases of low-value assets. The Company recognizes lease liabilities to make lease payments and right-of-use assets representing the right to use the underlying assets.

2.2.8.1 Right-of-use assets

The Company recognises right-of-use assets at the commencement date of the lease (i.e., the date the underlying asset is available for use). Right-of-use assets are measured at cost, less any accumulated depreciation and impairment losses, and adjusted for any remeasurement of lease liabilities. The cost of right-of-use assets includes the amount of lease liabilities recognised, initial direct costs incurred, and lease payments made at or before the commencement date less any lease incentives received. Right-of-use assets are depreciated on a straight-line basis over the shorter of the lease term and the estimated useful lives of the assets as follows.

	Useful lives
	(years)
Buildings	1 ~ 20
Vehicles	1 ~ 5

If ownership of the leased asset transfers to the Company at the end of the lease term or the cost reflects the exercise of a purchase option, depreciation is calculated using the estimated useful life of the asset. The right-of-use assets are also subject to impairment. Refer to the accounting policies in section 2.2.18 Impairment of non-financial assets.

2.2.8.2 Lease liabilities

At the commencement date of the lease, the Company recognises lease liabilities measured at the present value of lease payments to be made over the lease term. The lease payments include fixed payments (including in-substance fixed payments) less any lease incentives receivable, variable lease payments that depend on an index or a rate, and amounts expected to be paid under residual value guarantees. The lease payments also include the exercise price of a purchase option reasonably certain to be exercised by the Company and payments of penalties for terminating the lease, if the lease term reflects the Company exercising the option to terminate. Variable lease payments that do not depend on an index or a rate are recognised as expenses (unless they are incurred to produce inventories) in the period in which the event or condition that triggers the payment occurs.

In calculating the present value of lease payments, the Company uses its incremental borrowing rate at the lease commencement date because the interest rate implicit in the lease is not readily determinable. After the commencement date, the amount of lease liabilities is increased to reflect the accretion of interest and reduced for the lease payments made. In addition, the carrying amount of lease liabilities is remeasured if there is a modification, a change in the lease term, a change in the lease payments (e.g., changes to future payments resulting from a change in an index or rate used to determine such lease payments) or a change in the assessment of an option to purchase the underlying asset.

The Company's lease liabilities are included in Interest-bearing loans and borrowings (Refer to Note 26).

2.2.8.3 Short-term leases and Leases of low-value assets

The Company applies the short-term lease recognition exemption to its short-term leases of buildings and vehicle (i.e., those leases that have a lease term of 12 months or less from the commencement date and do not contain a purchase option). It also applies the lease of low-value assets recognition exemption to leases of office equipment that are considered to be low value. Lease payments on short-term leases and leases of low-value assets are recognised as expense on a straight-line basis over the lease term.

2.2.9 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.

2.2.10 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/or 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 amount at the date of change in use. If owner occupied property becomes an investment property, the Company accounts for such property in accordance with the policy stated under property, plant and equipment up to the date of change in use.

2.2.11 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 of 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 are 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 asset.

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.

2.2.11 Intangible assets (cont'd)

A summary of the policies applied to the Company'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	Straight-line method

(*) 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 Company commences test on the assets for impairment. When the book value of the asset is greater than estimated recoverable amounts for the residual period, the Company recognizes it as impairment.

2.2.12 Pension benefits and other post-employment benefits

The Company operates a defined benefit pension plan and defined contribution pension plan. The defined benefit pension plan in Korea requires contributions to be made to separately administered funds. The cost of providing benefits under the defined benefit plan is determined using the projected unit credit method. Remeasurements, 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 OCI 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 Company recognizes restructuring-related costs

Net interest is calculated by applying the discount rate to the net defined benefit liability or asset. The Company recognizes the following changes in the net defined benefit obligation under selling and administrative expenses in the 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

2.2.13 Provisions

Provisions are recognized when the Company 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 Company 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.

2.2.14 Onerous contracts

If the Company has a contract that is onerous, the present obligation under the contract is recognized and measured as a provision. However, before a separate provision for an onerous contract is established, the Company recognizes 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.

2.2.15 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 Company's own equity instruments.

2.2.16 Revenue from contracts with customers

The Company is in the business of sales of goods in the resource and infrastructure sectors. The company provides the supply of goods and export-import transactions through contracts with customers. Revenue from contracts with customers is recognized when control of the goods or services are transferred to the customer at an amount that reflects the consideration to which the Company expects to be entitled in exchange for those goods or services.

2.2.16.1 Sales of goods

Revenue from sale of goods is recognized 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 Company 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.

2.2.16.2 Principal versus agent consideration

When another party is involved in providing goods or services to its customer, the Company determines whether it is a principal or an agent in these transactions by evaluating the nature of its promise to the customer. The Company 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 Company's role is only to arrange for another entity to provide the goods or services, then the Company is an agent and will need to record revenue at the net amount that it retains for its agency services.

2.2.16.3 Contract balance

Trade receivables

A receivable represents the Company's right to an amount of consideration that is unconditional. Refer to accounting policies of financial assets in the Note 2.2.3.1

Contract liabilities

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

2.2.17 Foreign currency translation

The Company's separate financial statements are presented in Korean won, which is also the Company's functional currency.

2.2.17.1 Transactions and balances

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 Company'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 rate at the date of the transaction; and non-monetary items that are measured at fair value in a foreign currency are translated using the exchange rates at the dates when the fair value was determined.

2.2.17.2 Translations of foreign operation

Assets and liabilities of foreign operation are translated into Korea won at the closing rate at the reporting date and income and expenses are translated at average exchange rates for the period. These exchange differences are recognized in a separate component of equity. On the disposal of a foreign operation, the cumulative amount of the exchange differences relating to that foreign operation is reclassified from equity to 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 of that foreign operation are treated as assets and liabilities of the foreign operation, and translated at the spot rate of exchange at the reporting date.

2.2.18 Impairment of non-financial assets

The Company 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 Company estimates the asset's recoverable amount. An asset's recoverable amount is the higher of an asset's or cash-generating unit's (CGU) fair value less costs to sell and its value in use and 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 companies or other available fair value indicators.

The Company bases its impairment calculation on detailed budgets and forecast calculations, which are prepared separately for each of the Company's CGUs to which the individual assets are allocated. These budgets and forecast calculations generally cover a period of five years. A long-term growth rate is calculated and applied to project future cash flows after the fifth year.

Impairment losses of continuing operations, including impairment on inventories, are recognized in the statement of profit or loss and other comprehensive income in expense categories consistent with the function of the impaired asset, except for properties previously revalued with the revaluation taken to OCI. For such properties, the impairment is recognized in OCI up to the amount of any previous revaluation.

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 Company 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. Such reversal is recognized in the statement of profit or loss and other comprehensive income 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 (at certain time) 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 company 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.

2.2.18 Impairment of non-financial assets (cont'd)

Intangible assets excluding goodwill

For intangible assets with indefinite useful lives, the Company performs the impairment test for an individual asset or a cash-generating unit to which the asset has been allocated, annually or at any indication of impairment.

2.2.19 Taxes

2.2.19.1 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 Company 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.

2.2.19.2 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:

- When 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:

- When 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.

2.2.19.2 Deferred tax (cont'd)

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.

Tax benefits acquired as part of a business combination, but not satisfying the criteria for separate recognition at that date, are recognized subsequently if new information about facts and circumstances change. The adjustment is either treated as a reduction in goodwill (as long as it does not exceed goodwill) if it was incurred during the measurement period or recognized in profit or loss.

2.2.19.3 Sales tax

Expenses and assets are recognized net of the amount of sales tax, except:

- When the sales tax incurred on a purchase of assets or services is not recoverable from the taxation authority, in which case, the sales tax is recognized as part of the cost of acquisition of the asset or as part of the expense item, as applicable
- When receivables and payables are stated with the amount of sales tax included

The net amount of sales tax recoverable from, or payable to, the taxation authority is included as part of receivables or payables in the statement of financial position.

2.3 New and amended standards and interpretations

The Company applied KIFRS 1116 *Leases* for the first time. The nature and effect of the changes as a result of adoption of this new accounting standard is described below.

Several other amendments and interpretations apply for the first time in 2019, but do not have an impact on the financial statements of the Company. The Company has not early adopted any standards, interpretations or amendments that have been issued but are not yet effective.

2.3.1 KIFRS 1116 Lease

KIFRS 1116 supersedes 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. The standard sets out the principles for the recognition, measurement, presentation and disclosure of leases and requires lessees to recognise most leases on the balance sheet.

Lessor accounting under KIFRS 1116 is substantially unchanged from KIFRS 1017. Lessors will continue to classify leases as either operating or finance leases using similar principles as in KIFRS 1017. Therefore, KIFRS 1116 does not have an impact for leases where the Company is the lessor.

The Company adopted KIFRS 1116 using the full retrospective method of adoption, with the date of initial application of January 1, 2019. The Company elected to use the transition practical expedient to not reassess whether a contract is, or contains, a lease at January 1, 2019. Instead, the Company applied the standard only to contracts that were previously identified as leases applying KIFRS 1017 and KIFRS 2104 at the date of initial application. The Company also elected to use the recognition exemptions for lease contracts that, at the commencement date, have a lease term of 12 months or less and do not contain a purchase option (short-term leases), and lease contracts for which the underlying asset is of low value (low-value assets).

2.3.1 KIFRS 1116 Lease (cont'd)

The adoption effect of KIFRS 1116 as January 1, 2019 is, as follows (Korean won in millions):

	Increase (Decrease)			
Assets				
Advance payments	₩	(66)		
Right-of-use assets		5,311		
Total assets		5,245		
Liabilities				
Current lease liabilities		2,049		
Non-current lease liabilities		3,196		
Total liabilities		5,245		

The Company has lease contracts for various items of building, vehicles etc. Before the adoption of KIFRS 1116, the Company classified each of its leases (as lessee) at the inception date as either a finance lease or an operating lease.

Upon adoption of KIFRS 1116, the Company applied a single recognition and measurement approach for all leases except for short-term leases and leases of low-value assets. Refer to Note 2.2.8 Leases for the accounting policies applied beginning on 1 January 2019. The standard provides specific transition requirements and practical expedients, which have been applied by the Company.

Leases previously classified as finance leases

The Company has not early classified leases as finance leases.

Leases previously classified as operating leases

The Company recognized right-of-use assets and lease liabilities for those leases previously classified as operating leases, except for short-term leases and leases of low-value assets. The right-of-use assets for most leases were recognized based on the carrying amount as if the standard had always been applied, apart from the use of incremental borrowing rate at the date of initial application. In some leases, the right-of-use assets were recognized based on the amount equal to the lease liabilities, adjusted for any related prepaid and accrued lease payments previously recognized. Lease liabilities were recognized based on the present value of the remaining lease payments, discounted using the incremental borrowing rate at the date of initial application.

The Company also applied the available practical expedients wherein it:

- Used a single discount rate to a portfolio of leases with reasonably similar characteristics
- > Relied on its assessment of whether leases are onerous immediately before the date of initial application
- Applied the short-term leases exemptions to leases with lease term that ends within 12 months of the date of initial application
- Excluded the initial direct costs from the measurement of the right-of-use asset at the date of initial application
- Used hindsight in determining the lease term where the contract contained options to extend or terminate the lease

2.3.1 KIFRS 1116 Lease (cont'd)

The lease liabilities as of 1 January 2019 can be reconciled to the operating lease commitments as of 31 December 2018, as follows (Korean one in millions):

	Total			
Operating leases as of December 31, 2018	₩	13,284		
The weighted average incremental borrowing rate at the January 1, 2019		2.27%		
Contract discount at the January 1,2019		12,990		
Less:				
Contract relevant to short-term leases		(7,639)		
Contract relevant to leases of low-value assets		(106)		
Lease liabilities as of January 1, 2019		5,245		
Current lease liabilities		2,049		
Non-current lease liabilities		3,196		

2.3.2 KIFRS 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 *Income Taxes*. It 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 Company determines whether to consider each uncertain tax treatment separately or together with one or more other uncertain tax treatments and uses the approach that better predicts the resolution of the uncertainty.

The Company applies significant judgement in identifying uncertainties over income tax treatments. Since the Company operates in a complex multinational environment, it assessed whether the Interpretation had an impact on its financial statements.

Upon adoption of the Interpretation, the Company considered whether it has any uncertain tax positions, particularly those relating to transfer pricing. The Company's and the subsidiaries' tax filings in different jurisdictions include deductions related to transfer pricing and the taxation authorities may challenge those tax treatments. The Company determined, based on its tax compliance and transfer pricing study, that it is probable that its tax treatments (including those for the subsidiaries) will be accepted by the taxation authorities. The Interpretation did not have an impact on the financial statements of the Company.

2.3.3 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 an 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. These amendments had no impact on the financial statements of the Company.

2.3.4 Amendments to KIFRS 1019: Plan amendment, curtailment or Settlement

The amendments to KIFRS 1019 address the accounting when a plan amendment, curtailment or settlement occurs during a reporting period. The amendments specify that when a plan amendment, curtailment or settlement occurs during the annual reporting period, an entity is required to determine the current service cost for the remainder of the period after the plan amendment, curtailment or settlement, using the actuarial assumptions used to remeasure the net defined benefit liability (asset) reflecting the benefits offered under the plan and the plan assets after that event. An entity is also required to determine the net interest for the remainder of the period after the plan amendment, curtailment or settlement using the net defined benefit liability (asset) reflecting the benefits offered under the plan and the plan assets after that event, and the discount rate used to remeasure that net defined benefit liability (asset). The amendments had no impact on the financial statements of the Company as it did not have any plan amendments, curtailments, or settlements during the period.

2.3.5 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, recognized 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 are retrospectively applicable at the beginning of the first annual reporting period beginning on or after January 1, 2019, with early application permitted. These amendments had no impact on the financial statements.

2.3.6 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 had no impact on the financial statements of the Company as there is no transaction where joint control is obtained.

> KIFRS 1111 Joint Arrangements

An entity 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 had no impact on the financial statements of the Company as there is no transaction where a joint control is obtained.

➢ 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 recognizes the income tax consequences of dividends in profit or loss, other comprehensive income or equity according to where the entity originally recognized those past transactions or events.

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

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 recognized on or after the beginning of the earliest comparative period.

Since the Company's current practice is in line with these amendments, they had no impact on the financial statements of the Company.

> 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 Company's current practice is in line with these amendments, they had no impact on the financial statements of the Company.

2.4 Significant accounting judgments, estimates and assumptions

The preparation of the Company's financial statements 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.

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

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

2.4.1 Judgments

In the process of applying the Company's accounting policies, management has made the following judgments, which have the most significant effect on the amounts recognized in the financial statements:

Determining the lease term of contracts with renewal and termination options – Company as lesseeThe Company determines the lease term as the non-cancellable term of the lease, together with any periods covered by an option to extend the lease if it is reasonably certain to be exercised, or any periods covered by an option to terminate the lease, if it is reasonably certain not to be exercised.

The Company applies judgement in evaluating whether it is reasonably certain whether or not to exercise the option to renew and recognizes right-of-use assets and lease liabilities.

2.4.2 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 Company based its assumptions and estimates on parameters available when the 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 Company. Such changes are reflected in the assumptions when they occur.

2.4.2.1 Impairment of non-financial assets

The Company 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.

2.4.2.2 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.

2.4.2.3 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.

2.4.2.4 Provision for expected credit losses of trade receivables

The Company 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 Company's historical observed default rates. The Company 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 analyzed.

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 Company's historical credit loss experience and forecast of economic conditions may also not be representative of customer's actual default in the future.

2.4.2.5 Leases - Estimating the incremental borrowing rate

The Company cannot readily determine the interest rate implicit in the lease, therefore, it uses its incremental borrowing rate (IBR) to measure lease liabilities. The IBR is the rate of interest that the Company would have to pay to borrow over a similar term, and with a similar security, the funds necessary to obtain an asset of a similar value to the right-of-use asset in a similar economic environment. The IBR therefore reflects what the Company 'would have to pay', which requires estimation when no observable rates are available or when they need to be adjusted to reflect the terms and conditions of the lease.

The Company estimates the IBR using observable inputs (such as market interest rates) when available and is required to make certain entity-specific estimates (such as the subsidiary's stand-alone credit rating).

2.5 Standards issued but not yet effective

The new and amended standards and interpretations that are issued, but not yet effective, up to the date of issuance of the Company's financial statements are disclosed below. The Company intends to adopt these new and amended standards and interpretations, if applicable, when they become effective.

2.5.1 Amendments to KIFRS 1003: Definition of a Business

In October 2018, the IASB issued amendments to the definition of a business in KIFRS 1003 *Business Combinations* to help entities determine whether an acquired set of activities and assets is a business or not. They clarify the minimum requirements for a business, remove the assessment of whether market participants are capable of replacing any missing elements, add guidance to help entities assess whether an acquired process is substantive, narrow the definitions of a business and of outputs, and introduce an optional fair value concentration test. New illustrative examples were provided along with the amendments.

Since the amendments apply prospectively to transactions or other events that occur on or after the date of first application, the Company will not be affected by these amendments on the date of transition.

2.5.2 Amendments to KIFRS 1001 and KIFRS 1008: Definition of Material

In October 2018, the IASB issued amendments to KIFRS 1001 *Presentation of Financial Statements* and KIFRS 1008 *Accounting Policies, Changes in Accounting Estimates and Errors* to align the definition of 'material' across the standards and to clarify certain aspects of the definition. The new definition states that, 'Information is material if omitting, misstating or obscuring it could reasonably be expected to influence decisions that the primary users of general purpose financial statements make on the basis of those financial statements, which provide financial information about a specific reporting entity.'

The amendments to the definition of material is not expected to have a significant impact on the Company's financial statements.

3. Segment information

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

Segment	Principal activity	
Resources	Coal, palm, metals, oil & gas	
Infra-business	IT, chemicals, project and others	
Collectively grouped	Common group management	

3.1 Segment sales and operating income

Details of segment results for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019			2018				
			Operating income				Ope	rating income
		Sales	(loss)		Sales		(loss)	
Resources	₩	828,649	₩	(6,371)	₩	704,538	₩	(36,292)
Infra-business		2,251,815		(5,090)		2,199,749		15,260
	₩	3,080,464	₩	(11,461)	₩	2,904,287	₩	(21,032)

3.2 Segment assets and liabilities

Details of assets and liabilities of operating segments as December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019			2018					
		Assets		Liabilities		Assets		Liabilities	
Resources	₩	977,823	₩	360,046	₩	1,079,589	₩	408,694	
Infra-business		632,378		403,141		714,201		557,851	
Collectively grouped (*)		917,725		556,785		903,433		596,026	
	₩	2,527,926	₩	1,319,972	₩	2,697,223	₩	1,562,571	

^(*) Assets and liabilities that individually do not have a material effect to a particular 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

Details of external revenue for the years ended December 31, 2019 and 2018, by geographic locations are as follows (Korean won in millions):

		2018		
Korea	₩	1,045,520	₩	1,031,941
America		386,052		296,885
Europe		266,327		182,642
Asia		1,362,921		1,348,233
Others		19,644		44,586
	₩	3,080,464	₩	2,904,287

4. Classification of financial instruments

4.1 Financial instruments by category

4.1.1 Financial assets

Financial assets by category as of December 31, 2019 and 2018 are as follows (Korean won in millions):

						2019				
		nancial ts at fair		ancial ts at fair	r:	nancial	Ш	dae		
		through		through		sets at		edge unting-		
		t or loss		OCI		tised cost		d assets		Total
Cash and cash equivalents	₩	31,000	₩	-	₩	57,140	₩	-	₩	88,140
Short term financial asset		-		-		13,460		-		13,460
Equity instruments										
held for long-term		4,779		161,124		-		-		165,903
Trade accounts receivable		-		-		261,192		-		261,192
Other accounts receivable		1,153		-		51,008		-		52,161
Long-term loans		-		-		157,862		-		157,862
Other financial assets		<u> </u>				45,998		1,261		47,259
	₩	36,932	₩	161,124	₩	586,660	₩	1,261	₩	785,977
						2018				
	Fir	nancial	Fin	ancial		2018				
		nancial ets at fair		ancial ts at fair	Fi	2018 nancial	He	edge		
	asse value	ts at fair through	asse value	ts at fair through	as	nancial ssets at	acco	unting-		
	asse value profi	ts at fair	asse value (ts at fair	as	nancial ssets at rtised cost	acco related	•		Total
Cash and cash equivalents	asse value	ts at fair through	asse value	ts at fair through	as	nancial ssets at rtised cost 80,089	acco	unting-	W	80,089
Short term financial asset	asse value profi	ts at fair through	asse value (ts at fair through	as	nancial ssets at rtised cost	acco related	unting-	₩	
Short term financial asset Equity instruments	asse value profi	ets at fair through t or loss -	asse value (ts at fair through OCI -	as	nancial ssets at rtised cost 80,089	acco related	unting-	₩	80,089 2,663
Short term financial asset Equity instruments held for long-term	asse value profi	ts at fair through	asse value (ts at fair through	as	nancial ssets at rtised cost 80,089 2,663	acco related	unting-	₩	80,089 2,663 149,007
Short term financial asset Equity instruments held for long-term Trade accounts receivable	asse value profi	ets at fair e through t or loss - - 4,779	asse value (ts at fair through OCI -	as	nancial ssets at riised cost 80,089 2,663	acco related	unting-	₩	80,089 2,663 149,007 302,456
Short term financial asset Equity instruments held for long-term Trade accounts receivable Other accounts receivable	asse value profi	ets at fair through t or loss -	asse value (ts at fair through OCI -	as	nancial ssets at rtised cost 80,089 2,663 - 302,456 81,696	acco related	unting-	₩	80,089 2,663 149,007 302,456 83,147
Short term financial asset Equity instruments held for long-term Trade accounts receivable Other accounts receivable Long-term loans	asse value profi	ets at fair e through t or loss - - 4,779	asse value (ts at fair through OCI -	as	nancial ssets at rised cost 80,089 2,663 - 302,456 81,696 176,767	acco related	unting- d assets - - - -	₩	80,089 2,663 149,007 302,456 83,147 176,767
Short term financial asset Equity instruments held for long-term Trade accounts receivable Other accounts receivable	asse value profi	ets at fair e through t or loss - - 4,779	asse value (ts at fair through OCI -	as	nancial ssets at rtised cost 80,089 2,663 - 302,456 81,696	acco related	unting-	₩	80,089 2,663 149,007 302,456 83,147

4.1.2 Financial liabilities

Financial liabilities by category as of December 31, 2019 and 2018 are as follows (Korean won in millions):

			20	19			
Financial lia	bilities						
		Financi	ial liabilities	Hedge			
• •		measured at		accounting-related			
loss		amor	tized cost	liabilities			Total
₩	-	₩	275,490	₩	-	₩	275,490
	1,890		57,702		-		59,592
	-		406,325		-		406,325
	-		269,617		-		269,617
	-		204,135		-		204,135
	_		48,625				48,625
₩	1,890	₩	1,261,894	₩		₩	1,263,784
	at fair va through pr loss	₩ - 1,890 - - -	at fair value through profit or loss W - W 1,890	Financial liabilities at fair value through profit or loss W - Financial liabilities measured at amortized cost W 275,490 1,890 57,702 - 406,325 - 269,617 - 204,135 - 48,625	at fair value through profit or loss W - W 275,490 1,890 57,702 - 406,325 - 269,617 - 204,135 - 48,625	Financial liabilities at fair value through profit or loss Financial liabilities measured at amortized cost Hedge accounting-related liabilities W - W 275,490 W - 1,890 57,702 - - - 406,325 - - - 269,617 - - - 48,625 - -	Financial liabilities at fair value through profit or loss Financial liabilities measured at amortized cost Hedge accounting-related liabilities W - W 275,490 W - W 1,890 57,702 - - - - 269,617 - - - - - - 48,625 - <t< td=""></t<>

				20	18			
	Financial at fair through los	value profit or	me	cial liabilities easured at ortized cost	accou	Hedge nting-related abilities		Total
Trade accounts payable	₩	-	₩	325,630	₩	-	₩	325,630
Other accounts payable		574		111,828		-		112,402
Borrowings		-		463,311		-		463,311
Bonds payable Current portion of bonds payable and long-term		-		339,345		-		339,345
borrowings		-		225,875		-		225,875
Other financial liabilities		-		46,377		1,998		48,375
	₩	574	₩	1,512,366	₩	1,998	₩	1,514,938

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, 2019 and 2018 are as follows (Korean won in millions):

					2	019			
	asset value	ancial s at fair through or loss	asse value	ancial ts at fair through DCI	as	nancial ssets at rtised cost	Hedge accounting- related assets		Total
Net income:									
Interest income	₩	_	₩	_	₩	11,787	₩ -	₩	11,787
Dividend income		-		5,970		-	-		5,970
Gain on foreign currency									
transactions		-		-		26,927	-		26,927
Gain on foreign currency						074			074
translation Gain on settlement of currency		-		-		274	-		274
forwards		12,739		_		_	_		12,739
Gain on valuation of currency		,. 00							,. 00
forwards		1,153		_		_	-		1,153
Gain on settlement of currency		·							
swaps		-		-		-	1,493		1,493
Gain on valuation of currency							0.070		0.070
swaps		-		-		(504)	2,978		2,978
Bad debt expenses		-		-		(501)	-		(501)
Other bad debt expenses		-		-		(4,814)	-		(4,814)
Loss on disposal of receivables		-		-		(2,292)	-		(2,292)
Other comprehensive income (*):									
Loss on valuation of FVOCI Loss on valuation of derivatives designated as		-		(4,450)		-	-		(4,450)
cash flow hedges		_		-		-	(70)		(70)
-	₩	13,892	₩	1,520	₩	31,381	₩ 4,401	₩	51,194

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

_					2	018			
	Fina	ancial	Fin	ancial					
		s at fair		ts at fair	Fi	nancial	Hedge		
		through		through	-	sets at	accounting-		
<u> </u>	profit	or loss		OCI	amo	tised cost	related assets		Total
Net income:									
Interest income	₩	-	₩	-	₩	13,350	₩ -	₩	13,350
Dividend income		203		6,404		-	-		6,607
Gain on foreign currency									
transactions		-		=		19,552	-		19,552
Gain on foreign currency									
translation		-		-		4,390	-		4,390
Gain on settlement of currency									
forwards		10,007		-		-	-		10,007
Gain on valuation of currency									
forwards		1,451		-		-	-		1,451
Gain on valuation of currency									
swaps		-		-		-	4,670		4,670
Bad debt expenses		-		-		(138)	-		(138)
Other bad debt expenses		-		-		(2,865)	-		(2,865)
Loss on disposal of receivables		-		-		(3,205)	-		(3,205)
Other comprehensive income (*):									
Gain on valuation of FVOCI Loss on valuation of derivatives designated as		-		9,666		-	-		9,666
cash flow hedges		-		-		-	(148)		(148)
	₩	11,661	₩	16,070	₩	31,084	₩ 4,522	₩	63,337

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

4.2.2 Gains and losses on financial liabilities

Gains and losses on financial liabilities by category for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

				20	19						
	at fai through	Il liabilities r value n profit or oss	meas	al liabilities sured at ized cost	account	edge ing-related pilities		Total			
Net income:											
Interest expenses Loss on foreign currency	₩	-	₩	(29,752)	₩	-	₩	(29,752)			
transactions		-		(28,495)		-		(28,495)			
Loss on foreign currency translation		-		(4,035)		-		(4,035)			
Loss on settlement of currency forwards		(14,355)		_		_		(14,355)			
Loss on valuation of											
currency forwards		(1,890)		-		-		(1,890)			
Other comprehensive income (*): Loss on valuation of derivatives designated as											
cash flow hedges		_				(378)		(378)			
	₩	(16,245)	₩	(62,282)	₩	(378)	₩	(78,905)			
		2018									
	Financia at fai	I liabilities	Financia	al liabilities	Н	edge					
	through	n profit or	meas	sured at		ing-related		Total			
Net income:	through		meas					Total			
Interest expenses	through	n profit or	meas	sured at	liab	ing-related	₩	Total (33,489)			
Interest expenses Loss on foreign currency transactions	through	n profit or	meas amort	sured at ized cost	liab	ing-related	₩				
Interest expenses Loss on foreign currency transactions Loss on foreign currency translation	through	n profit or	meas amort	sured at ized cost (33,489)	liab	ing-related	₩	(33,489)			
Interest expenses Loss on foreign currency transactions Loss on foreign currency translation Loss on settlement of currency forwards	through	n profit or	meas amort	sured at ized cost (33,489) (22,313)	liab	ing-related	₩	(33,489)			
Interest expenses Loss on foreign currency transactions Loss on foreign currency translation Loss on settlement of	through	n profit or oss - - -	meas amort	sured at ized cost (33,489) (22,313)	liab	ing-related	₩	(33,489) (22,313) (10,018)			
Interest expenses Loss on foreign currency transactions Loss on foreign currency translation Loss on settlement of currency forwards Loss on valuation of currency forwards Other comprehensive income (*): Loss on valuation of derivatives designated as	through	n profit or oss - - - (10,018)	meas amort	sured at ized cost (33,489) (22,313)	liab	ing-related bilities - - - -	₩	(33,489) (22,313) (10,018) (10,018) (574)			
Interest expenses Loss on foreign currency transactions Loss on foreign currency translation Loss on settlement of currency forwards Loss on valuation of currency forwards Other comprehensive income (*): Loss on valuation of	through	n profit or oss - - - (10,018)	meas_amort	sured at ized cost (33,489) (22,313)	₩	ing-related		(33,489) (22,313) (10,018) (10,018)			

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

5. Cash and cash equivalents

Details of cash and cash equivalents as of December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019	2018
Cash on hand	₩	325 ₩	504
Short-term deposits		87,815	79,585
	₩	88,140 ₩	80,089

Outstanding balances of restricted deposits included in long-term financial instruments as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	201	19	2018
Restricted deposits	₩	10 ₩	10

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 of December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019						2018				
		in on uation	Loss on valuation		Other comprehensive income (*)		Gain on valuation		Loss on valuation		compr	ther ehensive me (*)
Currency forwards	₩	1,153	₩	1,890	₩	-	₩	1,451	₩	574	₩	-
Currency swaps		2,978		-	(378)			4,670		-		(400)
Interest rate swaps									_		(138)	
	₩ 4,131 ₩ 1,890			₩	(378)	₩	6,121	₩	574	₩	(538)	

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

6.2 Currency forwards

As of December 31, 2019 and 2018, gains and losses on valuation of unsettled currency forward contracts are as follows (Korean won in millions and other currencies in thousands):

			2019			
	Buying		Selling	Contracted	Gain on	Loss on
Position-buy	amount	Position-sell	amount	exchange rate	valuation	valuation
KRW	121,605	USD	104,266	1,162.50 ~ 1,184.50	₩ 1,140	₩ -
KRW	735	CNY	4,395	167.24	9	-
EUR	400	KRW	515	1287.95	4	-
USD	104,843	KRW	122,427	1,152.70 ~ 1,176.00		1,890
					₩ 1,153	₩ 1,890

			2010					
	Buying		Selling	Contracted	Ga	ain on		Loss on
Position-buy	amount	Position-sell	amount	exchange rate	val	uation	\	/aluation
KRW	66,827	USD	59,401	1,109.1 ~ 1,130.5	₩	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)

2010

6.3 Currency swaps

As of December 31, 2019 and 2018, gains and losses on valuation of unsettled currency swap contracts are as follows (Korean won in millions and other currencies in thousands):

				2019				
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 75,000	₩ 85,838	1,144.50	3ML + 2.30%	3.20%	2016.4.1 ~ 2021.4.1	₩ 2,978	₩ (378)
				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	1,144.50	3ML + 2.30%	3.20%	2016.4.1 ~ 2021.4.1	₩ 4,670	₩ (400)

6.4 Interest rate swaps

As of December 31, 2018, gains and losses on valuation of unsettled interest rate swap contracts are as follows (Korean won in millions):

2018											
Contracted party		tractual ncipal	Receivable interest rate	Payment interest rate	Contracted term	compr	Other rehensive loss				
Shinhan Bank	₩	20,000	CD (91 days)	1.21%	2016.6.30 ~ 2019.7.1	₩	(138)				

7. Inventories

Details of inventories as of December 31, 2019 and 2018 are as follows (Korean won in millions):

2019								
Valuation								
Acqui	SILION COST		allowance	Book value				
₩	55,035	₩	(23)	₩	55,012			
	77,369		-		77,369			
₩	132,404	₩	(23)	₩	132,381			
			2018					
			Valuation					
Acquisition cost allowance					Book value			
₩	48,942	₩	-	₩	48,942			
	77,709		-		77,709			
₩	126,651	₩	-	₩	126,651			
	₩ W Acqui	77,369 ₩ 132,404 Acquisition cost ₩ 48,942 77,709	₩ 55,035 ₩ 77,369 ₩ 132,404 ₩ Acquisition cost ₩ 48,942 ₩ 77,709 ₩	Acquisition cost Valuation allowance ₩ 55,035 ₩ (23) 77,369 ₩ (23) ₩ 132,404 ₩ (23) Acquisition cost Valuation allowance ₩ 48,942 ₩ - 77,709 - -	Acquisition cost Valuation allowance ₩ 55,035 ₩ (23) ₩ 77,369 - - ₩ ₩ 132,404 ₩ (23) ₩ 2018 Valuation allowance W - ₩ Acquisition cost ₩ - ₩ 77,709 - - -			

8. Investment assets

Details of investment assets as of December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018
Equity instruments held for long-term				
Financial assets at fair value through profit or loss	₩	4,779	₩	4,779
Financial assets at fair value through OCI		161,124		144,228
Long-term loans receivable		157,862		176,767
	₩	323,765	₩	325,774

8.1 Equity instruments held for long-term

As of December 31, 2019, details of equity instruments held for long-term are as follows (Korean won in millions):

	Number of shares	Equity ownership (%)	Acquisition cost	Book value
Financial assets at fair value through profit or loss Aromatics Oman LLC		1.00	₩ 4,779	₩ 4,779
Alomatics offian LLO	_	1.00	4,779	4,779
Financial assets at fair value through OCI (*1) Korea Ras Laffan LNG Co.,			4,113	4,779
Ltd. (Qatar LNG project)	1,558,666	5.60	2,410	33,853
Vietnam Korea Exchange Ltd.	-	10.00	322	322
LG Int'l (Saudi) LLC (*2)	-	90.00	118	118
Oilhub Korea Yeosu Co., Ltd.	131,000	5.00	7,205	9,707
GS E&R Co., Ltd.	1,654,445	9.52	95,585	96,961
Tianjin LG Bohai Chemical Co., Ltd.	_	10.00	11,737	19,358
Cobalt blue holdings Ltd.	7,093,959	4.70	6,467	805
			123,844	161,124
			₩ 128,623	₩ 165,903

8.1 Equity instruments held for long-term (cont'd)

- (*1) Financial assets measured at fair value through OCI include investments in shares of non-listed companies held as non-controlling interests. As the Company holds these investments for the purpose of business strategy, fair value changes are presented as OCI and the Company irrevocably elected to classify as financial asset at fair value through OCI.
- (*2) The Company's equity interest in the entity has been excluded from investments in subsidiaries and associates as the entity is undergoing liquidation procedures and therefore, has no substantial business operations.

Changes in the net book value of equity instruments held for long-term for the year ended December 31, 2019 and changes in the net book value of available-for-sale financial assets for the year ended December 31, 2018 are as follows (Korean won in millions):

	2019									
- -	Equity ownership (%)	Non-current assets	Current liabilities	Non-current Current liabilities liabilities						
Financial assets at fair value through profit or loss	· · · · · · · · · · · · · · · · · · ·				Net assets					
Aromatics Oman LLC	1.00	₩ 4,779	₩ -	₩ -	₩ 4,779					
		4,779	-	-	4,779					
Financial assets at fair value through OCI Korea Ras Laffan LNG Co., Ltd.										
(Qatar LNG project) Vietnam Korea	5.60	38,255	-	(4,402)	33,853					
Exchange Ltd	10.00	322	-	-	322					
LG Int'l (Saudi) LLC	90.00	118	-	-	118					
Minera Corocobre S.A. (*1)	-	586	(586)	-	-					
Oilhub Korea Yeosu Co., Ltd	5.00	7,848	-	1,859	9,707					
GS E&R Co., Ltd. (*2) Tianjin LG Bohai Chemical	9.52	78,844	21,931	(3,814)	96,961					
Co., Ltd. Cobalt blue holdings Ltd.	10.00	17,109	-	2,249	19,358					
(*3)	4.70	1,146		(341)	805					
		144,228	21,345	(4,449)	161,124					
		₩ 149,007	₩ 21,345	₩ (4,449)	₩ 165,903					

8.1 Equity instruments held for long-term (cont'd)

	2018										
	Equity ownership (%)				Valuation	Dec. 31 (*3)					
Financial assets at fair value through profit or loss LS VINA Industrial System Co., Ltd. (*4)	10.00	₩ -	₩ 223	₩ (223)	₩ -	₩ -					
LG VINA Chemical JV				, ,							
Co., Ltd. (*4) Aromatics Oman LLC	10.00	-	299	(299)	-	- 4 770					
Albinatics Offian LLC	1.00		4,779	(500)		4,779					
Financial assets at			5,301	(522)	-	4,779					
fair value through OCI Korea Ras Laffan LNG Co., Ltd.											
(Qatar LNG project) Vietnam korea	5.60	-	41,747	-	(3,492)	38,255					
Exchange Ltd.	10.00	-	322	-	-	322					
LG Int'l (Saudi) LLC	90.00	-	118	-	-	118					
Minera Corocobre S.A. Oilhub Korea Yeosu	11.18	-	586	-	-	586					
Co., Ltd	5.00	-	6,810	-	1,038	7,846					
GS E&R Co., Ltd. Tianjin LG Bohai	7.50	-	61,602	-	17,242	78,844					
Chemical Co., Ltd. Cobalt blue holdings	10.00	-	16,909	-	200	17,109					
Ltd. (*3)	6.11			6,467	(5,321)	1,146					
			128,094	6,467	9,667	144,228					
		₩ -	₩ 133,395	₩ 5,945	₩ 9,667	₩ 149,007					

- (*1) Minera Corocobre S.A. was liquidated during the year ended December 31, 2019.
- (*2) The Company acquired additional shares of 2.02% in GS E&R Co., Ltd. from GS Holdings Corp. by exercising the right to purchase 351,111 shares for ₩62,463 per share if GS E&R Co., Ltd. cannot undergo an initial public offering of its ordinary shares by February 28, 2019.
- (*3) During the year ended December 31, 2018, the Company acquired 6.11% of ownership interests of Cobalt blue holdings Ltd. During the year ended December 31, 2019, the ownership interests decreased by the allotment to the third party based on the issuance of new shares.
- (*4) During the year ended December 31, 2018, the Company disposed all of its equity ownership of LS VINA Industrial System Co., Ltd., LG VINA Chemical Joint Venture Co., Ltd.
- (*5) 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.

9. Investment in subsidiaries and associates

9.1 Investment in subsidiaries

As of December 31, 2019 and 2018, investments in subsidiaries are as follows.

		Equity ownership (%)					
	Country of domicile	2019	2018	Reporting date	Principal operation		
LG International (America) Inc.	USA	100.00	100.00	Dec. 31	Export and import		
LG International (Japan) Ltd.	Japan	100.00	100.00	Dec. 31	"		
LG International (Hong Kong) Ltd.	Hong Kong	100.00	100.00	Dec. 31	"		
LG International (Singapore) Pte. Ltd.	Singapore	100.00	100.00	Dec. 31	"		
LG International (Deutschland) GmbH	Deutschland	100.00	100.00	Dec. 31	"		
LG International (China) Ltd.	China	100.00	100.00	Dec. 31	"		
Yantai VMI Hub LG International Co., Ltd.	China	100.00	100.00	Dec. 31	Hub		
Guangzhou Steel Flower Electrical & Machinary Co., Ltd.	China	100.00	100.00	Dec. 31	Steel frames		
Bowen Investment (Australia) Pty. Ltd.	Australia	100.00	100.00	Dec. 31	Coal mining		
PT. Batubara Global Energy (BGE)	Indonesia	100.00	100.00	Dec. 31	"		
PT. Ganda Alam Makmur (GAM)	Indonesia	60.00	60.00	Dec. 31	"		
LG International (India) Ltd.	India	100.00	100.00	Dec. 31	Export and import		
PT. Green Global Lestari (GGL)	Indonesia	100.00	100.00	Dec. 31	Palm oil		
PT. Indonesia Renewable Resources (IRR)	Indonesia	100.00	100.00	Dec. 31	Industrial planting		
PT. Binsar Natorang Energi (BNE)	Indonesia	95.00	94.81	Dec. 31	Hydroelectric power		
Steel Flower Electric & Machinary (Tianjin) Co., Ltd.	China	100.00	100.00	Dec. 31	Steel frames		
Philco Resources Ltd. (Rapu-Rapu)	Malaysia	60.00	60.00	Dec. 31	Copper mining		
Resource Investment (Hong Kong) Ltd. (Wantugou)	Hong Kong	100.00	100.00	Dec. 31	Coal mining		
LG International Yakutsk Ltd.	Russia	100.00	100.00	Dec. 31	Real estate		
Korea Carbon International Co., Ltd. (Shaanxi BBM)	Hong Kong	60.00	60.00	Dec. 31	Renewable plant		
Colmineral, S.A. de.C.V.	Mexico	100.00	100.00	Dec. 31	Iron ore		
Fertilizer Resources Investment Ltd.	Hong Kong	100.00	100.00	Dec. 31	Fertilizer		
Dangjin Tank Terminal Co., Ltd.	Korea	100.00	100.00	Dec. 31	Storage		
Haiphong Steel Flower Electrical & Machinery Company Limited	Vietnam	100.00	100.00	Dec. 31	Steel frames		
Highland Cement International Co., Ltd.	Myanmar	51.00	51.00	Mar. 31	Cement		
Pantos Logistics Co., Ltd.	Korea	51.00	51.00	Dec. 31	Logistics		

Details of the investments in subsidiaries as of December 31, 2019 and 2018 are as follows (Korean won in millions):

		2018		
	Acquisition Cost	Net asset value	Net book value	Net book value
LG International (America) Ltd.	₩ 21,156	₩ 34,297	₩ 34,222	₩ 27,217
LG International (Japan) Pte. Ltd.	401	5,219	4,735	7,863
LG International (Hong Kong) Ltd.	17,663	,	6,097	6,179
LG International (Singapore) Pte. Ltd.	3,288	10,246	9,834	12,855
LG International (Deutschland) GmbH	12,314	8,428	8,428	6,498
LG International (China) Ltd.	6,129	7,016	7,016	6,358
Yantai VMI Hub LG International Co., Ltd. Guangzhou Steel Flower Electric &	1,070	3,210	3,210	2,945
Machinary Co., Ltd. (*1)	15,108	18,888	-	18,953
Bowen Investment (Australia) Pty. Ltd.	26,707	27,973	27,973	27,916
PT. Batubara Global Energy (BGE)	11,753	37,484	37,484	42,878
PT. Ganda Alam Makmur (GAM)	241,090	229,878	168,563	238,605
LG International (India) Ltd.	943	1,681	1,681	1,470
PT. Green Global Lestari (GGL)	170,737	153,067	153,085	150,806
PT. Indonesia Renewable Resources (IRR)	98,231	470	470	1,536
PT. Binsar Natorang Energi (BNE)	59,071	80,479	78,030	68,745
Steel Flower Electric & Machinary (Tianjin) Co., Ltd.	7,419	25,546	25,762	21,181
Philco Resources Ltd. (Rapu-Rapu)	4,310	355	-	-
Resource Investment (Hong Kong) Ltd. (Wantugou)	53,176	67,601	67,602	74,848
LG International Yakutsk Ltd.	5,325	(5,677)	-	-
Korea Carbon International Co., Ltd. (Shaanxi BBM)	839	(5,431)	-	-
Colmineral, S.A. de.C.V.	5	4	4	4
Fertilizer Resources Investment Ltd.	97,580	120,465	120,465	105,566
Dangjin Tank Terminal Co., Ltd.	106,220	93,961	94,715	95,429
Haiphong Steel Flower Electrical & Machinery Company				
Limited	7,773	4,376	4,376	4,618
Highland Cement International Co., Ltd.	51,377	(10,257)	400.047	32,986
Pantos Logistics Co., Ltd.	314,721 ₩ 1.334.406	567,324	420,217	388,551
	₩ 1,334,406	₩ 1,482,704	₩ 1,273,969	₩ 1,344,007

^(*1) As of December 31, 2019, the investment in a subsidiary has been reclassified as non-current assets held for sale (Refer to Note 30).

The condensed financial information of major subsidiaries as of December 31, 2019 and 2018 and operation results for the years ended by December 31, 2019 and 2018 are as follows (Korean won in millions):

							2019					
		1	Non-current		Current	١	Non-current			Pro	ofit (loss) for	Dividends paid
	Current asse	ts	assets		liabilities		liabilities		Revenue		the year	by subsidiaries
LG International (America) Inc.	₩ 311,5	96 ₩	2,510	₩	279,425	₩	384	₩	1,265,305	₩	6,055	₩
LG International (Japan) Ltd.	120,8	90	4,732		119,484		919		474,155		802	4,037
LG International (Hong Kong) Ltd.	80,2	33	3,126		77,229		29		178,753		(332)	-
LG International (Singapore) Pte. Ltd.	289,2	33	19,946		280,516		18,467		2,015,920		1,486	-
PT. Batubara Global Energy (BGE)	68,4	21	2,914		33,232		619		319,162		(6,205)	-
PT. Ganda Alam Makmur (GAM)	39,0	90	445,085		108,873		145,424		183,600		(9,537)	-
PT. Green Global Lestari (GGL)	5,3	13	171,914		1,914		22,246		-		(10,265)	-
Resource Investment (Hong Kong)												
Ltd. (Wantugou)	5,0		62,609		8		-		-		(9,312)	-
Fertilizer Resources Investment Ltd.		35	120,381		1		-		-		13,032	-
Dangjin Tank Terminal Co., Ltd.	1,4	18	92,653		98		12		-		(1,134)	-
Pantos Logistics Co., Ltd.	886,0	16	535,757		668,512		185,967		4,199,815		78,006	10,506
					0		2018			_	61 (1) 6	D: :::::::::::::::::::::::::::::::::::
	Current asse		Non-current assets		Current liabilities	ľ	Non-current liabilities		Revenue		ofit (loss) for the year	Dividends paid by subsidiaries
LG International (America) Inc.	₩ 340,4	_		₩		117			813,702		4.544	
LG International (Japan) Ltd.	214,3		4,477	vv	209,566	vv	966	vv	598,376	vv	, -	₩ 10,692 5,042
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	214,3 97,8		2,744		94,337				258.605		1,477 60	5,042
LG International (Hong Kong) Ltd.	,		,		,		-		,			40.000
LG International (Singapore) Pte. Ltd.	349,7		5,922		342,790		-		2,039,240		2,167	10,696
PT. Batubara Global Energy (BGE)	45,6		23,436		27,053		-		303,765		12,916	16,600
PT. Ganda Alam Makmur (GAM) PT. Green Global Lestari (GGL)	52,8		534,707		42,479		234,449		178,214		7,934	-
Resource Investment (Hong Kong)	8,4	33	165,381		1,851		21,206		-		3,429	-
Ltd. (Wantugou)		57	74,790		_		_		_		(173)	_
Fertilizer Resources Investment Ltd.		92	105,474		_		_		_		12.147	_
Dangjin Tank Terminal Co., Ltd.		99	94.609		23		9		_		(1,247)	_
Pantos Logistics Co., Ltd.	839,3		392,008		606,272		120,134		3,967,607		68,340	10,000

Changes in the net book value of investments in subsidiaries by equity method for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019							
	Acquisitio (disposal) a Jan. 1 transfer		Dividends	Equity adjustments in equity method	Share of profit or loss	Others	Dec. 31	
1 O lata an ation at (A annuisa) la a	Jan. 1 ₩ 27 217		₩ -	₩ 930	₩ 6,075			
LG International (America) Inc.						VV -	,	
LG International (Japan) Ltd.	7,863	-	(4,037)	189	720	-	4,735	
LG International (Hong Kong) Ltd.	6,179	-	-	222	(304)	-	6,097	
LG International (Singapore) Pte. Ltd.	12,855	-	-	(4,169)	1,148	-	9,834	
LG International (Deutschland) GmbH	6,498	-	-	82	1,848	-	8,428	
LG International (China) Ltd.	6,358	-	-	107	551	-	7,016	
Yantai VMI Hub LG International Co.,								
Ltd.	2,945	-	-	50	215	-	3,210	
Guangzhou Steel Flower Electric &	40.050				(400)	(40.000)		
Machinary Co., Ltd. (*1)	18,953	-	-	355	(420)	(18,888)	-	
Bowen Investment (Australia) Pty. Ltd.	27,916		(8,146)	765	7,438		27.973	
•	,	-	(0, 140)	1.640	,	-	,	
PT. Batubara Global Energy (BGE)	42,878	-	-	,	(7,034)	(70.770)	37,484	
PT. Ganda Alam Makmur (GAM) (*2)	238,605	-	-	8,475	(7,738)	(70,779)	168,563	
LG International (India) Ltd.	1,470	-	-	18	193	-	1,681	
PT. Green Global Lestari (GGL)	150,806	-	-	11,181	(8,902)	-	153,085	
PT. Indonesia Renewable Resources	4 500			457	(4.000)		470	
(IRR)	1,536	- 0.400	-	157	(1,223)	-	470	
PT. Binsar Natorang Energi (BNE) Steel Flower Electric &	68,745	2,168		(3,757)	10,874	-	78,030	
Machinary (Tianjin) Co., Ltd.	21,181			312	4,269		25,762	
Philco Resources Ltd. (Rapu-Rapu)	21,101	-	-	312	4,209	-	25,702	
Resource Investment (Hong Kong)	-	-	-	-	-	-	-	
Ltd. (Wantugou)	74,848	_	_	2,066	(9,312)	_	67,602	
LG International Yakutsk Ltd.	74,040			412	(387)	(25)	07,002	
Colmineral, S.A. de.C.V.	4	-	-	412	(307)	(23)	4	
Fertilizer Resources Investment Ltd.	105,566	-	-	1,867	13,032	-	120,465	
	,	-	-	1,007	,	-	,	
Dangjin Tank Terminal Co., Ltd.	95,429	420	-	-	(1,134)	-	94,715	
Haiphong Steel Flower Electrical & Machinery Company Limited	4,618			173	(415)		4,376	
Highland Cement International Co.,	4,010	-	-	173	(413)	-	4,370	
Ltd. (*2)	32,986	_	_	2,628	(4,244)	(31,370)	_	
Pantos Logistics Co., Ltd.	388,551	_	(10,506)	3,784	39,648	(1,260)	420,217	
r ando Logicilos Co., Ltd.	₩ 1,344,007	₩ 2,588					₩ 1,273,969	
	. 1,077,007	2,000	(22,009)	21,401	44,000	(122,022)	1,270,000	

	2018							
	Jan. 1	Acquisition (disposal) and transfer	Dividends	Equity adjustments in equity method	Share of profit or loss	Others (*3)	Dec. 31	
1 C lataratica al (A arias) la s								
LG International (America) Inc.	01,00		(.0,00=)		0,220	vv -	,	
LG International (Japan) Ltd.	11,108		(5,042)	749	1,048	-	7,863	
LG International (Hong Kong) Ltd.	5,830		-	258	91	-	6,179	
LG International (Singapore) Pte. Ltd.	20,125		(10,696)	(2,575)	2,068	3,933	12,855	
LG International (Deutschland) GmbH	9,622	-, -	-	31	(6,417)	-	6,498	
LG International (China) Ltd. Yantai VMI Hub LG International Co.,	5,898	-	-	(43)	503	-	6,358	
Ltd. Guangzhou Steel Flower Electric &	2,564	-	-	(22)	403	-	2,945	
Machinary Co., Ltd. Bowen Investment (Australia)	19,068	-	-	(103)	(12)	-	18,953	
Pty. Ltd.	9,024		-	(1,360)	20,252	_	27,916	
PT. Batubara Global Energy (BGE)	43,013	3 -	(16,600)	2,450	14,015	_	42,878	
PT. Ganda Alam Makmur (GAM)	227,185	-	-	7,604	3,816	_	238,605	
LG International (India) Ltd.	1,312		_	(59)	217	_	1,470	
PT. Green Global Lestari (GGL)	74,672		_	(2,611)	3.429	_	150,806	
PT. Indonesia Renewable Resources	,			(=,0)	0, .20		100,000	
(IRR)	1,545	5 -	-	(58)	49	-	1,536	
PT. Binsar Natorang Energi (BNE) Steel Flower Electric &	41,886	15,367	-	4,259	7,233	-	68,745	
Machinary (Tianjin) Co., Ltd.	18,680) -	-	(159)	2,660	-	21,181	
Philco Resources Ltd. (Rapu-Rapu) Resource Investment (Hong Kong)			-	-	-	-	-	
Ltd. (Wantugou)	74,191	-	-	830	(173)	-	74,848	
LG International Yakutsk Ltd.			-	(1,210)	(79)	1,289	-	
Colmineral, S.A. de.C.V.	4	-	-	-	` -	· <u>-</u>	4	
Fertilizer Resources Investment Ltd.	93,767	-	-	(348)	12,147	_	105,566	
Dangjin Tank Terminal Co., Ltd.	94,779	1,900	-	(3)	(1,247)	_	95,429	
Haiphong Steel Flower Electrical &	. ,	,		(-)	(, ,		,	
Machinery Company Limited	4,969	-	-	102	(453)	-	4,618	
Highland Cement International Co.,								
Ltd.	39,248	,	-	(2,983)	(5,465)		32,986	
Pantos Logistics Co., Ltd.	361,005		(5,100)	(1,390)	34,881	(845)	388,551	
	₩ 1,191,179	₩ 98,031	₩ (48,130)	₩ 4,358	₩ 94,192	₩ 4,377	₩ 1,344,007	

^(*1) As of December 31, 2019, the investment in a subsidiary has been reclassified as non-current assets held for sale (Refer to Note 30).

^(*2) Others include the effects of reduction due to recognition of impairment loss on the assets (Refer to Note 22).

^(*3) Others include the adoption effect of KIFRS 1109.

9.2 Investment in associates

As of December 31, 2019 and 2018, investments in associates are as follows.

		Equity owners	ship (%)		Principal business	
	Domicile	2019	2018	Reporting date	activity	
Global Dynasty Natural Resources					Overseas resources	
Private Equity Fund (*1)	Korea	7.46	7.46	12.31	development	
Heungkuk highclass Private						
Special Asset PEF E1	Korea	50.00	50.00	12.31	"	
POSCO-IPPC (India Pune					Processing and	
Processing Center)	India	35.00	35.00	12.31	selling steel	
POSCO-PWPC (Poland Wroclaw	5	40.00		40.04		
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	
					Mining and selling	
Sal de Vida Korea Corp.	Korea	33.33	33.33	12.31	lithium	
					Mining and selling	
United Copper & Moly LLC (Rosemont) (*2)	USA	-	50.00	12.31	cooper	
Oman International Petrochemical	_				Manufacturing and	
Industry Company LLC	Oman	30.00	30.00		selling PTA, PET	
Musandam Power Company SAOC (*1,3)	Oman	18.00	30.00	12.31	Thermal power plant	
					Generating	
Gansu Wuwei Cogeneration Power Plant	China	30.00	30.00	12.31	Cogeneration	

- (*1) The entities were classified as associates even though the Company holds less than 20% equity ownership. As the Company has rights to elect the directors of the entities and its executives participate in their management as directors, the Company considered that it has significant influence over these entities.
- (*2) For the year ended December 31, 2019, it has been excluded from investments in associates due to liquidation.
- (*3) For the year ended December 31, 2019, the Company disposed 12% of the equity shares in the investee.

Details of the investments in associates as of December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018
	Acquisition cost	Net asset value	Net book value	Net book value
Global Dynasty Natural Resources Private Equity Fund (*1)	₩ 2,242	₩ (1,808)	₩ -	₩ -
Heungkuk Highclass Private Special Asset PEF E1	4,566	(8,959)	-	-
POSCO-IPPC (India Pune Processing Center)	9,184	25,327	8,864	9,637
POSCO-PWPC (Poland Wroclaw Processing Center)	5,244	15,222	6,113	6,355
LG Holdings (HK) Ltd.	37,983	178,639	44,660	55,168
Kernhem B.V.	2,005	(69,410)	-	-
ADA Oil LLP	22,011	(71,894)	-	3,302
GS HP Sunflower Village Int'l Corp.	2,911	14,500	4,350	3,561
Sal de Vida Korea Corp.	6,300	160	30	2,418
United Copper & Moly LLC (Rosemont)	39,627	-	-	37,406
Oman International Petrochemical Industry Company LLC	19,766	64,587	-	-
Musandam Power Company SAOC	6,535	25,315	4,939	8,850
Gansu Wuwei Cogeneration Power Plant	55,932	185,804	56,190	53,049
	₩ 214,306	₩ 357,483	₩ 125,146	₩ 179,746

9.2 Investment in associates (cont'd)

The condensed financial information of major associates as of December 31, 2019 and 2018 is as follows (Korean won in millions):

								2019					
	Curre	ent assets	N	on-current assets		Current liabilities	١	lon-current liabilities		Sales		it (loss) for he year	Dividends paid by associates
LG Holdings (HK) Ltd.	₩	23,199	₩	155,440	₩	-	₩	-	₩	-	₩	12,307	₩ -
Kernhem B.V.		785		66,672		-		136,867		-		445	-
ADA Oil LLP		10,098		72,127		1,301		152,818		43,116		3,866	-
			N	on-current		Current		2018 Non-current			Prof	it (loss) for	Dividends paid
	Curre	ent assets	11	assets		liabilities		liabilities		Sales		he year	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 United Copper & Moly LLC		9,698		65,572		1,249		146,699		46,444		(1,228)	-
(Rosement)		-		74,814		-		2		-		(11)	-

Changes in the net book value of investments in associates for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

								2019						
		Jan.1		quisition sposal)		Dividends	a	Change in equity djustment in putty method		Share of of of or loss		pairment d others		Dec. 31
POSCO-IPPC (India Pune														
Processing Center)	₩	9,637	₩	-	₩	-	₩	163	₩	(936)	₩	-	₩	8,864
POSCO-PWPC (Poland		0.055						450		(404)				0.110
Wroclaw Processing Center) LG Holdings (HK) Ltd.		6,355		-		-		159		(401)		-		6,113
(LG Building Ltd.)		55,168		(14,893)		_		1,309		3,076				44,660
Kernhem B.V. (*1)		55, 100		14,247		_		(807)		121		(13,561)		44,000
ADA Oil LLP (*1)		3,302		7,232		_		(385)		(342)		(9,807)		_
GS HP Sunflower Village		0,002		7,202				(000)		(0.12)		(0,001)		
Int'l Corp.		3,561		_		(197)		125		861		_		4,350
Sal de Vida Korea Corp.		2,418		_		-		_		_		(2,388)		30
United Copper & Moly												, , ,		
LLC (Rosemont)		37,406		(39,909)		-		216		12		2,275		-
Musandam Power														
Company SAOC		8,850		(7,050)		(3,139)		303		2,746		3,229		4,939
Gansu Wuwei Cogeneration														
Power Plant		53,049		-		(777)		923		2,995				56,190
	₩	179,746	₩	(40,373)	₩	(4,113)	₩	2,006	₩	8,132	₩	(20,252)	₩	125,146

9.2 Investment in associates (cont'd)

				2018			
	Jan.1	Acquisition (disposal)	Dividends	Change in equity adjustment in equity method	Share of profit or loss	Impairment and others	Dec. 31
Global Dynasty Natural Resources Private Equity Fund	₩ 149	5 ₩ -	₩ -	₩ -	₩ (1,495)	***	₩ -
Heungkuk Highclass Private	w 1,49	5 W -	vv –	vv -	w (1,495)	VV -	vv –
Special Asset PEF E1	2,62	4 -	_	_	(2,624)	_	_
POSCO-IPPC (India Pune	2,02	•			(2,021)		
Processing Center)	8,16	6 -	_	(370)	1,841	-	9,637
POSCO-PWPC (Poland	-, -			(/	,-		-,
Wroclaw Processing Center)	6,36	7 -	-	(186)	174	-	6,355
LG Holdings (HK) Ltd.				, ,			
(LG Building Ltd.)	50,60	7 -	-	(84)	4,645	-	55,168
Kernhem B.V.			-	1,091	(1,091)	(900)	-
ADA Oil LLP	3,32	4 -	-	1,090	(1,112)	-	3,302
GS HP Sunflower Village							
Int'l Corp.	2,75		(262)	111	956	-	3,561
Sal de Vida Korea Corp.	2,41	8 -	-	-	-	-	2,418
United Copper & Moly							
LLC (Rosemont)	35,84		-	1,562	(5)	-	37,406
Dongbu Thai Steel Co., Ltd. (*2)	1,56	, ,	-	212	(262)	-	-
GeoPark Chile S.A. (*2)	2,01	1 1,508	-	(831)	(2,688)	-	-
GeoPark TDF (*2)			-	-	-	-	-
GeoPark Colombia	0.4.00	(50.400)	(0 = 4=)		o= -oo		
Cooperate U.A. (*2)	31,22	, ,	(8,717)	389	27,596	-	-
Elvatec Co., Ltd. (*3) Oman International	20	7 (225)	-	26	(8)	-	-
Petrochemical Industry							
Company LLC	15,14	2 2,794		714	(458)	(18,192)	
Musandam Power	15, 14	2 2,194	-	7 14	(436)	(10,192)	-
Company SAOC	7.33	7 -		339	1,174	_	8,850
Gansu Wuwei Cogeneration	7,33	-	-	339	1,174	-	0,000
Power Plant	53,67	7 -	_	(282)	(346)	_	53,049
	₩ 224,75	_	₩ (8,979)			₩ (19,092)	
		, ,,					

^(*1) Refer to Note 22.

^(*2) For the year ended December 31, 2018, the Company disposed its equity ownership of Dongbu Thai Steel Co., Ltd, GeoPark Chile S.A., GeoPark TdF S.A. and GeoPark Colombia Cooperate U.A.

^(*3) For the year ended December 31, 2018, it has been excluded from investments in associates due to liquidation.

10. Property, plant and equipment and investment properties

10.1 Property, plant and equipment

Details of property, plant and equipment as of December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019							
	Acquisition cost			Accumulated depreciation	Accumulated impairment loss			Net book value	
Land	₩	12	₩	-	₩	-	₩	12	
Buildings		560		(97)		=		463	
Structures		1,275		(757)		-		518	
Machinery and equipment		19,899		(10,472)		(9,349)		78	
Vehicles		11,403		(3,166)		-		8,237	
Others		14,598		(13,115)		-		1,483	
Construction-in-progress		55		-		-		55	
Right-of-use assets		10,938		(2,896)				8,042	
	₩	58,740	₩	(30,503)	₩	(9,349)	₩	18,888	

	Acquisition cost			Accumulated depreciation	Accumula impairmen		Net book value	
Land	₩	4,406	₩	-	₩	-	₩	4,406
Buildings		21,814		(9,397)		-		12,417
Structures		1,425		(812)		-		613
Machinery and equipment		19,855		(10,452)		(9,349)		54
Vehicles		11,450		(2,264)		-		9,186
Others		11,497		(10,574)		-		923
Construction-in-progress		107						107
	₩	70,554	₩	(33,499)	₩	(9,349)	₩	27,706

Changes in the net book value of property, plant and equipment for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

					2019			
			Effect of adoption of					
			new					
			accounting					
		Jan. 1	standards	Additions	Transfer (*1)	Disposals	Depreciation	Dec. 31
Land	₩	4,406	₩ -	₩ -	₩ (4,394)	₩ -	₩ -	₩ 12
Buildings		12,417	-	-	(11,895)	-	(59)	463
Structures		613	-	-	-	(40)	(55)	518
Machinery and								
equipment		54	-	43	-	-	(19)	78
Vehicles		9,186	-	-	-	-	(949)	8,237
Others		923	-	3,453	-	(169)	(2,724)	1,483
Construction-in-								
progress		107	-	2,065	(2,117)	-	-	55
Right-of-use								
assets (*2)		-	5,311	5,725	-	(65)	(2,929)	8,042
	₩	27,706	₩ 5,311	₩ 11,286	₩ (18,406)	₩ (274)	₩ (6,735)	W 18,888

10.1 Property, plant and equipment (cont'd)

	2018							
	Jan.1	Additions	Transfer	Disposals	Depreciation	Dec. 31		
Land	₩ 4,406	₩ -	₩ -	₩ -	₩ -	₩ 4,406		
Buildings	12,895	-	66	-	(544)	12,417		
Structures	671	-	-	-	(58)	613		
Machinery and								
equipment	42	25	-	-	(13)	54		
Vehicles	10,200	-	-	(47)	(967)	9,186		
Others	1,109	104	-	-	(290)	923		
Construction-in-								
progress	466	1,745	(2,104)			107		
	₩ 29,789	₩ 1,874	₩ (2,038)	₩ (47)	₩ (1,872)	₩ 27,706		

(*1) For the year ended December 31, 2019, ₩16,381 million was transferred to the investment properties.

(*2) Refer to Note 29

10.2 Investment properties

Details of investment properties as of December 31, 2018 was as follows (Korean won in millions):

	<u></u>			2018		
				Accumulated		
		Acquisition cost		depreciation		Net book value
Land	₩	6,672	₩	-	₩	6,672
Buildings		32,270		(14,142)		18,128
	₩	38,942	₩	(14,142)	₩	24,800

Changes in the net book value of investment properties for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019	2018
Jan. 1	₩ 24,800	₩ 25,506
Transfer	16,381	100
Disposals / Held for sale reclassified	(40,890)	-
Depreciation	(291)	(806)
Dec. 31	₩ -	₩ 24,800

Details of insurance for properties are as follows (Korean won in millions):

				Insured amount						
	Insured assets	Insurance institution	20	019		2018				
Droporty incurance	Plant & equipment,	KB insurance Co. Ltd.		_						
Property insurance	etc.	and others	₩	64,080	₩	160,761				

11. Intangible assets

Details of intangible assets as of December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018
License	₩	17,340	₩	16,479
Overseas resources development		-		-
Others		1,520		1,821
	₩	18,860	₩	18,300

11. Intangible assets (cont'd)

Changes in the net book value of intangible assets for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

							2	019					
	_	Jan. 1		Addit	ions	Dis	posals		Transfer	/	Amortization		Dec. 31
License	₩	₹ 1	6,479	₩	-	₩	(748) ₩	1,609	₩	-	₩	17,340
Others			1,821		64				417		(782)		1,520
	₩	₹ 1	8,300	₩	64	₩	(748) ₩	2,026	₩	(782)	₩	18,860
	J	an. 1	Ac	ditions	Dispo	osals	20 Trans	-	Amortizatio	on_	Impairment (*)		Dec. 31
License Overseas resources	₩	16,031	₩	-	₩	(610)	W	1,058	₩	-	₩ -	₩	16,479
development		36,976		-		-		-	(7,9	,	(29,066)	-
Others		1,644		451				879		53)	-		1,821
	₩	54,651	₩	451	₩	(610)	₩	1,937	₩ (9,0	63)	₩ (29,066) ₩	18,300

^(*) Refer to Note 22

12. Trade and other receivables

Details of trade and other receivables as of December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018					
		Allowance for doubtful		Allowance for doubtful					
	Total amount	accounts	Net value	Total amount	accounts	Net value			
Current:									
Trade receivables	₩ 301,990	₩ (40,798)	₩ 261,192	₩ 343,065	₩ (40,609)	₩ 302,456			
Short-term loans Other	13,460	-	13,460	2,663	-	2,663			
receivables (*1)	61,016	(10,008)	51,008	93,353	(10,207)	83,146			
Accrued income	39,777	(10,396)	29,381	34,989	(10,062)	24,927			
Short-term deposits	2,792		2,792	424		424			
	419,035	(61,202)	357,833	474,494	(60,878)	413,616			
Non-current:									
Long-term loans Long-term other	251,023	(93,161)	157,862	246,867	(70,100)	176,767			
receivables (*2) Long-term bank	13,407	(173)	13,424	4,570	(45)	4,525			
deposits	10	-	10	10	-	10			
Long-term deposits	4,871	(4,290)	581	4,910	(1,492)	3,418			
	269,311	(97,624)	171,687	256,357	(71,637)	184,720			
	₩ 688,346	₩ (158,826)	₩ 529,520	₩ 730,851	₩ (132,515)	₩ 598,336			

^(*1) As of December 31, 2019, other receivables related to derivatives of ₩1,153 million were excluded.

^(*2) As of December 31, 2019, the present value discount of long-term receivables is 3,960 million.

12. Trade and other receivables (cont'd)

Changes in the net book value of allowance for doubtful accounts for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

		20	19		2018				
		Гrade eivables	Other	receivables		Trade eivables	rec	Other eivables	
Jan. 1	₩	40,609	₩	91,906	₩	44,111	₩	88,651	
Bad debt expenses		501		4,814		138		2,865	
Others (*3)		(312)		21,308		(3,640)		390	
Dec. 31	₩	40,978	₩	118,028	₩	40,609	₩	91,906	

^(*3) Impairment loss in relation to Kernhem B.V. and ADA Oil LLP., which amounts are \$21,479 million, is included.

Aging analyses of trade receivables as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	Le	ess than		3 to 6		6 to 12		1 to 3	Mo	ore than		
	3	months		months		months		years	3	years		Total
Dec. 31, 2019	₩	240,977	₩	983	₩	34	₩	5,579	₩	54,417	₩	301,990
Dec. 31, 2018		277,396		4,004		1,261		7,657		52,747		343,065

As of the December 31, 2019 and 2018, details of trade accounts receivable that were transferred or factored but not derecognized because they unsatisfied the derecognition criteria are as follows (Korean won in millions):

	2019	2018		Description	
Trade accounts receivable	₩	- W	82	Recourse	

13. Borrowings and bonds

13.1 Short-term borrowings

Details of short-term borrowings as of December 31, 2019 and 2018 are as follows (Korean won in millions):

		Annual interest rate as of Dec. 31,				
Financial institution	Description	2019		2019		2018
Citi Bank and others	General borrowings	2.25% ~ 2.49%	₩	73,156	₩	-
KEB Hana Bank Woori Bank and others	Banker's usance Commercial paper	1.88% ~ 2.00%		528		384
	discount (*1)	-		-		82
			₩	73,684	₩	466

^(*1) The Company has contracts of commercial paper discount with Woori, Shinhan, KEB Hana and KDB bank. Amounts that have not reached maturity after discounts and do not meet the requirements of financial asset derecognition are accounted as short-term borrowings.

The Company has signed individual and comprehensive loan agreements (credit limit of $\mathbb{W}18,000$ million) with Shinhan Bank and two other banks in relation to bank overdraft facilities as of December 31, 2019. In relation to the bank overdraft facilities above, long-term financial instruments are provided as collateral.

13.2 Long-term borrowings

Details of long-term borrowings as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	Financial institution	Annual interest rate as of Dec. 31, 2018		2019		2018
Local currency	Korea Energy Agency	Special energy fund rate - 2.25%	₩	4,623	₩	8,432
	Forestry Cooperative in Korea	1.50%		10,612		12,105
	Woori International the 1 st Co., Ltd. The Export-Import Bank of Korea	2.89% ~ 2.91% Export-Import Financial Debentures 3 month +		130,000		130,000
		(1.30% ~ 1.36%)		120,280		133,360
	KL International the 1st Co., Ltd.	-		-		30,000
	China Construction Bank Corporation	-				20,000
				265,515		333,987
		Less: current portion		(16,282)		(65,740)
			₩	249,233	₩	268,157
Foreign currency	Korea Energy Agency The Export-import Bank of Korea	Special energy fund rate - 2.25% 6ML + (2.32% ~ 2.49%),	₩	39,185	₩	39,041
		3ML + 2.3%		144,725		203,494
	Nonghyup Bank	3ML + 2.3%		13,025		16,772
	NH Investment & Securities (H.K.)	3ML + 2.3%		4,342		5,591
				201,277		264,898
		Less: current portion		(117,869)		(70,210)
				83,408		194,688
			₩	332,641	₩	462,845

13.3 Bonds

Details of bonds as of December 31, 2019 and 2018 are as follows (Korean won in millions):

		,	Annual	•		,
Series	Issue date	Maturity date	interest rate	2019	2018	Warranty
115th	Mar. 03, 2015	Mar. 03, 2022	2.74%	50,00	50,	000 Non-warranty
116-2nd	May. 28, 2015	May. 28,	2.43%	70,00	0 70,	000
		2020				ű
116-3rd	May. 28, 2015	May. 28,	2.86%	90,00	0 90,	
		2022				"
117-1st	Sep. 05. 2016	Sep. 05. 2019	1.74%		- 90,	000 "
117-2nd	Sep. 05. 2016	Sep. 05. 2021	2.02%	30,00	0 30,	000 "
118-1st	Jan. 23. 2018	Jan. 22. 2021	2.57%	70,00	0 70,	000 "
118-2nd	Jan. 23. 2018	Jan. 20. 2023	2.95%	30,00	0 30,	000 "
Less: discount	on bonds			(399	9)	730)
Less: current p	ortion of bonds			(70,000	0) (90,0	000)
Less: current p	ortion of			•	,	•
discount	on bonds			10	6	75
				₩ 269,61	7 ₩ 339,	345

The Company issued the 115th, 116-2nd, 116-3rd, 117-1st, 117-2nd, 118-1st and 118-2nd unsecured bonds at discounts with the condition of full redemption on maturity date, and those interests are payable every 3 months. Bond discounts were amortized using the effective interest rate method during redemption period and recognized as finance costs.

14. Provisions

Details of provisions as at December 31, 2019 and 2018 are as follows (Korean won in millions):

_						2019				
		Jan. 1	R	ecognition		Used		Others		Dec. 31
Onerous contracts (*1)	₩	38,099	₩	2,994	₩	(3,076)	₩	1,337	₩	39,354
Provisions for litigation Financial guarantee		-		516		-		(11)		505
liabilities		-		5,767		-		-		5,767
	₩	38,099	₩	48,644	₩	(3,076)	₩	1,326	₩	45,626

(*1) Refer to note 22

					2	018				
		Jan. 1	Re	cognition		Jsed		Others		Dec. 31
Onerous contracts	₩	_	₩	38,099	₩	_	₩	-	₩	38,099
	₩	-	₩	38,099	₩	-	₩	-	₩	38,099

15. Issued capital and others

15.1 Issued capital

Details of issued capital as of December 31, 2019 and 2018 are as follows (Korean won in millions, except per share amounts):

		2019		2018
Number of ordinary shares issued		38,760,000		38,760,000
Par value per share	₩	5,000	₩	5,000
	₩	193,800	₩	193,800

15.2 Share premium

Details of share premium as of December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018
Paid-in capital in excess of par value	₩	47,106	₩	47,106
Asset revaluation surplus (*)		37,286		37,286
Other capital surplus		17,732		17,732
	₩	102,124	₩	102,124

(*) The Company 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.

15.3 Other components of equity

Details of other components of equity as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019	9	2018	
Treasury stock	₩	(968)	₩	(968)

15.4 Accumulated other comprehensive income or loss

Details of accumulated other comprehensive income or loss as of December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018
Gain on valuation of FVOCI	₩	28,232	₩	31,605
Gain on valuation of derivatives designated as cash flow hedges		200		539
Positive adjustments of equity in equity method		28,400		20,670
Negative adjustments of equity in equity method		(71,180)		(90,952)
Exchange differences on translation of foreign operations		(1,918)		(5,429)
Equity directly associated with the		(, ,		,
non-current assets held for sale		(1,472)		-
	₩	(17,738)	₩	(43,567)

15.5 Retained earnings

Details of retained earnings as of December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019	2018	
Legal reserve	₩	36,106	₩	35,140
Business rationalization reserve		1,511		1,511
Improvement of financial structure reserve Voluntary reserves and retained earnings		13,693		13,693
before appropriations		879,425		832,919
	₩	930,735	₩	883,263

15.6 Earnings per share

The Company's per share amounts for the years ended December 31, 2019 and 2018 are computed as follows (Korean won):

		2019		2018
Profit (loss) for the year	₩	58,886,114,331	₩	(69,928,838,787)
Weighted-average number of ordinary shares				
outstanding (*1)		38,659,249		38,659,249
Basic earnings profit (loss) per share	₩	1,523	₩	(1,809)

(*1) The Company's weighted-average number of ordinary shares for the years ended December 31, 2019 and 2018 are computed as follows:

	2019	2018
Number of common share issued	38,760,000	38,760,000
Weighted-average number of treasury shares (*2)	100,751	100,751
Weighted-average number of ordinary shares outstanding	38,659,249	38,659,249

(*2) For the years ended December 31, 2019 and 2018, there are no changes in the treasury shares.

15.7 Statements of appropriation of retained earnings

The statements of appropriation of retained earnings for the years ended December 31, 2019 and 2018 are as follows (Korean won):

		2019		2018
Retained earnings (accumulated deficit) before appropriations (disposition):				
Unappropriated retained earnings carried forward from the prior year	₩	-	₩	-
Effect of adoption of new accounting standards Re-measurement loss on		-		3,776,533,560
defined benefit plans Change in retained earnings in equity		(488,755,209)		(4,012,718,982)
method		(1,260,157,469)		(757,569,712)
Profit (loss) for the year		58,886,114,331		(69,928,838,787)
		57,137,201,653		(70,922,593,921)
Reversal of voluntary reserves:				
Voluntary reserves		-		81,553,887,396
		-		81,553,887,396
Appropriation:				
Legal reserve		(1,159,777,470)		(966,481,225)
Cash dividends (Note 15)		(11,597,774,700)		(9,664,812,250)
Voluntary reserve		(44,379,649,483)		-
		(57,137,201,653)		(10,631,293,475)
Unappropriated retained earnings to be carried forward to the next year	₩	<u>-</u>	₩	

The statement of retained earnings (accumulated deficit) before appropriations (disposition) for the year ended December 31, 2019 is scheduled to be approved at the annual stockholder's meeting to be held on March 26, 2020. The statement of retained earnings (accumulated deficit) before appropriations (disposition) for the year ended December 31, 2018 was approved at the annual stockholder's meeting on March 15, 2019.

16. Dividends

For the years ended December 31, 2019 and 2018, dividends paid are as follows (Korean won in millions, except per share amounts):

	2	019	2018		
Dividend per share	₩	250 ₩	250		
Dividends paid		9,665	9,665		

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

		2019	2018		
Dividend per share	₩	300 ₩	250		
Dividends		11,598	9,665		

17. Sales

Revenue from contracts with customers for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019			2018			
	Re	Resources Infra-business		Re	sources	Infra-business		
Revenue recognized at point of time								
Sales of goods	₩	824,413	₩	2,237,286	₩	701,114	₩	2,153,036
Sales of services		3,672		12,182		1,636		17,473
		828,085		2,249,468		702,750		2,170,509
Revenue recognized over period								
Sales of services		564		2,347		1,788		29,240
	₩	828,649	₩	2,251,815	₩	704,538	₩	2,199,749

Details of contract liabilities (advance payments) arising from contracts with customers as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	Jan. 1			Increase		Decrease		Dec. 31
Resource	₩	61	₩	24,441	₩	(24,441)	₩	61
Infra-business		835		19,213		(18,348)		1,700
	₩	896	₩	43,654	₩	(42,789)	₩	1,761

18. Selling and administrative expenses

Details of selling and administrative expenses for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018
Salaries	₩	36,176	₩	38,300
Retirement benefits		4,930		6,819
Employee welfare benefits		7,621		7,988
Travel		3,783		3,076
Rents		4,341		1,724
Depreciation		5,707		2,679
Insurance		1,289		1,106
Freight		37,804		38,618
Service		24,605		28,164
Loading and unloading		1,728		450
Amortization		782		1,153
Bad debt expenses		501		138
Sales commissions		1,648		1,294
Expenses for overseas branch office		7,311		9,515
Others		7,618		4,996
	₩	145,844	₩	146,020

19. Expenses classified by nature

Expenses classified by nature for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018
Cost of merchandise sales	₩	2,944,762	₩	2,742,323
Employee benefits (salaries, retirement benefits) Distribution costs (custody charges, packaging		41,106		45,119
costs, transportation expenses)		38,755		39,304
Depreciation and amortization		7,809		11,742
Others		59,493		86,831
	₩	3,091,925	₩	2,925,319

20. Pension benefits

The Company operates both defined contribution and defined benefit pension plans.

Details of employee benefit liabilities as of December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018
Present value of defined benefit obligation	₩	41,568	₩	41,213
Fair value of plan assets		(32,857)		(32,574)
	₩	8,801	₩	8,639

20. Pension benefits (cont'd)

Expenses recognized in respect of the defined benefit plans for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018
Current service costs	₩	4,752	₩	4,398
Net interest costs		206		71
Management costs of plan assets		99		76
	₩	5,057	₩	4,545

Changes in the present value of defined benefit obligation for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019	2	2018
As of January 1	₩	41,213	₩	33,008
Current service costs		4,752		4,398
Interest costs		940		880
Benefits paid		(5,892)		(2,132)
Transfer in (out)		(56)		68
Re-measurement loss (gain) on				
defined benefit plans		701		4,991
As of December 31	₩	41,658	₩	41,213

Changes in the fair value of plan assets for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019	2018
As of January 1	₩	32,574 ₩	30,491
Return on plan assets		734	809
Contribution payable		5,661	3,779
Benefits paid		(5,892)	(2,138)
Transfer out		-	(54)
Re-measurement loss on			
defined benefit plans		(121)	(237)
Management costs of plan assets		(99)	(76)
As of December 31	₩	32,857 ₩	32,574

The main operational items of plan assets as a percentage of the total fair value of plan assets as of December 31, 2019 and 2018 are as follows:

	2019	2018
Debt securities	95.40%	100.00%
Deposits	4.59%	0.00%
	100.00%	100.00%

The principal assumptions used in actuarial calculation as of December 31, 2019 and 2018 are as follows:

	2019	2018
Salary increase rate	5.99%	6.29%
Discount rate	1.99%	2.39%

20. Pension benefits (cont'd)

Sensitivity analyses on the principal assumptions used in actuarial calculation as of December 31, 2019 are as follows (Korean won in millions):

	Defined benefit obligation			
		Dec. 31	Increase by 1%	Decrease by 1%
Salary increase rate	₩	41,658	₩ 44,569	₩ 39,206
Discount rate		41,658	38,931	44,757

Expenses by operating a defined contribution plan for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019	2018	
Retirement benefits	₩	117 ₩	10)4

21. Finance income and costs

21.1 Finance income

Details of finance income for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018
Interest income	₩	11,787	₩	13,350
Gain on foreign currency transactions		81,178		51,786
Gain on foreign currency translation		9,857		9,146
Gain on settlement of currency forwards		12,739		10,007
Gain on valuation of currency forwards		1,153		1,451
Gain on settlement of currency swaps		1,493		-
Gain on valuation of currency swaps		2,978		4,670
Dividend income		5,970		6,607
Commission revenue from guarantees		979		1,643
	₩	128,134	₩	98,660

21.2 Finance costs

Details of finance costs for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018
Interest expenses	₩	29,752	₩	33,489
Loss on foreign currency transactions		82,746		54,547
Loss on foreign currency translation		13,618		14,773
Loss on settlement of currency forwards		14,355		10,018
Loss on valuation of currency forwards		1,890		574
Loss on disposal of receivables		2,292		3,205
	₩	144,653	₩	116,606

21.3 Share of profit (loss) of subsidiaries and associates, and related gain and loss

Share of profit (loss) of subsidiaries and associates, and related gain and loss for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

Share of profit of subsidiaries and associates
Share of loss of subsidiaries and associates
Gain on disposal of investment in subsidiaries and associates
Loss on disposal of investment in subsidiaries and associates
Impairment loss on investment in subsidiaries and associates (*)

	2019	2018
₩	95,821	₩ 144,423
	(42,791)	(23,934)
	5,504	86,759
	-	(40)
	(131,285)	(18,192)
₩	(72,751)	₩ 189,016

(*) Refer to note 22

21.4 Other non-operating income and expenses

Other non-operating income and expenses for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

Gain on disposal of Investment Properties
Other bad debt expenses
Impairment loss on intangible assets (*1)
Loss on disposal of other investments assets (*2)
Others

	2019	2018
₩	92,657	₩ -
	(4,814)	(2,866)
	-	(29,066)
	-	(35,825)
	(1,333)	(3,932)
₩	86,510	₩ (71,689)

(*1) Refer to note 22

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

22. Impairment loss on assets

Details of impairment loss recognized for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

2019

	Investment in subsidiaries (*1) Infra-business Decline in business performances		Investment in subsidiaries Resources Decline in business performances		Investment in associates Resources Decline in business performances	
Segment						
Cause of impairment						
Impairment loss	₩	37,138	₩	70,779	₩	23,368
Measuring of recoverable amount Basis of estimates Discount rate	Fair value less costs to sell Zero-Growth / DCF 14.55%		Fair value less costs to sell Zero-Growth / DCF 9.03%		Value in use Zero-Growth / DCF 10.66%	

22. Impairment (cont'd)

	2018					
	Investment in associates Infra-business		Intangible assets (*2) Resource			
Segment						
Cause of impairment	Decline in business performances		Decline in	n business performances		
Impairment loss	₩	18,192	₩	29,066		
Measuring of recoverable amount		Value in use		Value in use		
Basis of estimates		<u> </u>		<u> </u>		
Discount rate				<u> </u>		

- (*1) In order to fulfill the payment guarantee provided to the subsidiary, the Company has recognized a present obligation as provisions amounting to ₩5,768 million (Refer to Note 14).
- (*2) The company has recognized a provision amounting to ₩39,353 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 (Refer to Note 14).

23. Income tax

The major components of income tax expenses for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019		2018	
Current income tax (*1)	₩	(56,963)	₩	76,166
Changes in deferred tax (*2)		(12,946)		77,526
Deferred tax related to items recognized in other comprehensive income (loss)		(3,199)		(5,414)
Income tax expenses (benefit) reported in the statement of profit or loss	₩	(73,108)	₩	148,278

- (*1) The 2018 amounts include the imposed tax amount of \$71,129 million resulting from the periodic tax investigation for the years from 2012 to 2016 and the related local income tax amount. The 2019 amounts include refund of \$47,547 million and related local income taxes by the resolution of Tax Tribunal.
- (*2) The 2018 changes include decrease in deferred tax assets (\$55,187 million) related to the un-deducted and carried over foreign tax paid.

23. Income tax (cont'd)

Reconciliations between income tax expenses at the effective income tax rate and profit before tax at the Korea statutory tax rate for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019	2018	
Profit (loss) before income tax	₩	(14,222) W	78,349	
Statutory income tax (23.6% in 2018)		-	18,530	
Adjustments:				
Effect of unrecognized deferred tax for				
temporary differences		(10,196)	54,846	
Current year adjustment related to the				
income tax on previous years		(58,443)	74,475	
Effect of non-deductible expenses				
for tax purposes		1,067	1,339	
Tax credit		(8,085)	(6,825)	
Foreign income tax directly charged		1,216	5,234	
Others		1,333	679	
Income tax expenses (benefit)	₩	(73,108) ₩	148,278	
Effective tax rate (income tax expenses/				
profit before income tax)		-	189.25%	

The major components of deferred income tax charged directly to equity for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018
Gain on valuation of FVOCI	₩	1,077	₩	(3,480)
Positive adjustments of equity in equity method		(3,440)		313
Negative adjustments of equity in equity method Exchange differences on translation of foreign		(22)		(3,522)
operations		(1,121)		(39)
Gain on cash flow hedge		108		130
Re-measurement gain on defined benefit plans		199		1,184
	₩	(3,199)	₩	(5,414)

23. Income tax (cont'd)

Temporary differences and deferred taxes for the years ended December 31, 2019 and 2018 consist of the following (Korean won in millions):

	Accumulated temporary differences		erences	Deferred tax assets (liabilities)			
	Jan. 1, 2019	Net changes	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019		
Deferred income tax due to temporary differences Impairment of							
available-for-sale	₩ 34.383	W 407.005	₩ 161.588	W 7.440	W 27,000		
financial assets Stock dividend	₩ 34,383 12,999	₩ 127,205	₩ 161,588 12,999	₩ 7,110 3,146	₩ 37,893 3,146		
Allowance for doubtful	,			·			
accounts Bad debt expenses	123,775 3,492	26,754	150,529 3,492	28,737 845	35,136 845		
Accrued income	(4)	1	(3)	(1)	(1)		
Interest income	2,704	171	2,875	654	696		
Allowance for	_,, • .		_,0.0	• • • • • • • • • • • • • • • • • • • •			
inventories	-	23	23	-	6		
Gain on commodity	(710)	440	(264)	(470)	(64)		
futures Reserve fund of	(712)	448	(264)	(172)	(64)		
compressed register							
(land)	(8,601)	8,601	-	(2,081)	-		
Accrued expenses	1,553	(153)	1,400	376	339		
Admission and denial	6.040	(010)	F 220	1 510	1 200		
on depreciation cost Bonus	6,240 6,251	(910) (1,011)	5,330 5,240	1,510 1,513	1,290 1,268		
Interest related to	0,231	(1,011)	3,240	1,515	1,200		
loans or construction	(483)	_	(483)	(117)	(117)		
Brand loyalty	(78)		(67)	(19)	(16)		
Present value of	` '		,	,	,		
defined benefit obligation	40,214	503	40,717	9,732	9,854		
Fair value of plan	(22.447)	0.0	(22.240)	(7.050)	(7.000)		
assets Gain (loss) on foreign	(32,447)	98	(32,349)	(7,852)	(7,828)		
currency translation Interest and translation	(17,220)	143	(17,077)	(4,167)	(4,133)		
of debt related on							
success	3,923	148	4,071	949	985		
Rewards for long term employee	950	291	1,241	230	300		
Impairment right of			-,				
membership	3,249	(572)	2,677	786	648		
Investment in subsidiaries and							
associates	9,410	(77,707)	(68,297)	(17,387)	(25,988)		
Financial assets at fair							
value through OCI	(41,752)		(37,302)	(11,392)	(9,027)		
Impairment loss	212,325	(133,170)	79,155	51,422	19,155		
Provisions	44,400	7,022	51,422	6,563	12,444		
Taxes and dues	5,253	1,310	6,563	21,819	1,114		
Guarantee commission Deemed dividend	21,819	10.760	21,819	26,685	375		
Gains from assets	6,916	19,769	26,685	1,529	6,458		
contributed	1,529	-	1,529	-	370		
Amount exceeding	507	(507)		7 400			
limit of donation	567	(567)	7 400	7,423	-		
Transfer price Finance lease	7,423	- 121	7,423 121	121 8 050	- 29		
Commission fees	8,425	(375)	8,050	8,050 654	591		
	456,503	(17,396)	439,107	78,533	85,768		
	.55,500	(,550)	.55,.67	. 5,550	23,. 30		

23. Income tax (cont'd)

	Accumu	lated temporary differ	Deferred tax as	ssets (liabilities)	
	Jan. 1, 2019	Net changes	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019
Tax credits	27,586	39,012	66,598	23,913	29,967
Tax losses					
carried forward	106,174	(1,417)	104,757	25,694	25,351
				₩ 128,140	₩ 141,086

Temporary differences for which the deferred tax assets (liabilities) have not been recognized for the years ended December 31, 2019 and 2018 consist of the following (Korean won in millions):

	2019		2018	
Investment in subsidiaries, associates				
or joint ventures (*)	₩	55,043	₩	102,335
Guarantee commission and others		29,653		29,653
	₩	84,696	₩	131,988

^(*) The Company 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 Company has no plan for disposal in the foreseeable future.

24. Related party disclosures

Consolidated subsidiaries as of December 31, 2019 are as follows:

Dominicia Domi		Country of	Equity own	ership (%)		
LG International (America) Inc. USA 100.00 100.00 Dec. 31 Export and import					Reporting date	Principal activity
LG International (Hong Knng) Ltd. Hong Knng (100,00 100,00 Dec. 31 Export and import LG International (Hong Knng) Ltd. Hong Knng (100,00 100,00 Dec. 31 LG International (Pleutschland) GmbH Deutschland (100,00 100,00 Dec. 31 LG International (China) Ltd. (11) China 100,00 100,00 Dec. 31 LG International (China) Ltd. (11) China 100,00 Dec. 31 LG International (China) Ltd. (11) China 100,00 Dec. 31 Hub (11) China 100,00 Dec. 31 LG International (China) Ltd. (11) China 100,00 Dec. 31 Export and import (11) China 100,00 Dec. 31 China Dec. 11	LG International (America) Inc.					
Lightemational (Hong Kong) Ltd. Hong Kong 100.00 100.00 Dec. 31 Lightemational (Singappre) Pic Ltd. Singapore 100.00 100.00 Dec. 31 Lightemational (Christ) Ltd. Christ 100.00 100.00 Dec. 31 Lightemational (Christ) Ltd. Christ 100.00 Dec. 31 Lightemational (Christ) Ltd. Christ 100.00 Dec. 31 Lightemational (Christ) Ltd. Christ 100.00 Dec. 31 Lightemational Co., Ltd. Christ Dec. 31 Lightematical C	LHC Solar LLC	USA	100.00	100.00	Dec. 31	Solar energy
LG International (Singapore) Piet Ltd. Singapore 100.00 100.00 Dec. 31 C.	LG International (Japan) Ltd.	Japan	100.00	100.00	Dec. 31	Export and import
LG International (Singapore) Piet Ltd. Singapore 100.00 100.00 Dec. 31 C.	LG International (Hong Kong) Ltd.	Hong Kong	100.00	100.00	Dec. 31	"
LG International (China) Ltd		Singapore	100.00	100.00	Dec. 31	"
Naning LG International VMI Co., Ltd. (*1) China China 100.00 Dec. 31 Export and import Variata VMI Hub LG International Co., Ltd. China 100.00 100.00 Dec. 31 Hub Collingar China China 100.00 Dec. 31 Hub China China China 100.00 Dec. 31 Hub Collingar China China 100.00 Dec. 31 Coal mining Co., Ltd. China 100.00 100.00 Dec. 31 Coal mining China China 100.00 Dec. 31 Coal mining China	LG International (Deutschland) GmbH	Deutschland	100.00	100.00	Dec. 31	"
LG International (Shanghal) Ltd. (*1) China 100.00 100.00 Dec. 31 Export and import Armata VMH Lb C International Co., Ltd. China 100.00 100.00 Dec. 31 Steel frames Co., Ltd. China 100.00 100.00 Dec. 31 Steel frames Co., Ltd. China 100.00 100.00 Dec. 31 Steel frames Co., Ltd. China 100.00 100.00 Dec. 31 Co., Ltd. China 100.00 Dec. 31 Co., Ltd. China 100.00 Dec. 31 China 100.00 Dec. 31 P.T. Megaprima Persada (MPP) Indonesia 75.00 75.00 Dec. 31 F.T. Megaprima Persada (MPP) Indonesia 60.00 60.00 Dec. 31 F.T. Megaprima Persada (MPP) Indonesia 60.00 60.00 Dec. 31 P.T. Megaprima Persada (MPP) Indonesia 60.00 60.00 Dec. 31 P.T. Megaprima Makmur (GAM) Indonesia 60.00 60.00 Dec. 31 P.T. Megaprima (Midia) Ltd. India 100.00 100.00 Dec. 31 P.T. Megaprima (MIDIA) Indonesia 95.00 95.00 Dec. 31 P.T. Megaprima Mandiri (GGL) Indonesia 95.00 95.00 Dec. 31 P.T. Trini Boyots Sawit Makmur (TBSM) (*2) Indonesia 95.00 95.00 Dec. 31 P.T. Trini Boyots Sawit Makmur (TBSM) (*2) Indonesia 95.00 95.00 Dec. 31 P.T. Trini Boyots Sawit Makmur (TBSM) (*2) Indonesia 100.00 100.00 Dec. 31 Industrial planting T.T. India T.T. Megaprima	LG International (China) Ltd.	China	100.00	100.00	Dec. 31	"
Vantal VMI Hub LG International Co., Ltd.	Nanjing LG International VMI Co., Ltd. (*1)	China	-	100.00	Dec. 31	Hub
Subsettive Section Content C	LG International (Shanghai) Ltd. (*1)	China	-	100.00	Dec. 31	Export and import
Co., Ltd.	Yantai VMI Hub LG International Co., Ltd.	China	100.00	100.00	Dec. 31	Hub
Bowen Investment (Australia) Pty Ltd.	,	Oktob	400.00	400.00	D 04	0116
PT. Batubara Global Energy (BGE) Indonesia 100.00 75.00 Dec. 31						
PT. Megaprima Persada (MPP)						Coai mining
PT. Mega Global Energy (MGE)	••• ,					,,
F.T. Ganda Alam Makmur (GAM)						,,
Generational (India) Ltd.						,,
PT. Green Global Lestriar (GGL) Indonesia 100.00 100.00 Dec. 31 Palm oil	· · ·					E
PT. Parna Agromas (PAM)	,					
PT. Grand Utama Mandiri (GUM) (*2)	, ,					Paim oii
PT. Tintin Boyok Sawit Makmur (TBSM) (**2)	• ' '					"
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Format	• • • • • • • • • • • • • • • • • • • •	Indonesia	95.00	95.00	Dec. 31	
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Commonstrational Yakutsk Ltd. Russia 100.00 100.00 Dec. 31 Real estate		Hong Kong	100.00	100.00	Dec. 31	Coal mining
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Fertilizer Resources Investment Ltd.		Hong Kong	60.00	60.00	Dec. 31	Renewable energy
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Pantos Logistics (Shenzhen) Co., Ltd. (*3) China 100.00 100.00 Dec. 31 " Pantos Logistics (H.K) Co., Ltd. (*3) Hong Kong 100.00 100.00 Dec. 31 " Pantos Logistics (Taiwan) Co., Ltd. (*3) Taiwan 100.00 100.00 Dec. 31 " PT. Pantos Logistics Indonesia (*3) Indonesia 99.00 99.00 Dec. 31 " PT. Pantos Logistics Jakarta (*3) Indonesia 100.00 100.00 Dec. 31 " Pantos Logistics Singapore Pte. Ltd. (*3) Singapore 100.00 100.00 Dec. 31 " Pantos Logistics (Thailand) Co., Ltd. (*3) Thailand 100.00 100.00 Dec. 31 "						
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Pantos Logistics (Taiwan) Co., Ltd. (*3) Taiwan 100.00 100.00 Dec. 31 " PT. Pantos Logistics Indonesia (*3) Indonesia 99.00 99.00 Dec. 31 " PT. Pantos Logistics Jakarta (*3) Indonesia 100.00 100.00 Dec. 31 " Pantos Logistics Singapore Pte. Ltd. (*3) Singapore 100.00 100.00 Dec. 31 " Pantos Logistics (Thailand) Co., Ltd. (*3) Thailand 100.00 100.00 Dec. 31 "						"
PT. Pantos Logistics Indonesia (*3) Indonesia 99.00 99.00 Dec. 31 " PT. Pantos Logistics Jakarta (*3) Indonesia 100.00 100.00 Dec. 31 " Pantos Logistics Singapore Pte. Ltd. (*3) Singapore 100.00 100.00 Dec. 31 " Pantos Logistics (Thailand) Co., Ltd. (*3) Thailand 100.00 100.00 Dec. 31 "						,,
PT. Pantos Logistics Jakarta (*3) Indonesia 100.00 100.00 Dec. 31 " Pantos Logistics Singapore Pte. Ltd. (*3) Singapore 100.00 100.00 Dec. 31 " Pantos Logistics (Thailand) Co., Ltd. (*3) Thailand 100.00 100.00 Dec. 31 "						"
Pantos Logistics Singapore Pte. Ltd. (*3) Singapore 100.00 100.00 Dec. 31 " Pantos Logistics (Thailand) Co., Ltd. (*3) Thailand 100.00 100.00 Dec. 31 "	3 ()					
Pantos Logistics (Thailand) Co., Ltd. (*3) Thailand 100.00 100.00 Dec. 31	. ,					
		= :				"
Pantos Logistics Malaysia Sdn. Bhd. (*3) Malaysia 100.00 100.00 Dec. 31						
	Pantos Logistics Malaysia Sdn. Bhd. (*3)	Malaysia	100.00	100.00	Dec. 31	"

	Country of	Equity ownership (%)			
	domicile	2019	2018	Reporting date	Principal activity
Pantos Logistics (India) Pvt. Ltd. (*3)	India	100.00	100.00	Mar. 31	"
Pantos Logistics (Cambodia) Co., Ltd. (*3)	Cambodia	100.00	100.00	Dec. 31	"
Pantos Logistics Vietnam Co., Ltd. (*3)	Vietnam	99.00	99.00	Dec. 31	"
Pantos Logistics Australia Pty. Ltd. (*3)	Australia	100.00	100.00	Dec. 31	"
Pantos Holdings (Thailand) Co., Ltd. (*3)	Thailand	48.50	48.50	Dec. 31	"
Pantos Logistics Myanmar Co., Ltd. (*3)	Myanmar	69.99	69.99	Mar. 31	"
Pantos Logistics U.K. Ltd (*3)	UK	100.00	100.00	Dec. 31	"
Pantos Logistics Benelux B.V (*3)	Netherlands	100.00	100.00	Dec. 31	"
Pantos Logistics France (*3)	France	100.00	100.00	Dec. 31	"
Pantos Logistics Poland (*3)	Poland	100.00	100.00	Dec. 31	"
Pantos Logistics Germany GmbH (*3)	Deutschland	100.00	100.00	Dec. 31	"
Pantos Logistics Spain S.L. (*3)	Spain	100.00	100.00	Dec. 31	"
Pantos Logistics Ve Tic.Lgd.Sti (*3)	Turkey	100.00	100.00	Dec. 31	"
Pantos Logistics Sweden (*2,3)	Sweden	100.00	100.00	Dec. 31	
Pantos Logistics Mexico (*3)	Mexico	100.00	100.00	Dec. 31	"
Pantos Do Brasil Logistica (*3)	Brazil	100.00	100.00	Dec. 31	"
Pantos Logistics Colombia SAS (*3)	Colombia	100.00	100.00	Dec. 31	"
Pantos Logistics Chile SpA (*3)	Chile	100.00	100.00	Dec. 31	"
Pantos Logistics Panama S.A (*3)	Panama	100.00	100.00	Dec. 31	"
Pantos Logistics AR S.A (*3)	Argentina	100.00	100.00	Dec. 31	"
Hi Logistics Brasil Servicos De Logistica	ŭ				
LTDA (*3)	Brazil	100.00	100.00	Dec. 31	Warehouse
FNS CIS LLC (*3)	Russia	100.00	100.00	Dec. 31	Logistics
Pantos Logistics Kazakhstan (*3)	Kazakhstan	100.00	100.00	Dec. 31	"
Pantos Logistics Ukraine Ltd. (*3)	Ukraine	100.00	100.00	Dec. 31	"
Pantos Customs Services LLC (*3)	Russia	100.00	100.00	Dec. 31	Customs
Pantos Logistics L.L.C (Dubai) (*3)	Dubai	49.00	49.00	Dec. 31	Logistics
Pantos Logistics L.L.C (Oman) (*3)	Oman	70.00	70.00	Dec. 31	″
Pantos Logistics Co., LTD. Saudi Arabia (*2,3)	Saudi Arabia	100.00	100.00	Dec. 31	"
Pantos Logistics Nigeria Limited (*2,3)	Nigeria	99.93	99.93	Dec. 31	"
Pantos Logistics Japan Inc. (*3)	Japan	100.00	100.00	Dec. 31	,,
Hi Logistics (China) Co., Ltd. (*3)	China	100.00	100.00	Dec. 31	"
Hi Logistics RUS LLC. (*3)	Russia	100.00	100.00	Dec. 31	,,
Pantos Logistics Solutions India Private	radola	100.00	100.00	200.01	
Limited (*2,3)	India	100.00	100.00	Dec. 31	"
Hi Logistics Egypt S.A.E (*3)	Egypt	98.00	98.00	Dec. 31	"
Pantos North America, INC. (*3,4)	USA	100.00	100.00	Dec. 31	"
Hi Logistics Malaysia SDN. BHD. (*3,4)	Malaysia	-	100.00	Dec. 31	"
Hi Logistics Vietnam Co., Ltd. (*3,4)	Vietnam	-	100.00	Dec. 31	"
Pantos Logistics Hungary KFT. (*3,5)	Hungary	100.00	-	Dec. 31	"
Onecube International Logistics Co., Ltd. (*3,5)	Vietnam	100.00	-	Dec. 31	"

- (*1) During the year ended December 31, 2019, LG International (Shanghai) Ltd. (equity shares of 100%) and Nanjing LG International VMI Co., Ltd. (equity shares of 100%), were liquidated and excluded from the consolidation scope.
- (*2) During the year ended December 31, 2018, the Company established Hanultari Co., LTD., Pantos Logistics Nigeria Limited, and Pantos Logistics Sweden and included them in the consolidation scope. In addition, PT.Green Global Lestari (GGL) acquired PT.Grand Utama Mandiri (GUM), PT. Tintin Boyok Sawit Makmur (TBSM), PT. Tintin Boyok Sawit Makmur Dua (TBSMD, subsidiary of TBSM) which were included in the consolidation scope. Pantos Logistics L.L.C (KSA) was renamed as Pantos Logistics Co., Ltd. SaudiArabia, and Hi Logistics India Private Limited was renamed as Pantos Logistics Solutions India Private Limited.
- (*3) As of December 31, 2019 and 2018, the entities are subsidiaries of Pantos Logistics Co., Ltd., and the equity ownerships presented above are merely the sums of equity ownership held by Pantos Logistics Co., Ltd. and its subsidiaries.

- (*4) During the year ended December 31, 2019, Pantos Logistics Co., Ltd., one of the subsidiaries, changed the name of Hi Logistics USA, Inc. to Pantos North America, Inc. and excluded Hi Logistics Malaysia SDN. BHD. and Hi Logistics Vietnam Co., Ltd. by liquidating them.
- (*5) During the year ended December 31, 2019, Pantos Logistics Co., Ltd. established Pantos Logistics Hungary KFT, Onecube International Logistics Co., Ltd. (equity shares of 100%) and included it in the consolidation scope.

Transactions with the related parties for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019			2018	
	Sales	Purchase	Service	Sales	Purchase	Service
Corporations that have significant influence on the Company at the end of the current year:						
LG Corp. (*1)	₩ 133,909	₩ -	₩ 6,290	₩ -	₩ -	₩ 2,893
	133,909		6,290			2,893
Subsidiaries:						
LG International (America) Inc.	383,352	324	159	296,920	948	-
LG International (Japan) Ltd.	2,136	52,604	317	3,768	32,078	757
LG International (Hong Kong) Ltd.	514	-	-	1,799	-	-
LG International (Singapore) Pte. Ltd.	379,577	34,590	-	396,909	8,395	-
LG International (Deutschland) GmbH	3,896	271	1,051	13,222	300	746
LG International (China) Ltd.	-	-	1,130	112	-	-
LG International (Shanghai) Ltd.	-	-	116	1	-	1,460
Guangzhou Steel Flower Electric &						
Machinery Co., Ltd.	1,438	-	351	6,803	-	145
Bowen Investment (Australia) Pty Ltd	1,853	-	-	1,957	-	-
PT. Batubara Global Energy (BGE)	-	262,649	5	-	256,559	810
PT. Megaprima Persada (MPP)	-	-	4	-	-	-
PT. Ganda Alam Makmur (GAM)	2,840	-	-	3,189	-	-
LG International (India) Ltd.	-	-	1,340	-	-	1,527
PT. Green Global Lestari (GGL)	1,005	-	-	841	-	-
PT. Indonesia Renewable						
Resources (IRR)	604	-	-	525	-	-
Steel Flower Electric & Machinery	405	4.5		45		
(Tianjin) Co., Ltd.	165	15	-	45	-	-
PT. Binsar Natorang Energi (BNE)	51	-	-	3	-	130
LG International Yakutsk Ltd.	671	-	-	590	-	-
Dangjin Tank Terminal Co., Ltd.	155	-	-	158	-	-
Highland Cement International Co., Ltd. Haiphong Steel Flower Electrical &	17	-	-	7	-	-
Machinery Company Limited	3,796	-	72	4,929	-	52
Pantos Logistics Co., Ltd.	5	32,272	7,313	25	19,297	7,382
Pantos Logistics Japan Inc. PANTOS LOGISTICS POLAND	-	-	5,880	-	-	8,813
SP. Z.O.O.	-	-	3	-	-	-
Philco Resources Ltd. (Rapu-Rapu)	7	-	-	25	19,297	7,382
PT. Parna Agromas (PAM)	1					8,813
	782,083	382,725	17,741	731,803	317,577	21,822

	2019			2018			
	Sales	Purchase	Service	Sales	Purchase	Service	
Associates:							
POSCO-IPPC							
(India Pune Processing Center) POSCO-PWPC	₩ 62	₩ -	₩ -	₩ 147	₩ -	₩ -	
(Poland Wroclow Processing Center)	-	-	-	-	-	13	
Kernhem B.V.	2,695	-	-	2,627	-	-	
ADA Oil LLP	586	-	-	639	-	-	
GeoPark Chile S.A. (*2)	-	-	-	1,993	-	-	
GeoPark Colombia Cooperate U.A. (*2)	-	-	-	140	-	24	
Musandam Power Company SAOC	140			244			
	3,483			5,790		37	
Other related parties: (*3)							
LG Electronics Inc.	508,713	48,061	65	480,429	51,406	19	
LG Chem Ltd.	60,605	185,081	-	79,617	288,434	83	
LG Display Co., Ltd.	1,406	53,434	-	6,059	26,521	-	
Others	216,101	1,547	12,043	314,205	2,197	14,599	
	786,825	288,123	12,108	880,310	368,558	14,701	
	₩ 1,706,300	₩ 670,848	₩ 36,139	₩ 1,617,903	₩ 686,135	₩ 39,453	
	·	·	·	·	<u></u>	·	

- (*1) During the year ended December 31, 2019, the participation interest of Yeouido Twin Tower, an investment property owned by the Company, were sold to LG Corp. for ₩133,909 million.
- (*2) During the year ended December 31, 2018, the shares of GeoPark Chile S.A and Geopark Colombia Cooperate U.A were sold and excluded from the list of associates.
- (*3) 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.

Receivables and payables from transactions with the related parties as of December 31, 2019 and 2018 are as follows (Korean won in millions):

			2019		
	Accounts		Other	Accounts	
On an anathra a that have almost and	receivable	Loans	receivables	payable	Other payables
Corporations that have significant influence on the Company at the					
end of the current year:					
LG Corp.	₩ -	₩ -	₩ 2,859	₩ -	₩ -
•		-	2,859	-	-
Subsidiaries:					
LG International (America) Inc.	29,082	-	1,266	-	2,670
LG International (Japan) Ltd.	23	-	556	7,506	17
LG International (Hong Kong) Ltd.	-	-	16	-	2
LG International (S'pore) Pte. Ltd.	16,460	-	85	11,019	13,016
LG International (Deutschland) GmbH	227	-	16	29	176
LG International (China) Ltd.	-	-	6	-	114
Yantai VMI Hub LG International Co., Ltd.	-	-	10	-	2
Guangzhou Steel Flower Electric &	404		44		27
Machinery Co., Ltd. Haiphong Steel Flower Electrical &	121	-	11	-	27
Machinery Company Limited	1,412	_	20	_	28
Bowen Investment (Australia) Pty Ltd	-,	58,044	400	_	-
PT. Batubara Global Energy (BGE)	_	-	43	23,667	105
PT. Megaprima Persada (MPP)	_	_	41	-	1
PT. Mega Global Energy (MGE)	_	_	6	_	_
PT. Ganda Alam Makmur (GAM)	-	41,681	17,240	-	-
LG International (India) Ltd.	-	-	39	-	-
PT. Green Global Lestari (GGL)	-	19,532	1,899	-	-
PT. Parna Agromas (PAM)	-	-	39	-	1
PT. Grand Utama Mandiri (GUM)	-	-	20	-	-
PT. Tintin Boyok Sawit Makmur (TBSM)	-	-	27	-	-
PT. Indonesia Renewable Resources					
(IRR)	-	8,042	1,004	-	-
PT. Binsar Natorang Energi (BNE)	-	5,418	119	-	11
Steel Flower Electric & Machinery (Tianjin) Co., Ltd.	133		26	15	
LG International Yakutsk Ltd.	133	10,988	1,742	-	3
Dangjin Tank Terminal Co., Ltd.	_	10,300	24	_	-
Highland Cement International			2-7		
Co., Ltd.	-	-	644	-	-
Pantos Logistics Co., Ltd.	-	-	-	-	2,215
Pantos Logistics Japan Inc.	-	-	-	-	227
Philco Resources Ltd. (Rapu-Rapu)		3,806	7		
	47,458	147,511	25,306	42,236	18,615
Associates:					
POSCO-IPPC (India Pune Steel					
Processing Center)	-	-	-	-	1
Kernhem B.V.	-	46,107	6,895	-	-
ADA Oil LLP	-	11,444	451	-	-
Musandam Power Company SAOC Gansu Wuwei Cogeneration	-	-	1,055	-	-
Power Plant	_	_	767	_	_
1 owor right		57,551	9,168		1
Other related parties:		07,001	5,100		<u>'</u>
LG Electronics Inc.	33,468	_	_	5,195	209
LG Chem Ltd.	5,203	_	_	13,215	209
LG Display Co., Ltd.	-	_	_	9,187	359
Others	5,790	_	16,764	-	1,403
	44,461		16,764	27,597	1,971
	₩ 91,919	₩ 205,062			
	31,010		. 5-1,007	30,000	20,007

			2018		
	Accounts		Other	Accounts	
On an another a that have already	receivable	Loans	receivables	payable	Other payables
Corporations that have significant influence on the Company at the end of the current year:					
LG Corp.	₩ -	₩ -	₩ 503	₩ -	₩ -
			503		
Subsidiaries:					
LG International (America) Inc.	54,231	-	5,799	-	6,271
LG International (Japan) Ltd.	127	-	1,110	8,750	74
LG International (Hong Kong) Ltd.	7	-	53	-	16
LG International (S'pore) Pte. Ltd.	57,831	-	3,018	1,427	17,283
LG International (Deutschland) GmbH	2,431	-	120	299	503
LG International (China) Ltd.	-	-	28	-	-
LG International (Shanghai) Ltd.	-	-	-	-	1
Yantai VMI Hub LG International Co., Ltd.	-	-	9	-	2
Guangzhou Steel Flower Electric &					
Machinery Co., Ltd.	1,858	-	9	-	26
Haiphong Steel Flower Electrical &	4.044		7		00
Machinery Company Limited Bowen Investment (Australia) Pty Ltd	1,814	- 50 400	7	-	22
PT. Batubara Global Energy (BGE)	-	56,430	117	- 22.000	-
PT. Megaprima Persada (MPP)	-	-	55	22,808	331
PT. Mega Global Energy (MGE)	-	-	151	-	1
PT. Ganda Alam Makmur (GAM)	-	40.050	44	-	-
LG International (India) Ltd.	-	40,252	15,098	-	-
PT. Green Global Lestari (GGL)	-	10.062	7 993	-	-
PT. Parna Agromas (PAM)	-	18,862	993 48	-	-
PT. Indonesia Renewable Resources	-	-	40	-	-
(IRR)	_	7,766	378	_	_
PT. Binsar Natorang Energi (BNE)	_	,	16	_	73
Steel Flower Electric & Machinery					. •
(Tianjin) Co., Ltd.	-	-	54	-	-
LG International Yakutsk Ltd.	-	10,611	1,534	-	2
Dangjin Tank Terminal Co., Ltd.	-	-	21	-	-
Highland Cement International					
Co., Ltd.	-	-	620	-	-
Pantos Logistics Co., Ltd.	-	-	65	-	1,342
Pantos Logistics Japan Inc. PT. Grand Utama Madiri (GUM)	-	-	-	-	249
PT. Tintin Boyok Sawit Makmur	-	-	22	-	-
(TBSM)	_	_	27	_	_
(1BOM)	118,299	133,921	29,403	33,284	26,196
Associates:	110,200	100,021	20,400	00,204	20,100
POSCO-IPPC (India Pune Steel					
Processing Center)	-	-	-	-	1
POSCO-PWPC (Poland Wroclaw					
Steel Processing Center)	-	-	7	-	-
Kernhem B.V.	-	44,526	6,880	-	-
ADA Oil LLP	-	11,051	731	-	-
Musandam Power Company SAOC		2,663	23		
		58,240	7,441		1
Other related parties:					
LG Electronics Inc.	33,355	-	58	13,198	1,739
LG Chem Ltd.	6,484	-	-	43,122	711
LG Display Co., Ltd.	265	-	-	4,971	2,641
Others	11,187		27,490	929	1,065
	51,291	-	27,548	62,220	6,156
	₩ 165,590	₩ 192,161	₩ 64,895	₩ 95,504	₩ 32,353

Transfers under finance arrangements with the related parties for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019							
		Investments in cash (capital						
	Div	ridends	reduction)		Loans		Col	lection
Subsidiaries:								
LG International (Japan) Ltd.	₩	4,037	₩	-	₩	-	₩	-
Bowen Investment (Australia) Pty Ltd		8,146		-		-		-
PT. Binsar Natorang Energi (BNE)		-		2,168		5,621		-
Dangjin Tank Terminal Co., Ltd.		-		420		-		-
Pantos Logistics Co., Ltd.		10,506		-		-		-
Philco Resources Ltd. (Rapu-Rapu)		-				3,806		_
		22,689		2,588		9,427		-
Associates:								
Gansu Wuwei Cogeneration Power Plant		777		-		-		-
United Copper & Moly LLC		39,918		8		-		-
Musandam Power Company SAOC		3,139		-		-		2,861
GS HP Sunflower Int'l Village Corp.		197				_		_
		44,031		8				2,861
	₩	66,720	₩	2,596	₩	9,427	₩	2,861

	2018							
	Div	vidends	Investments in cash (capital reduction)		Loans		Collection	
Subsidiaries:	<u> </u>							
LG International (America) Ltd.	₩	10,692	₩	-	₩	-	₩	-
LG International (Japan) Ltd.		5,042		-		-		-
LG International (Singapore) Pte. Ltd.		10,696		-		-		-
LG International (Deutschland) GmbH		-		3,262		-		-
PT. Batubara Global Energy (BGE)		16,600		-		-		-
PT. Green Global Lestari (GGL)		-		75,316		-		-
PT. Binsar Natorang Energi (BNE)		-		15,367		-		-
Dangjin Tank Terminal Co., Ltd.		-		1,900		-		-
Highland Cement International Co., Ltd.		-		2,186		-		-
Pantos Logistics Co., Ltd.		5,100						<u>-</u>
		48,130		98,031				
Associates:								
Oman International Petrochemical Industry								
Company L.L.C		-		2,794		-		-
United Copper & Moly LLC		-		5		-		-
GeoPark Chile S.A.		-		-		-		1,130
GS HP Sunflower Int'l Village Corp.		262		-		-		-
GeoPark Colombia Cooperate U.A.		8,717		-		-		
Musandam Power Company SAOC		-		-				2,908
		8,979		2,799				4,038
Other related parties:								
Others		203						
		203						
	₩	57,312	₩	100,829	₩		₩	4,038

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

	2	2019	2018
Short-term employee benefits	₩	11,068 ₩	11,080
Retirement benefits		5,256	1,791
	₩	16,324 ₩	12,871

25. Commitments and contingencies

25.1 Guarantees provided

Guarantees provided by the Company as of December 31, 2019 as follows (Korean won in millions):

	Financial institution	Object	Limit	Outstanding	
Subsidiaries:					
LG International (America) Inc.	Mizuho and others	Local finance	₩ 138,936	₩ 16,209	
LG International (Japan) Ltd.	MUFG and others	"	138,655	404	
LG International (Hong Kong) Ltd.	SMBC and others	"	392,717	6	
LG International (Singapore) Pte. Ltd.	SMBC and others	"	355,616	20,319	
LG International (Deutschland) GmbH	Shinhan and others	"	51,979	-	
Bowen Investment (Australia) Pty Ltd	ANZ and others	"	57,504	469	
LG International (China) Corp.	KEB Hana and others	"	30,141	-	
LG International India Private Limited	Citi	"	31	-	
PT. Batubara Global Energy (BGE)	SMBC and others	"	41,789	22	
Steel Flower Electric & Machinery (Tianjin)					
Co., Ltd.	HSBC and others	"	51,780	5,753	
PT. Parna Agromas (PAM)	SMBC and others	"	10,052	474	
PT. Grand Utama Mandiri (GUM)	Citi	"	58	6	
PT. Tintin Boyok Sawit Makmur (TBSM)	Citi	"	58	11	
PT.Megaprima Persada (MPP)	SMBC and others	"	-	-	
PT. Ganda Alam Makmur (GAM) (*1)	KEXIM and others	"	40,074	46,914	
PT. Binsar Natorang Energi (BNE)	Woori	"	1,172	1,172	
Haipong Steel Flower Electrical & Machinery					
Co., Ltd.	HSBC and others	"	17,900	7,237	
Highland Cement International Co., Ltd.	Shinhan	"	25,059	13,911	
Musandam Power Company S.A.O.C	Bank Muscat	"	2,836	2,836	
			₩ 1,368,757	₩ 115,743	

^(*) The amount represents 60% of total contracted guarantees, which is the same percentage as the company's equity ownership in the subsidiary. Furthermore, the Company is jointly and severally liable for outstanding balances.

25.2 Major agreements such as opening letters of credit

As of December 31, 2019, the agreements concluded for the establishment of L / C with financial institutions are as follows (Korean won in millions and foreign currencies in thousands):

Description	Financial institution	Contra	ct amount
Bills bought	Shinhan Bank and others	USD	255,000
Letter of credits	KEB Hana Bank and others	USD	208,530
Payment guarantee	KEB Hana Bank and others	USD	37,000
		KRW	18,064
Bank overdrafts	KEB Hana Bank and others	KRW	13,000
Line of credit	HSBC and others	USD	35,000
		KRW	110,000
Trade financing	Woori Bank and others	USD	394,000
		KRW	78,000
		USD	929,530
		KRW	219,064
		KKW	219,064

25.3 Guarantees received

Datails of guarantees received as of December 31, 2019, are as follows (Korean won in millions and foreign currencies in thousands):

		Guarantee am	ount	Description
Bonds	Korea Development Bank	₩	6,809	KRW 6,809
	Others		9,809	KRW 4,983 USD 4,168
		₩	16,618	

25.4 Pledged notes and checks

The Company pledged 22 notes and 10 checks as collateral to its customers, creditors and guarantors related to various guarantees and borrowings as of December 31, 2019.

25.5 License agreement

As of December 31, 2019, the Company maintains a license agreement with LG Corp. for the use of "LG" brand.

25.6 Joint liability on guarantee

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

25.7 Pending lawsuits

The Company is a defendant in numerous litigation with claims aggregating to ₩83,149 million, but as of December 31, 2019, the outcomes of litigation cannot be reliably determinable.

Among the above cases, The Company are in the process of arbitration with Oman's Ministry of Petroleum, Board of Audit and Inspection and the prosecutors in relation to the termination of Oman's oil business. The amount charged by Oman's Ministry of Petroleum, Board of Audit and Inspection and the prosecution is \text{\psi}78,718 million won as of the end of the current term, and the outcomes of litigation cannot be reliably determinable.

26. Financial risk management objectives and policies

The Company'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 Company's operations. The Company has loans and other receivables, trade and other receivables, and cash and short-term deposits that derive directly from its operations. The Company 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 Company 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 Company'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, 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 is in the following sections relate to the financial position as of December 31, 2019 and 2018.

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, 2019.

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, financial assets at fair value through profit or loss and financial assets at fair value through OCI.
- The sensitivity of the relevant statement of profit or loss 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, 2019 and 2018 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, 2019 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 Company's exposure to the risk of changes in market interest rates relates primarily to the Company's long-term debt obligations with floating interest rates.

The Company is exposed to interest rate risk due to its long-term debt. The Company 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 Company's position with regard to interest rate risk exposure is mainly related to debt obligations such as bonds, loans and interest-bearing deposits and investments. The Company has a risk management program in place to monitor and actively manage such risks.

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

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 Company's profit before tax is affected through the impact on floating rate borrowings as follows. There is only an immaterial impact on the Company's equity (Korean won in millions):

		2019				2018			
	Increa	se by 1%	Decrease by 1%		Increase by 1%		Decrease by 1%		
Interest income	₩	2,887	₩	(2,887)	₩	4,180	₩	(4,180)	
Interest expenses		(3,869)		3,869		(4,519)		4,519	
Net effect	₩	(982)	₩	982	₩	(339)	₩	339	

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 Company's exposure to the risk of changes in foreign exchange rates relates primarily to the Company's operating activities (when revenue or expense are denominated in a different currency from the Company's functional currency) and the Company's net investments in foreign operations.

The Company is exposed to foreign exchange risk arising from international operations and transactions with different foreign currencies. Most widely used foreign currencies are the USD, EUR, JPY, and others.

The Company manages its foreign currency risk by entering into currency forward contracts. Exposure to currency translation risk is largely dependent on the accounting standards of the local jurisdiction and the translation methods required by such jurisdiction.

26.1.2 Foreign currency risk (cont'd)

Foreign currency sensitivity

The following table demonstrates the sensitivity to a reasonably possible change in the exchange rate. With all other variables held constant, the Company's profit before tax is affected, as follows (due to changes in the fair value of monetary assets and liabilities including undesignated foreign currency derivatives) (Korean won in millions):

		20	19		2018					
	Increase	Increase by 10%		Decrease by 10%		Increase by 10%		rease by 10%		
Gain (loss) on foreign currency translation	₩	(9,171)	₩	9,171	₩	(7,049)	₩	7,049		
Gain (loss) on valuation of derivative financial		, ,				,				
instruments		10,603		10,603		3,278		(3,278)		
Net effect (*)	₩	1,432	₩	(1,432)	₩	(3,771)	₩	3,771		

^(*) The Company 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 Company 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.

The book value of financial assets represents maximum exposure to credit risk. The maximum exposures to credit risk as of December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019	2018		
Cash equivalents (*1)	₩	87,815	₩	79,585	
Short-term financial instruments		13,460		2,663	
Equity instruments held for long-term:					
Financial assets at fair value through profit or loss		4,779		4,779	
Financial assets at fair value through OCI.		161,124		144,228	
Trade accounts receivable		261,192		302,456	
Other accounts receivable (*2)		51,008		83,147	
Long-term loans		157,862		176,767	
Other financial assets (*2)		45,998		33,305	
	₩	783,238	₩	826,930	

^(*1) Excludes cash on hand.

^(*2) Excludes other receivables in relation to derivatives.

26.3 Maturity profile of financial assets

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

						2019				
	Le	ess than		1 to 3		3 to 5	3 to 5 More than			
		1 year		years		years	5	years		Total
Cash and cash equivalents	₩	88,140	₩	-	₩	-	₩	-	₩	88,140
Short-term financial assets		13,460		-		-		-		13,460
Trade accounts receivable		260,100		687		405		-		261,192
Other accounts receivable		46,614		5,547		-		-		52,161
Long-term loans		-		52,492		-		105,370		157,862
Other financial assets		32,174		577		14,508		_		47,259
	₩	440,488	₩	59,303	₩	14,913	₩	105,370	₩	620,074
				_		2010				
		41		4.45.0		2018		41		
		ess than		1 to 3		3 to 5		ore than		Total
		1 year		years		years		years	***	Total
Cash and cash equivalents	₩	80,089	₩	-	₩	-	₩	-	₩	80,089
Short-term financial assets		2,663		-		-		-		2,663
Trade accounts receivable		287,562		14,079		424		391		302,456
Other accounts receivable		73,230		9,917		-		-		83,147
Long-term loans		-		74,841		-		101,926		176,767
Other financial assets		25,352		3,415		4,538				33,305
	₩	468,896	₩	102,252	₩	4,962	₩	102,317	₩	678,427

26.4 Liquidity risk

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

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

=0.0	2019						
3 to 5 More than	3 to 5		1 to 3		ess than	Le	
years 5 years Total	years		years		1 year		
₩ - ₩ 275,490	-	₩	-	₩	275,490	₩	Trade accounts payable
59,592	-		-		59,592		Other accounts payable
120,818 72,764 540,476	120,818		139,060		207,834		Borrowings
29,913 - 339,601	29,913		239,704		69,984		Bonds
473 237 8,164	473		1,445		6,009		Lease liabilities
<u> 40,461</u>	<u>-</u>		5,655		34,806		Other financial liabilities
₹ 151,204 ₩ 73,001 ₩ 1,263,784	151,204	₩	385,864	₩	653,715	₩	
2018	2018						
3 to 5 More than	3 to 5		1 to 3		ess than	Le	
years 5 years Total	years		years		1 year		
₩ - ₩ 325,630	-	₩	-	₩	325,630	₩	Trade accounts payable
112,402	-		-		112,402		Other accounts payable
158,364 111,085 599,261	158,364		193,397		136,415		Borrowings
169,650 - 429,270	169,650		169,695		89,925		Bonds
48,374	<u>-</u>		7,653		40,721		Other financial liabilities
₹ 328,014 ₩ 111,085 ₩ 1,514,937	328,014	₩	370,745	₩	705,093	₩	
29,913 - 339 473 237 8	29,913 473 - 151,204 2018 3 to 5 years - 158,364 169,650	₩	239,704 1,445 5,655 385,864 1 to 3 years - 193,397 169,695 7,653	₩	69,984 6,009 34,806 653,715 ess than 1 year 325,630 112,402 136,415 89,925 40,721	W	Bonds Lease liabilities Other financial liabilities Trade accounts payable Other accounts payable Borrowings Bonds

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

26.5 Capital management

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

The Company monitors capital using various gearing ratios including debt and net debt ratios. The Company includes within total borrowings, interest-bearing loans and borrowings, trade and other payables. Details of gearing ratios as of December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019	2018		
Total liabilities (A)	₩	1,319,972	₩ 1,562,571		
Total equity (B)		1,207,954	1,134,652		
Cash and cash equivalents (C)		88,140	80,089		
Total borrowings (D)		880,077	1,028,531		
Debt ratio (A / B)		109.27%	137.71%		
Net borrowing ratio ((D-C) / B)		65.56%	83.59%		

27. Fair value

27.1 Fair value of financial instruments

The book value and fair value of financial instruments as of December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019			2018				
	В	ook value		Fair value	В	ook value		Fair value	
Financial assets:									
Financial assets measured at amortized cost:									
Cash and cash equivalents	₩	57,140	₩	57,140	₩	80,089	₩	80,089	
Short-term financial assets		13,460		13,460		2,663		2,663	
Trade accounts receivable		261,192		261,192		302,456		302,456	
Long-term loans		157,862		157,862		176,767		176,767	
Other accounts receivable		51,008		51,008		81,696		81,696	
Other financial assets		45,998		45,998		33,234		33,234	
	·	586,660		586,660		676,905		676,905	
Financial assets recognized at fair value:									
Cash and cash equivalents Accounts receivable related		31,000		31,000		-		-	
derivatives Equity instruments held for		1,153		1,153		1,452		1,452	
long-term		165,903		165,903		149,007		149,007	
Other financial assets		1,261		1,261		70		70	
	-	199,317		199,317		150,529		150,529	
	₩	785,977	₩	785,977	₩	827,434	₩	827,434	
		20	19		2018				
	B	ook value		Fair value	Book value			Fair value	
Financial liabilities: Financial liabilities measured at amortized cost:		oon value		. dii valao		ook valao		an value	
Borrowings	₩	406,325	₩	406,325	₩	463,311	₩	463,311	
Bonds		269,617		269,617		339,345		339,345	
Current portion of bonds and									
long-term borrowings		204,135		204,135		225,875		225,875	
Other financial liabilities		381,817		381,817		483,834		483,834	
		1,261,894		1,261,894		1,512,365		1,512,365	
Financial liabilities recognized at fair value: Accounts payable related									
derivatives		1,890		1,890		575		575	
Other financial liabilities						1,998		1,998	
		1,890		1,890		2,573		2,573	
	₩	1,263,784	₩	1,263,784	₩	1,514,938	₩	1,514,938	
		.,,, ., .		.,_,,,,,,		.,,		.,,	

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

The Company 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 of December 31, 2019, the Company holds the assets and liabilities measured at fair value in the statements of financial position, and assets and liabilities for which the fair values were disclosed as follows (Korean won in millions):

	2019						
		Level 1		Level 2		Level 3	
Assets and liabilities measured at fair value:		_				_	
Financial assets at fair value through profit or loss:							
Cash and cash equivalents	₩	31,000	₩	-	₩	-	
Accounts receivable related to derivatives		-		1,153		-	
Financial assets at fair value through OCI:							
Equity securities (*)		805		-		159,879	
Financial liabilities at fair value through profit or loss:							
Accounts payable related to derivatives		-		1,890		-	
Derivatives related to hedge accounting:							
Other financial assets		-		1,261		-	
Assets and liabilities for which							
fair values are disclosed:							
Cash and cash equivalents	₩	57,140	₩	-	₩	-	
Short-term financial assets		-		13,460		-	
Trade accounts receivable				-		261,192	
Long-term loans		-		-		157,862	
Other accounts receivable		-		-		51,008	
Other financial assets		-		-		45,998	
Borrowings		-		406,325		-	
Bonds payable		-		269,617		-	
Current portion of bonds payable and long-term							
borrowings		-		204,135		-	

^(*) 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 was no movement between the levels of the fair value hierarchy for the year ended December 31, 2019.

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

	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	₩	-	₩	1,452	₩	-
Financial assets at fair value through OCI:						
Equity securities (*)		1,146		-		142,056
Financial liabilities at fair value through profit or loss:						
Accounts payable related to derivatives		-		575		-
Derivatives related to hedge accounting:						
Other financial assets		-		70		-
Other financial liabilities		-		1,998		-
Assets and liabilities for which fair values are disclosed:						
Cash and cash equivalents	₩	80,089	₩	-	₩	-
Short-term financial assets		-		2,663		-
Trade accounts receivable				-		302,456
Long-term loans		-		-		176,767
Other accounts receivable		-		-		81,696
Other financial assets		-		-		33,234
Investment properties		-		-		121,280
Borrowings		-		463,311		-
Bonds payable		-		339,345		-
Current portion of bonds payable and long-term						
borrowings		-		225,875		-
Other financial liabilities		-		-		483,834

^(*) 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.

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 of 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 1.53% during the period (2018: 1.93%).

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 5.89~14.35% during the period (2018: 5.80~10.75%).

28. Statements of cash flows

Non-cash adjustments to reconcile profit for the year to net cash flows for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019	2	2018
Depreciation	₩	7,026	₩	2,679
Amortization		782		9,063
Impairment loss on intangible assets		-		29,066
Retirement benefits		5,057		4,545
Bad debt expenses		5,315		3,004
Interest income		(11,787)		(13,350)
Gain on foreign currency translation		(9,857)		(9,146)
Interest expenses		29,752		33,489
Loss on foreign currency translation		13,618		14,774
Impairment loss on investment in subsidiaries				
and associates		131,285		18,192
Gain on disposal of Investment Properties		(92,657)		-
Others		(136,107)		10,755
	₩	(57,573)	₩	103,071

Working capital adjustments for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018
Decrease in trade accounts receivable	₩	35,715	₩	7,421
Decrease (increase) in other accounts receivable		33,538		(41,700)
Decrease (increase) in advance payments		6,508		(5,348)
Decrease (increase) in inventories		(5,755)		8,179
Decrease (increase) in other operating assets		(8,754)		3,069
Increase (decrease) in trade payable		(46,535)		54,082
Increase (decrease) in other accounts payable		(50,186)		17,677
Increase (decrease) in advance received		865		(1,552)
Severance and retirement benefits paid		(5,947)		(2,063)
Decrease (increase) in plan assets		231		(1,587)
Decrease in Provisions		(3,076)		-
Decrease in other operating liabilities		(5,759)		(6,687)
	₩	(49,155)	₩	32,031

28. Statements of cash flows (cont'd)

The adjustment of liabilities arising from financing activities for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

						2019				
						Non-cash	n cha	anges		
			С	ash flows	F	oreign		_		
			in financing		currency					
_		Jan. 1		activities	translation		Others			Dec. 31
Short-term borrowings	₩	466	₩	73,227	₩	(9)	₩	-	₩	73,684
Long-term borrowings		598,795		(135,950)		6,902		(2,955)		466,792
Bonds		429,270		(90,000)		-		331		339,601
Lease liabilities				(2,852)		_		11,016		8,164
_	₩	1,028,531	₩	(155,575)	₩	6,893	₩	8,392	₩	888,241
					:	2018				
-					Non-cash changes					
			С	ash flows	F	oreign				
			in	financing	CL	ırrency				
_		Jan. 1		activities	tra	nslation		Others		Dec. 31
Short-term borrowings	₩	63,122	₩	(62,656)	₩	-	₩	-	₩	466
Long-term borrowings		609,540		(21,809)		11,064		-		598,795
Bonds		429,481		(399)		_		388		429,270
_	₩	1,101,943	₩	(84,864)	₩	11,064	₩	388	₩	1,028,531

29. Leases

Changes in right-of-use asset for the years ended December 31, 2019 are as follows (Korean won in thousands):

				2019			
	Ві	uildings		Vehicles	Total		
Jan. 1 (*1)	₩	4,245	₩	1,066	₩	6,672	
Additions		5,045		680		5,725	
Depreciation		(2,385)		(544)		(2,929)	
Disposals				(65)		(65)	
Dec. 31	₩	6,905	₩	1,137	₩	8,042	
Acquisition cost		9,290		1,648		10,938	
Accumulated depreciation		(2,385)		(511)		(2,896)	

(*1) The adoption effect of KIFRS 1116.

29. Leases (cont'd)

The details of changes in lease liabilities for the years ended December 31, 2019 are as follows (Korean won in millions):

	2019		
Effect of adopting new accounting standards Additions Interest expense	₩	5,245 5,703 132	
Payment Termination		(2,852) (64)	
Dec. 31	₩	8,164	
Current Non-current		6,009 2,155	
	₩	8,164	

Details of expenses came from short-term leases and leases of low-value assets for the years ended December 31, 2019 are $\mathbb{W}13,758$ million and $\mathbb{W}52$ million, respectively.

30. Non-current Assets as held for sale

As of December 31, 2019, the capital directly related to non-current assets held for sale and non-current assets held for sale are as follows (Korean won in millions):

		Assets		Equity
Investment in subsidiaries	₩	18,888	₩	(1,472)

On October 11, 2019, the company decided to sell 100% of its stake in Guangzhou Steel Flower Electrical & Machinery & Machinery Co., Ltd., which operates steel processing and sales business in China, to Guangzhou Development District Investment Group Limited, and the sale price is about 22.6 billion won.

31. Events after reporting period

On February 10, 2020, the Company decided to sell 25% of participation interests in LG Holdings (HK) Limited, which operates the real estate rental business in China, to Reco Changan Private Limited, and the sale price is about \(\precent 341.2 \) billion.

Meanwhile, on October 11, 2019, the company decided to dispose its 100% stake in Guangzhou Steel Flower Electrical & Machinery & Machinery Co., Ltd., which operates the steel processing and sales business in China, to Guangzhou Development District Investment Group Limited, and the disposal process was completed on January 17, 2020. The sale price is about $\[mathbb{W}\]$ 22.6 billion.

32. Approval of financial statements

The financial statements of the Company for the year ended December 31, 2019 were approved and authorized for issue by the Board of Directors on January 30, 2020

Audit report on internal control over financial reporting

LG International Corp.

This report is annexed in relation to the audit of LG International Corp.'s financial statements as of December 31, 2019 and the audit of internal control over financial reporting pursuant to Article 8 of the Act on External Audit of Stock Companies of the Republic of Korea.

- 1. Independent auditor's report on internal control over financial reporting
- 2. ICFR Operating Status Report



한영회계법인 서울특별시 영등포구 여의공원로 111, 태영빌딩 3-8F 07241

Tel: 02 3787 6600 Fax: 02 783 5890 ey.com/kr Ernst & Young Han Young Taeyoung Building, 111, Yeouigongwon-ro, Yeongdeungpo-gu, Seoul 07241 Korea

Tel: +82 2 3787 6600 Fax: +82 2 783 5890 ev.com/kr

Independent auditor's report on internal control over financial reporting

The Stockholders and Board of Directors LG International Corp.

Opinion on internal control over financial reporting

We have audited LG International Corp.'s (the "Company") internal control over financial reporting ("ICFR") based on the Conceptual Framework for designing and operating ICFR established by the operating committee of ICFR (the "ICFR Committee") as of December 31, 2019.

In our opinion, the Company's ICFR has been effectively designed and operated, in all material respects, as of December 31, 2019, in accordance with the Conceptual Framework for designing and operating ICFR.

We also have audited, in accordance with the Korean Auditing Standards ("KGAAS"), the separate statement of financial position as of December 31, 2019, and the separate statement of comprehensive income, separate statement of changes in equity and separate statement of cash flows for the year then ended, and notes to the separate financial statements, including a summary of significant accounting policies, and our report dated March 17, 2020 expressed an unqualified opinion thereon.

Basis for opinion on ICFR

We conducted our audit in accordance with KGAAS. Our responsibilities under those standards are further described in the Auditor's responsibilities for the audit of ICFR section of our report. We are independent of the Company in accordance with the ethical requirements that are relevant to our audit of ICFR 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.

Responsibilities of management and those charged with governance for ICFR

Management is responsible for designing, implementing, and maintaining an effective ICFR, and for assessing the effectiveness of the ICFR included in the accompanying report on the effectiveness of the ICFR.

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

Auditor's responsibilities for the audit of ICFR

Our responsibility is to express an opinion of the Company's ICFR based on our audit. We conducted our audit in accordance with KGAAS. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective ICFR was maintained in all material respects.

An audit of ICFR involves performing procedures to obtain audit evidence as to whether a material weakness exists. The procedures selected depend on the auditor's judgment, including the assessment of the risks that a material weakness exists. An audit also includes testing and evaluating the design and operating effectiveness of ICFR based on obtaining an understanding of ICFR and the assessed risk.



ICFR definition and inherent limitations

Ernot Young Han Young

A Company's ICFR is implemented by those charged with governance, management, and other employees and is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with Korean International Financial Reporting Standards ("KIFRS"). A Company's ICFR includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the Company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with KIFRS, and that receipts and expenditures of the Company are being made only in accordance with authorizations of management and directors of the Company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the Company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, ICFR may not prevent or detect misstatements of the financial statements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that ICFR may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

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

March 17, 2020

This audit report is effective as of March 17, 2020, 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 separate financial statements and may result in modifications to this report.



LG International Corp.
LG Gwanghwamoon B/D, 58, Saemunan-ro, Jongno-gu, Seoul, 03184,Korea
T. 82-2-3777-1114 www.lgicorp.com



ICFR Operating Status Report

To the Shareholders, Board of Directors, and Audit Committee of LG International Corp.

We, as the Chief Executive Officer and the Internal Accounting Manager of LG International Corp. ("the Company"), assessed operating status of the Company's Internal Control over Financial Reporting ("ICFR") for the year ending December 31, 2019.

Design and operation of ICFR is the responsibility of the Company's management, including the Chief Executive Officer and the Internal Accounting Manager (collectively, "We", "Our" or "Us").

We evaluated whether the Company effectively designed and operated its ICFR to prevent and detect errors or frauds which may cause a misstatement in financial statements to ensure preparation and disclosure of reliable financial information.

We used the 'Conceptual Framework for Designing and Operating Internal Control over Financial Reporting' established by the Operating Committee of Internal Control over Financial Reporting in Korea (the "ICFR Committee") as the criteria for design and operation of the Company's ICFR. And we conducted an evaluation of ICFR based on the 'Management Guideline for Evaluating and Reporting Effectiveness of Internal Control over Financial Reporting' established by the ICFR Committee.

Based on our assessment, we concluded that the Company's ICFR is designed and operated effectively as of December 31, 2019, in all material respects, in accordance with the 'Conceptual Framework for Designing and Operating Internal Control over Financial Reporting'.

We certify that this report does not contain any untrue statement of a fact, or omit to state a fact necessary to be presented herein.

We also certify that this report does not contain or present any statements which might cause material misunderstandings of the readers, and we have reviewed and verified this report with sufficient care.

[Attachment]

 Implementation status of remediation plans of material weaknesses reported in previous year January 23, 2020

Chun-sung Yoon
Chief Executive Officer

Byeong-il Min Internal Accounting Manager



LG International Corp.

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[Attachment]

Implementation status of remediation plans of material weaknesses reported in previous year

Not applicable