



# DOOSAN CORPORATION AND ITS SUBSIDIARIES

## Consolidated Financial Statements

For the Years Ended December 31, 2020 and 2019

With the independent auditor's report

Doosan Corp.

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## Independent auditor's report

### The Shareholders and Board of Directors Doosan Corporation

#### Opinion

We have audited the accompanying consolidated financial statements of Doosan Corporation (the "Company") and its subsidiaries (collectively referred to as the "Group"), which comprise the consolidated statements of financial position as of December 31, 2020 and 2019, and the consolidated statements of profit or loss, consolidated statements of comprehensive income (loss), consolidated statements of changes in equity and consolidated statements of cash flows for the years then ended, and notes to the consolidated financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Group as of December 31, 2020 and 2019, and its consolidated financial performance and its consolidated cash flows for the years then ended in accordance with Korean International Financial Reporting Standards ("KIFRS").

#### Basis for opinion

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

#### Emphasis of matter

Without qualifying our opinion, we draw attention to Note 42 to the consolidated financial statements. Doosan Heavy Industries & Construction Co., Ltd., one of the Group's subsidiaries, is processing financial restructuring such as manpower restructuring and capital expansion to cope with financial difficulties. In particular, Doosan Heavy Industries & Construction Co., Ltd., the Company and related parties, including Jeongwon Park, have entered into performance agreements to implement the financial structure improvement plan with Korea Development Bank and The Export-Import Bank of Korea in order to overcome liquidity risk. In accordance with the performance agreements, the Group is preparing for a plan of management rationalization and sales of major subsidiaries of Doosan Heavy Industries & Construction Co., Ltd. In case of any disruption in the financial structure improvement plan, there is a possibility that the financial position and management performance of Doosan Heavy Industries & Construction Co., Ltd. and its subsidiaries among the Group's divisions will fluctuate significantly.

#### Key audit matters

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the consolidated financial statements of the current period. These matters were addressed in the context of our audit of the consolidated 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) Recognition of revenue based on the input method**

As described in Note 2 to the consolidated financial statements, the Group measures percentage-of-completion using the input method and recognizes revenue over time by measuring progress towards complete satisfaction. This revenue recognition accounting policy applies primarily to Doosan Heavy Industries & Construction Co., Ltd. and its subsidiaries within the Group.

As revenue recognition based on the input method varies depending on the measured percentage-of-completion, management's judgment on the method of measuring progress, estimating its total contract cost, and construction progress is required. Therefore, as revenue is exposed to the risk of overstatement due to errors in judgment or the intention, we have identified the recognition of revenue based on the input method of Doosan Heavy Industries & Construction Co., Ltd. and its subsidiaries as a key audit matter.

In this regard, the main audit procedures we performed with the involvement of the component auditors are as follows.

- Evaluation of the design adequacy and testing of operating effectiveness of internal control procedures related to the determination and modification of estimated total contract costs
- Evaluation of the appropriateness and operating effectiveness of the design of internal control procedures related to the modification of terms and conditions of a contract
- Evaluation of the appropriateness and operating effectiveness of the design of internal control procedures related to product sales
- Evaluation of the appropriateness and operating effectiveness of the design of internal control procedures related to aggregation and distribution of project costs
- Evaluation of the appropriateness and operating effectiveness of the design of internal control procedures related to purchasing, production, inventory and logistics that affect the input costs
- Evaluation of the appropriateness and operating effectiveness of the design of internal control procedures related to calculation of liquidated damages
- Evaluation of the appropriateness and operating effectiveness of the design of internal control procedures related to calculation of provision for construction losses
- A retrospective analysis by comparing the actual cost incurred during the current reporting period to the estimated costs as of the end of the prior year by selecting significant projects completed during the current reporting period and performed retrospective analysis
- Inquiry and inspection of documents for projects with significant changes in the estimated total contract costs
- Comparative assessment of the estimated total contract costs among similar projects
- Inquiry and analytical review procedures on the causes of volatility in the percentage-of-completion of construction by each reporting period
- Comparative assessment of percentage-of-completion by process (monthly progress report) and cost-based percentage-of-completion for major projects, and inquiry and inspections of documents if there is a significant difference
- Review of transactions selected by the sampling method to confirm the amount of input costs incurred (material costs, outsourcing costs and business expenses), cut-off periods and appropriateness of the projects to which those transactions are attributed.
- Selection and testing of a risk scenario on whether there has been any diversion of costs in projects
- Review of materials in progress and on-site visits of in-process projects
- Recalculation of the percentage-of-completion by projects
- Inspection of supporting documents (change order notification, ordering notice and others) to check the appropriateness of changes in contract amounts
- Analytical review procedure, inquiry and inspection of documents for contracts that have passed the contractual delivery date by comparing and analyzing the contractual delivery date and the expected delivery date as of December 31, 2020
- Inspection of the appropriateness of the estimated liquidated damages as of December 31, 2020

- Obtained supporting documents related to sales transactions, which are selected using the sampling method to review the occurrence of the recorded sales transactions during the current reporting period and reviewed whether those are consistent with the substance of the transactions
- Selection of the sales transactions recorded near before and after the reporting period end using the sampling method and reviewed the related supporting documents to confirm whether those transactions were recorded in the proper accounting period
- Recalculation of transactions selected by using the sampling method to review the appropriateness of the translation of contract amounts denominated in foreign currencies
- Recalculation and retrospective analysis of provision for construction losses in projects

## **(2) Evaluation on the recoverability of trade receivables and due from customers for contract work**

As described in Note 2 to the consolidated financial statements, the Group calculates expected credit losses based on the expected duration of the expected credit losses and evaluates the recoverability of trade receivables and due from customers for contract work.

In calculating expected credit losses of Doosan Heavy Industries & Construction Co., Ltd. and its subsidiaries, management's judgment is required in calculating expected credit losses due to the uncertainty over the collection of due from customers for contract work such as delays in payment of orders, changes in terms and conditions, and claims. Therefore, as trade receivables and due from customers for contract work are exposed to the risk of overstatement due to errors in judgment or the intention of management, we have identified the assessment of recoverability of the trade receivables and due from customers for contract work of Doosan Heavy Industries & Construction Co., Ltd. and its subsidiaries as a key audit matter.

In this regard, the main audit procedures we performed with the involvement of the component auditors are as follows.

- Evaluation of design adequacy and testing of operating effectiveness for internal control procedures that identify and evaluate collectability of due from customers for contract works
- Inspection of relevant documents of the terms of payment, delivery timing and other obligations under the contract for projects with significant increases in due from customers for contract work
- Inquiry and inspection of documents of long-term due from customers for contract work
- Review of billing status, collection status and sale of due from customers for contract works in major projects
- In the event of due from customers for contract work is in relation to a contract with provisions for trade receivables, inquire the financial soundness of order holder and inspection of supporting documents
- Requested an opinion from legal experts to review the collectability of due from customers for contract works

## **(3) Goodwill impairment testing**

As described in Note 13 to the consolidated financial statements, the group conducted an impairment test on cash-generating units to which the goodwill of Doosan Heavy Industries & Construction Co., Ltd. and its subsidiaries had been distributed, as of December 31, 2020. In order to estimate the recoverable amount, the Group used fair value and value in use, less any cost of disposal, based on future estimated cash flows based on future financial budgets.

As of December 31, 2020, the carrying amount of goodwill of Doosan Heavy Industries & Construction Co. Ltd. and its subsidiaries is ₩4,410,568 million, accounting for 14.6% of total assets. In addition, the recoverable amount may vary depending on the estimated future cash flow, applied discount rate and selection of similar companies, which are inputs accompanied by management's judgements, which can significantly affect the consolidated financial statements. Therefore, we have identified the estimation of the recoverable amounts of cash-generating units (or groups of cash-generating units) to which the goodwill of Doosan Heavy Industries & Construction Co., Ltd. and its subsidiaries are selected as a key audit matter.

In this regard, the main audit procedures we performed with the involvement of the component auditors are as follows.

- Testing of internal control related to goodwill impairment testing
- Inquiries on valuation models applied by the group
- Testing of future estimated cash flows and analyze whether they are consistent with management approved business plans
- Compare and evaluate the applied discount rate, growth rate, etc. with external benchmarks within the industry and past financial information of cash-generating units (or groups of cash-generating units) using the auditor's valuation expert
- Conduct a sensitivity analysis of the discount rate and growth rate applied by the Group using the auditor's valuation expert in order to evaluate the effect of changes in major assumptions on the impairment test results
- Review of the business and financial nature of similar companies using the auditor's valuation experts to evaluate the appropriateness of the similar companies selected

#### **(4) Valuation of provision for product warranties**

As described in Note 2 to the consolidated financial statements, the Group provides the customer with a free warranty for a certain period after the sale of the product and recognizes a product guarantee provision by estimating the expected cost of the warranty repair. The obligation to perform the warranty is determined by the nature and scope of the warranty provided by the Group and various assumptions including the duration of the warranty's period and estimated warranty costs to occur in the future. This accounting policy applies significantly to Doosan Infracore Co., Ltd. and its subsidiaries within the Group.

As of December 31, 2020, the carrying amount of the provision for product warranties of Doosan Infracore Co., Ltd. and its subsidiaries is ₩278,315 million. Considering that significant estimates of management are involved in the measurement of provision for product warranties, we identified Doosan Infracore Co., Ltd. and its subsidiaries' provision for product warranties as a key audit matter.

In this regard, the main audit procedures we performed with the involvement of the component auditors are as follows.

- Testing account policies for the recognition of provision for product warranties and related internal controls
- Verification of the accuracy of the key accounting estimation base data used by management
- A comparative analysis of the basis of key assumptions used by management in the measurement of related liabilities with past performance
- Perform an independent recalculation of the related debt balances as of the end of the reporting year

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

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

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

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

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

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with 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 consolidated 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 consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to continue as a going concern.

- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

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

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

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

The engagement partner on the audit resulting in this independent auditor's report is *Sang Il Bae*.



March 22, 2021

This audit report is effective as of March 22, 2021, the independent auditor's report date. Accordingly, certain material subsequent events or circumstances may have occurred during the period from the independent auditor's report date to the time this report is used. Such events and circumstances could significantly affect the accompanying consolidated financial statements and may result in modifications to this report.

# **Doosan Corporation and its subsidiaries**

Consolidated financial statements  
for the years ended December 31, 2020 and 2019

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

Hyun Soo Dong  
Chief Executive Officer  
Doosan Corporation

**Doosan Corporation and its subsidiaries**  
**Consolidated statements of financial position**  
**as of December 31, 2020 and 2019**  
(Korean won)

	Notes	2020	2019
<b>Assets</b>			
Current assets:			
Cash and cash equivalents	4,5,10,36	₩ 2,707,378,621,227	₩ 1,840,833,889,385
Short-term financial instruments	4,5,10,34	438,760,359,255	296,380,362,231
Short-term investment securities	4,6,10,34	608,638,772,717	129,155,768,878
Trade receivables	4,7,10,34,35	2,255,531,445,233	2,523,770,217,794
Other receivables	4,7,10,35	469,128,689,690	680,644,700,160
Due from customers for contract work	4,26	1,756,629,305,829	1,868,060,276,653
Current derivative assets	4,9,10	58,569,352,182	37,907,546,898
Current firm commitment assets	9	5,900,766,998	26,665,172,484
Inventories	8,34	2,421,951,527,992	2,681,748,260,970
Assets held for sale	39	1,018,584,230,499	35,320,502,217
Other current assets		857,250,785,651	927,545,057,969
Total current assets		12,598,323,857,273	11,048,031,755,639
Non-current assets:			
Long-term financial instruments	4,5,10,34	58,950,464,652	4,698,786,446
Long-term investment securities	4,6,10,34	324,132,653,139	432,322,313,186
Investments in associates and joint ventures	11,34	198,811,853,443	173,874,347,708
Property, plant and equipment	3,12,16,34	6,982,497,957,947	7,953,359,055,167
Intangible assets	3,13	8,158,218,407,377	7,357,788,872,212
Investment properties	3,14,16,34	388,021,572,778	507,187,843,886
Long-term trade receivables	4,7,10,35	4,969,070,586	4,486,968,691
Long-term other receivables	4,7,10,35	244,549,615,398	740,744,349,684
Long-term due from customers for contract work	4,26	102,739,503,644	102,739,503,644
Non-current derivative assets	4,9,10	37,748,633,632	17,033,382,925
Non-current firm commitment assets	9	9,818,569,590	18,341,954,763
Deferred tax assets	3,31	457,760,460,581	416,185,443,991
Deposits	4,10	495,023,811,376	356,689,700,820
Other non-current assets		56,056,524,084	36,262,537,329
Total non-current assets		17,519,299,098,227	18,121,715,060,452
<b>Total assets</b>		<b>₩ 30,117,622,955,500</b>	<b>₩ 29,169,746,816,091</b>

(Continued)

**Doosan Corporation and its subsidiaries**  
**Consolidated statements of financial position**  
**as of December 31, 2020 and 2019 (cont'd)**  
(Korean won)

	Notes	2020	2019
<b>Liabilities</b>			
Current liabilities:			
Trade payables	4,10,35	₩ 2,404,379,345,425	₩ 3,089,735,336,927
Other payables	4,10,35	1,142,632,299,720	1,560,250,806,181
Due to customers for contract work	26	1,666,422,704,998	1,485,148,224,877
Short-term borrowings	4,10,15,33,34	6,295,837,988,399	4,614,068,042,514
Current portion of bonds	4,10,15	835,034,919,760	2,423,497,646,535
Current portion of long-term borrowings	4,10,15,33,34	1,263,652,019,216	1,109,271,243,258
Asset-backed loans	4,10,15,33,34	59,550,657,597	381,573,986,887
Current portion of long-term asset-backed loans	4,10,15,33,34	332,022,061,884	227,844,778,849
Current derivative liabilities	4,9,10	61,603,742,869	75,579,397,085
Current firm commitment liabilities	9	17,401,805,083	11,224,179,696
Current tax liabilities		224,821,106,095	56,411,389,032
Current provisions	3,18,26	536,917,606,893	260,484,356,372
Current lease liabilities	4,10,16	98,837,543,172	86,441,288,354
Liabilities held for sale	39	211,531,299,713	-
Other current liabilities		657,600,153,222	824,252,465,224
Total current liabilities		<u>15,808,245,254,046</u>	<u>16,205,783,141,791</u>
Non-current liabilities:			
Bonds	4,10,15	2,133,792,638,182	1,133,832,947,800
Long-term borrowings	4,10,15,33,34	1,195,457,964,253	2,258,813,692,216
Long-term asset-backed loans	4,10,15,33,34	215,317,399,320	292,290,321,272
Net defined benefit liabilities	3,17	746,466,527,690	716,313,286,829
Long-term other liabilities	4,10	656,285,441,069	541,899,233,521
Non-current derivative liabilities	4,9,10	70,772,172,508	57,298,260,230
Non-current firm commitment liabilities	9	24,633,647,381	13,248,086,707
Non-current provisions	3,18	383,920,553,466	251,588,867,668
Deferred tax liabilities	3,31	601,012,373,630	484,366,106,233
Non-current lease liabilities	4,10,16	444,145,611,201	215,913,882,587
Other non-current liabilities		128,044,642,874	178,859,613,826
Total non-current liabilities		<u>6,599,848,971,574</u>	<u>6,144,424,298,889</u>
<b>Total liabilities</b>		<u><b>22,408,094,225,620</b></u>	<u><b>22,350,207,440,680</b></u>
<b>Equity</b>			
Equity attributable to owners of the parent:			
Share capital	1,19	123,738,105,000	123,738,105,000
Capital surplus	19,20	1,090,773,788,457	732,266,102,161
Other equity items	21	(1,194,599,080,502)	(1,192,921,252,356)
Accumulated other comprehensive income	6,9,22	480,451,206,606	648,706,788,956
Retained earnings	23	1,159,308,654,316	1,250,724,749,675
		<u>1,659,672,673,877</u>	<u>1,562,514,493,436</u>
Non-controlling interests		6,049,856,056,003	5,257,024,881,975
<b>Total equity</b>		<u><b>7,709,528,729,880</b></u>	<u><b>6,819,539,375,411</b></u>
<b>Total liabilities and equity</b>		<u><b>₩ 30,117,622,955,500</b></u>	<u><b>₩ 29,169,746,816,091</b></u>

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

Doosan Corporation and its subsidiaries  
Consolidated statements of profit or loss  
for the years ended December 31, 2020 and 2019  
(Korean won)

	Notes	2020	2019
Sales	3,25,26,35	₩ 16,969,330,881,962	₩ 18,041,566,528,540
Cost of sales	27,35	14,541,182,772,087	14,966,950,913,268
Gross profit		2,428,148,109,875	3,074,615,615,272
Selling and administrative expenses	27,28	2,153,151,585,294	1,846,064,399,269
Operating profit		274,996,524,581	1,228,551,216,003
Finance income	10,29	679,766,355,082	538,271,165,785
Finance expenses	10,29	1,330,765,724,344	1,203,101,069,607
Other non-operating income	10,30	104,615,126,275	60,995,710,020
Other non-operating expenses	10,30	612,792,270,736	472,697,573,422
Share of loss of associates and joint ventures accounted for using the equity method	11	(15,121,640,899)	(12,744,860,621)
Profit (Loss) before income tax expenses		(899,301,630,041)	139,274,588,158
Income tax expenses	31	71,359,558,379	236,604,881,028
Profit (Loss) from continuing operations		(970,661,188,420)	(97,330,292,870)
Profit (Loss) from discontinued operations	38	6,769,231,904	530,437,065,402
Profit (Loss) for the year		₩ (963,891,956,516)	₩ 433,106,772,532
Profit (Loss) for the year attributable to:			
Equity holders of the parent		₩ (553,308,372,608)	₩ 420,382,967,672
Non-controlling interests		₩ (410,583,583,908)	₩ 12,723,804,860
Earnings (Losses) per share attributable to the equity holders of the parent	32		
Basic earnings (losses) per ordinary share from continuing operations		₩ (31,496)	₩ (7,884)
Basic earnings (losses) per ordinary share		₩ (31,092)	₩ 21,900
Diluted earnings (losses) per ordinary share from continuing operations		₩ (31,496)	₩ (7,884)
Diluted earnings (losses) per ordinary share		₩ (31,092)	₩ 21,900
Basic earnings (losses) per old-type preferred share from continuing operations		₩ (31,456)	₩ (7,900)
Basic earnings (losses) per old-type preferred share		₩ (31,052)	₩ 21,945
Diluted earnings (losses) per old-type preferred share from continuing operations		₩ (31,456)	₩ (7,900)
Diluted earnings (losses) per old-type preferred share		₩ (31,052)	₩ 21,945

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

**Doosan Corporation and its subsidiaries**  
**Consolidated statements of comprehensive income (loss)**  
**for the years ended December 31, 2020 and 2019**  
(Korean won)

	Notes	2020	2019
<b>Profit (loss) for the year</b>		<b>₩ (963,891,956,516)</b>	<b>₩ 433,106,772,532</b>
<b>Other comprehensive income</b>	22		
Items not to be subsequently reclassified to profit or loss			
Remeasurements of net defined benefit liabilities	17	(40,504,731,814)	(68,212,620,952)
Land revaluation surplus	12	(21,375,256,857)	86,830,065,635
Gain on valuation of financial assets (designated) at fair value through other comprehensive income	6	392,276,935,648	47,362,103,271
Gain (loss) on valuation of derivatives designated as hedges	9	(34,024,518,250)	-
Items to be subsequently reclassified to profit or loss			
Gain (loss) on valuation of derivatives designated as cash flow hedges	9	(10,512,224,513)	10,238,318,732
Gain (loss) on foreign operations translation		(98,617,106,999)	114,708,926,864
(Negative) equity changes in equity method		5,791,490,224	(197,389,466)
<b>Total other comprehensive income</b>		<b>₩ 193,034,587,439</b>	<b>₩ 190,729,404,084</b>
<b>Total comprehensive income (loss) for the year</b>		<b>₩ (770,857,369,077)</b>	<b>₩ 623,836,176,616</b>
<b>Profit (loss) attributable to:</b>			
<b>Equity holders of the parent</b>		<b>₩ (242,721,734,603)</b>	<b>₩ 501,474,621,055</b>
<b>Non-controlling interests</b>		<b>₩ (528,135,634,474)</b>	<b>₩ 122,361,555,561</b>

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

**Doosan Corporation and its subsidiaries**  
**Consolidated statements of changes in equity**  
for the years ended December 31, 2020 and 2019  
(Korean won)

	Share capital	Capital surplus	Other equity items	Accumulated other comprehensive income	Retained earnings	Non-controlling interests	Total
<b>As of January 1, 2019</b>	₩ 134,845,735,000	₩ 761,433,751,850	₩ (396,336,775,538)	₩ 551,449,281,371	₩ 960,134,735,858	₩ 5,133,519,462,531	₩ 7,145,046,191,072
Effect of adoption of new accounting standards (See Note 2)	-	-	-	-	(10,591,402,830)	(28,843,708,925)	(39,435,111,755)
<b>As of January 1, 2019 (Modified)</b>	₩ 134,845,735,000	₩ 761,433,751,850	₩ (396,336,775,538)	₩ 551,449,281,371	₩ 949,543,333,028	₩ 5,104,675,753,606	₩ 7,105,611,079,317
<b>Total comprehensive loss:</b>							
Profit for the year	-	-	-	-	420,382,967,672	12,723,804,860	433,106,772,532
Remeasurements of net defined benefit liabilities	-	-	-	-	(19,534,676,552)	(48,677,944,400)	(68,212,620,952)
Land revaluation surplus	-	-	-	25,926,927,785	2,564,028,978	58,339,108,872	86,830,065,635
Gain on valuation of financial assets (designated) at fair value through OCI	-	-	-	53,498,961,338	-	(6,136,858,067)	47,362,103,271
Gain on valuation of derivatives designated as cash flow hedges	-	-	-	4,030,262,417	-	6,206,056,315	10,238,318,732
Gain on foreign operations translation	-	-	-	14,796,511,095	-	99,912,415,769	114,708,926,864
Negative equity changes in equity method	-	-	-	(190,361,678)	-	(7,027,788)	(197,389,466)
<b>Subtotal</b>	-	-	-	₩ 98,062,300,957	₩ 403,412,320,098	₩ 122,361,555,561	₩ 623,836,176,616
<b>Transactions with shareholders directly reflected in shareholders' equity and others:</b>							
Cancellation of stock options	-	460,905,100	(460,905,100)	-	-	-	-
Payment of dividends	-	-	-	-	(102,388,830,700)	(69,214,473,021)	(171,613,303,721)
Spin-off	(11,107,630,000)	62,490,051,174	(802,198,724,892)	(804,793,372)	804,793,372	-	(750,816,303,718)
Acquisition of treasury stocks	-	-	(592,076,206)	-	-	-	(592,076,206)
Paid-in capital increase of subsidiaries	-	(21,238,987,177)	-	-	-	-	334,978,868,650
Repayment of redeemable convertible preferred stock of subsidiaries	-	(62,209,098,270)	-	-	-	356,217,855,827	(316,344,218,152)
Stock options of subsidiaries	-	725,560,888	(725,580,888)	-	-	-	-
Stock warrants of subsidiaries	-	(49,728,005)	-	-	-	-	-
Changes in share ratio of subsidiaries	-	(920,640,526)	-	-	-	70,377,020	20,649,012
Changes in other equity items	-	(8,425,732,870)	7,392,810,268	-	(636,866,123)	920,640,526	-
<b>Subtotal</b>	₩ (11,107,630,000)	₩ (29,167,649,689)	₩ (796,584,476,818)	₩ (804,793,372)	₩ (102,230,903,451)	₩ (1,871,707,662)	₩ (3,541,486,387)
<b>As of December 31, 2019</b>	₩ 123,738,105,000	₩ 732,266,102,161	₩ (1,192,921,252,356)	₩ 648,706,785,956	₩ 1,250,724,749,675	₩ 5,257,024,881,975	₩ 6,819,539,375,411

(Continued)

**Doosan Corporation and its subsidiaries**  
**Consolidated statements of changes in equity**  
**for the years ended December 31, 2020 and 2019 (cont'd)**  
(Korean won)

	Share capital	Capital surplus	Other equity items	Accumulated other comprehensive income	Retained earnings	Non-controlling interests	Total
<b>As of January 1, 2020</b>	₩ 123,738,105,000	₩ 732,266,102,161	₩ (1,192,921,252,356)	₩ 648,706,789,956	₩ 1,250,724,749,675	₩ 5,257,024,881,975	₩ 6,819,539,375,411
Effect of adoption of new accounting standards (See Note 2)	-	-	-	-	-	-	-
<b>As of January 1, 2020</b>	123,738,105,000	732,266,102,161	(1,192,921,252,356)	648,706,789,956	1,250,724,749,675	5,257,024,881,975	6,819,539,375,411
<b>Total comprehensive loss:</b>							
Profit for the year	-	-	-	-	(563,308,372,608)	(410,583,583,908)	(963,891,956,516)
Remeasurements of net defined benefit liabilities	-	-	-	-	(12,753,780,315)	(27,750,951,499)	(40,504,731,814)
Land revaluation surplus	-	-	-	(97,255,674,714)	88,157,911,676	(12,277,493,819)	(21,375,256,857)
Gain on valuation of financial assets (designated) at fair value through OCI	-	-	-	394,453,294,566	(2,174,386,507)	(1,972,411)	392,276,935,648
Gain on valuation of derivatives designated as cash flow hedges	-	-	-	(40,270,426,909)	-	(4,266,315,854)	(44,536,742,763)
Gain on foreign operations translation	-	-	-	(24,995,228,285)	-	(73,621,878,714)	(98,617,106,999)
(Negative) equity changes in equity method	-	-	-	5,425,072,566	(144,073)	366,581,731	(98,617,106,999)
<b>Subtotal</b>	-	-	-	<b>237,357,037,224</b>	<b>(480,078,771,827)</b>	<b>(528,135,634,474)</b>	<b>(770,857,369,077)</b>
<b>Transactions with shareholders directly reflected in shareholders' equity and others:</b>							
Cancellation of stock options	-	1,161,331,400	(1,161,331,400)	-	-	-	-
Payment of dividends	-	(5,885,370,571)	-	-	(23,312,085,500)	(30,333,118,300)	(53,645,203,800)
Changes in other capital surplus	-	-	-	-	-	-	-
Reclassification of accumulated other comprehensive income to retained earnings	-	-	-	(411,974,761,968)	411,974,761,968	-	-
Changes in scope of consolidation	-	-	-	6,362,142,394	-	105,291,597,156	111,653,739,550
Paid-in capital increase of subsidiaries	-	(18,441,867,910)	-	-	-	1,117,839,687,293	1,099,397,819,383
Stock options of subsidiaries	-	516,496,746	(516,496,746)	-	-	-	-
Stock warrants of subsidiaries	-	(14,981,797,316)	-	-	-	-	-
Issuance of convertible bonds in subsidiaries	-	-	-	-	-	64,726,147,447	49,744,350,131
Acquisition of treasury stocks in subsidiaries	-	-	-	-	-	835,806,976	835,806,976
Gain from assets contributed in subsidiaries	-	208,443,360,326	-	-	-	(7,322,720,828)	(7,322,720,828)
Changes in other equity items	-	187,695,533,621	-	-	-	246,754,860,166	455,198,220,492
<b>Subtotal</b>	-	<b>358,507,686,296</b>	<b>(1,677,828,146)</b>	<b>(405,612,619,574)</b>	<b>385,662,676,468</b>	<b>1,320,966,808,502</b>	<b>1,660,846,723,546</b>
<b>As of December 31, 2020</b>	₩ 123,738,105,000	₩ 1,090,773,789,457	₩ (1,194,599,080,502)	₩ 480,451,206,606	₩ 1,159,308,654,316	₩ 6,049,856,056,003	₩ 7,709,528,729,880

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

**Doosan Corporation and its subsidiaries**  
**Consolidated statements of cash flows**  
**for the years ended December 31, 2020 and 2019**  
(Korean won)

	Notes	2020	2019
<b>Cash flows from operating activities</b>			
Cash generated from operating activities:	36		
Profit (Loss) for the year	₩	(963,891,956,516)	₩ 433,106,772,532
Adjustments		2,430,005,746,854	1,623,635,522,088
Changes in operating assets and liabilities		(718,907,733,960)	(540,760,397,512)
		<b>747,206,056,378</b>	<b>1,515,981,897,108</b>
Interest received		51,104,542,058	53,316,655,318
Interest paid		(510,977,660,159)	(553,922,910,286)
Dividends received		12,317,699,005	3,235,230,530
Income tax paid		(173,114,269,413)	(234,444,744,751)
<b>Net cash flows from operating activities</b>		<b>126,536,367,869</b>	<b>784,166,127,919</b>
<b>Cash flows from investing activities</b>			
Cash inflows from investing activities:			
Decrease in short-term financial instruments		405,950,836,922	258,648,761,815
Disposal of short-term investment securities		178,259,611,518	20,202,935,481
Decrease in short-term loans		289,730,586,356	33,700,704,598
Decrease in long-term financial instruments		53,979,896,685	18,356,299,775
Disposal of long-term investment securities		242,865,443,251	23,993,375,220
Decrease in long-term loans		660,436,761,791	290,689,144,370
Disposal of investments in subsidiaries		109,338,555,987	-
Disposal of investments in associates and joint ventures		14,004,225,000	8,579,413,180
Disposal of property, plant and equipment		265,689,634,544	163,377,493,662
Disposal of intangible assets		12,330,325,268	4,171,598,941
Disposal of investment properties		527,443,585,102	-
Net cash flows from discontinued operations		33,287,077,974	-
Changes in other investing activities		4,098,245,720	3,189,537,570
		<b>2,797,414,786,118</b>	<b>824,909,264,612</b>
Cash outflows from investing activities:			
Increase in short-term financial instruments		548,975,296,873	149,179,304,646
Acquisition of short-term investment securities		656,829,845,460	115,929,290,226
Increase in short-term loans		416,304,261,228	54,777,628,577
Increase in long-term financial instruments		114,927,614,769	16,290,764,922
Acquisition of long-term investment securities		108,552,121,103	43,108,601,125
Increase in long-term loans		337,642,479,676	323,333,844,774
Acquisition of investments in associates and joint ventures		104,691,606,600	35,114,658,377
Acquisition of property, plant and equipment		566,816,138,018	571,905,200,294
Acquisition of intangible assets		270,655,378,179	435,658,146,219
Acquisition of investment properties		6,865,040,549	5,184,107,185
Changes in other investing activities		8,560,695,081	10,264,067,944
		<b>(3,140,820,477,536)</b>	<b>(1,760,745,614,289)</b>
<b>Net cash flows used in investing activities</b>		<b>(343,405,691,418)</b>	<b>(935,836,349,677)</b>

(Continued)

**Doosan Corporation and its subsidiaries**  
**Consolidated statements of cash flows**  
**for the years ended December 31, 2020 and 2019 (cont'd)**  
(Korean won)

<b>Cash flows from financing activities</b>	<b>Notes</b>	<b>2020</b>	<b>2019</b>
<b>Cash inflows from financing activities:</b>			
Increase in short-term borrowings	₩	1,973,842,480,629	₩ 1,434,539,535,848
Increase in asset-backed loans		1,198,517,245,209	2,432,710,604,939
Issuance of bonds		1,814,295,215,990	1,036,540,163,926
Increase in long-term borrowings		959,966,771,628	1,019,049,366,553
Paid-in capital increase of subsidiaries		1,099,397,819,383	334,978,858,650
Exercise of stock warrants of subsidiaries		49,744,350,131	328,387,231
		<b>7,095,763,882,970</b>	<b>6,258,146,917,147</b>
<b>Cash outflows from financing activities:</b>			
Decrease in asset-backed loans		1,457,814,269,493	2,448,799,594,810
Repayment of bonds		2,523,173,999,655	1,381,296,951,282
Repayment of long-term borrowings		1,790,644,033,442	2,174,268,051,823
Repayment of finance lease liabilities		107,256,000,000	107,696,417,913
Payment of dividends		53,645,203,800	171,613,303,723
Acquisition of treasury stocks in subsidiaries		11,109,726,490	592,076,206
Repayment of redeemable convertible preference shares in subsidiaries		-	318,344,218,152
		<b>(5,943,643,232,880)</b>	<b>(6,602,610,613,909)</b>
<b>Net cash flows provided by financing activities</b>		<b>1,152,120,650,090</b>	<b>(344,463,696,762)</b>
<b>Effects of exchange rate changes on cash and cash equivalents</b>			
Decrease in cash and cash equivalents by spin-off	37	-	(166,602,665,958)
Decrease in cash due to reclassification of assets held for sale		(26,929,404,317)	-
Increase in cash due to changes in scope of consolidation		64,427,226,544	-
<b>Net increase (decrease) in cash and cash equivalents</b>		<b>866,544,731,842</b>	<b>(615,355,480,586)</b>
Cash and cash equivalents, beginning of the year		1,840,833,889,385	2,456,189,369,971
Cash and cash equivalents, end of the year		<b>₩ 2,707,378,621,227</b>	<b>₩ 1,840,833,889,385</b>

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

**Doosan Corporation and its subsidiaries**  
**Notes to the consolidated financial statements**  
**December 31, 2020 and 2019**

**1. General**

**1.1 The Parent company information**

Doosan Corporation (the “Company”) was incorporated on December 18, 1933, under the name of Sohwa-Kirin Beer, Ltd. to manufacture and sell beer. The Company has changed its name to Dongyang Beer, Ltd. in February 1948 and again to OB Beer, Ltd. in February 1996 and finally to Doosan Corporation on September 1, 1998. The consolidated financial statements of the Company and its subsidiaries (collectively, the “Group”) have been prepared based on Korean International Financial Reporting Standards (“KIFRS”) 1110 *Consolidated Financial Statements*.

Since June 1973, the Group’s shares have been listed in the Korea Exchange. After several capital issues, the Group’s share capital as of December 31, 2020 is ₩123,738 million, including ₩24,447 million of preferred shares.

The Group’s ordinary shares as of December 31, 2020 are owned as follows:

	Number of ordinary shares owned	Ownership percentage (%)
Related parties	7,805,623	47.24
Treasury stocks	3,000,866	18.16
Others	5,717,346	34.60
	16,523,835	100

In addition, 35.9% of preferred shares are owned by the largest shareholder and others and 51.6% of preferred shares are owned by others.

**1.2 Consolidated subsidiaries information**

Details of the subsidiaries as of December 31, 2020 and 2019 are as follows:

Subsidiary	Type of business	Location	Ownership ratio of the Group (%) (*1)		Ownership ratio of non-controlling interests (%) (*1)		Financial closing date
			2020	2019	2020	2019	
Oricom Inc. (“Oricom”)	Advertising	Korea	63.54	64.33	36.46	35.67	December 31
Hancomm Inc.	Advertising	Korea	100	100	36.46	35.67	December 31
Doosan Bears Inc	Sports	Korea	100	100	-	-	December 31
Doosan Business Research Institute (formerly, DLI Corporation) (*4)	Education	Korea	100	100	-	-	December 31
Doosan Robotics Inc.	Software development and supply	Korea	100	100	-	-	December 31
Doosan Mobility Innovation Inc	R&D and manufacturing	Korea	100	100	-	-	December 31
Doosan Logistics Solution Co., Ltd.	Service	Korea	100	100	-	-	December 31
Doosan Electro-Materials Singapore Pte Ltd.	Wholesale and retail	Singapore	100	100	-	-	December 31
Doosan Hong Kong Ltd.	Wholesale and retail	China	100	100	-	-	December 31
Doosan Electro-Materials (Shen Zhen) Limited.	Wholesale and retail	China	100	100	-	-	December 31
Doosan Shanghai Chemical Materials Co., Ltd.	Wholesale and retail	China	100	100	-	-	December 31
Doosan Electro-Materials (Changshu) Co., Ltd.	Manufacturing	China	100	100	-	-	December 31
Doosan Second Real Estate Securitization Specialty Ltd. (*2)	Specialized in securitization	Korea	-	-	-	-	December 31
Doosan Digital Innovation America LLC	IT service	USA	100	100	-	-	December 31
Doosan Information & Communications Beijing Co., Ltd. (formerly, Doosan Digital Innovation China LLC.) (*5)	IT service	China	100	100	-	-	December 31
Doosan Mottrol (Jiangyin) Co., Ltd.	Manufacturing	China	100	100	-	-	December 31
Doosan Digital Innovation Europe Limited.	IT service	UK	100	100	-	-	December 31

**Doosan Corporation and its subsidiaries**  
**Notes to the consolidated financial statements**  
**December 31, 2020 and 2019**

**1.2 Consolidated subsidiaries information (cont'd)**

Subsidiary	Type of business	Location	Ownership ratio of the Group (%) (*1)		Ownership ratio of non-controlling interests (%) (*1)		Financial closing date
			2020	2019	2020	2019	
Doosan Industrial Vehicle Europe N.V.	Wholesale and retail	Belgium	100	100	-	-	December 31
Doosan Industrial Vehicle U.K. Ltd.	Wholesale and retail	UK	100	100	-	-	December 31
Doosan Logistics Europe GmbH	Manufacturing	Germany	100	100	-	-	December 31
Doosan Industrial Vehicle America Corp.	Wholesale and retail	USA	100	100	-	-	December 31
Doosan Material Handling Solutions LLC	Forklift rental and sales	USA	100	100	-	-	December 31
Doosan Industrial Vehicle China Co., Ltd. (formerly, Doosan Industrial Vehicle Yantai Co., Ltd.) (*6)	Manufacturing	China	100	100	-	-	December 31
Genesis Forklift Trucks Limited	Manufacturing	UK	100	100	-	-	December 31
Rushlift Holdings Ltd.	Holding company	UK	100	100	-	-	December 31
Doosan Materials Handling UK Ltd.	Holding company	UK	100	100	-	-	December 31
Rushlift Ltd.	Forklift rental and sales	UK	100	100	-	-	December 31
Doosan Electro-Materials America, LLC	Marketing	USA	100	100	-	-	December 31
Doosan Fuel Cell America, Inc.	Manufacturing	USA	100	100	-	-	December 31
Doosan Energy Solutions America, Inc.,	Electric power generation and sales	USA	100	100	-	-	December 31
DESA Service, LLC	Electric power generation and sales	USA	100	100	-	-	December 31
DBC Co., Ltd.	Real estate development	Korea	100	100	45.72	46.72	December 31
Doosan Mobility Innovation (Shenzhen) Co. Ltd.	Wholesale and retail	China	100	100	-	-	December 31
Doosan Electro-Materials Vietnam Co., Ltd.	Manufacturing	Vietnam	100	-	-	-	December 31
Mottrol Co., Ltd.	Manufacturing	Korea	100	-	-	-	December 31
Bundang Doosan Tower Reit Co., Ltd.	Real estate investment	Korea	100	-	-	-	June 30, December 31
Sunny Russel 8th Co., Ltd. (*2)	Specialized in securitization	Korea	-	-	-	-	December 31
D-Pay 2nd Co., Ltd. (*2)	Specialized in securitization	Korea	-	-	-	-	December 31
New Star Motive 1st Co., Ltd (*2)	Specialized in securitization	Korea	-	-	-	-	December 31
Doosan Heavy Industries & Construction Co., Ltd. ("DHC") (*3)	Other engine and turbine manufacture	Korea	41.95	34.36	58.05	65.64	December 31
Doosan Mecatec Co., Ltd. (*9)	Manufacturing	Korea	100	100	58.05	-	December 31
Doosan Heavy Industries Vietnam Haiphong Co., Ltd.	Manufacturing	Vietnam	100	100	58.05	70.83	December 31
Doosan Heavy Industries Vietnam Co., Ltd.	Other engine and turbine manufacture	Vietnam	100	100	58.05	66.53	December 31
Doosan HF Controls Corp.	Manufacturing	USA	100	100	58.05	65.64	December 31
Doosan HF Controls Asia Co., Ltd.	Manufacturing	Korea	100	100	58.05	65.64	December 31
PT. Doosan Heavy Industries Indonesia	Manufacturing	Indonesia	83.64	55.00	64.91	81.10	December 31
Doosan Heavy Industries Malaysia Sdn. Bhd	Dormant corporation	Malaysia	100	100	58.05	65.64	December 31
Doosan Heavy Industries Japan Corp.	Wholesale and retail	Japan	100	100	58.05	65.64	December 31
Doosan Enpure Ltd.	Engineering and service	UK	100	100	58.05	65.64	December 31
Doosan Power Systems India Private Ltd.	Engineering and service	India	100	100	58.05	65.64	March 31
Doosan Heavy Industries Muscat LLC	Manufacturing	Oman	70	70	70.64	75.95	December 31
Doosan Power Systems Arabia Company Limited	Manufacturing service	Saudi Arabia	51	51	78.61	82.48	December 31
Azul Torre Construction Corporation (*3)	Manufacturing	Philippines	40	40	83.22	86.26	December 31
Doosan Heavy Industries America Holdings Inc.	Holding company	USA	100	100	58.05	65.64	December 31
Doosan Heavy Industries America LLC	Wholesale and retail	USA	100	100	58.05	65.64	December 31

**Doosan Corporation and its subsidiaries**  
**Notes to the consolidated financial statements**  
**December 31, 2020 and 2019**

**1.2 Consolidated subsidiaries information (cont'd)**

Subsidiary	Type of business	Location	Ownership ratio of the Group (%) (*1)		Ownership ratio of non-controlling interests (%) (*1)		Financial closing date
			2020	2019	2020	2019	
Doosan ATS America, LLC	Engineering and service	USA	100	100	58.05	65.64	December 31
Doosan Power Service America, LLC	Engineering and service	USA	100	100	58.05	65.64	December 31
Doosan Turbomachinery Services Holding, Inc.	Holding company	USA	95.90	95.90	59.77	67.05	December 31
Doosan Turbomachinery Services Inc.	Manufacturing	USA	100	100	58.05	65.64	December 31
Doosan GridTech Inc.	Software and systems engineering	USA	100	100	58.05	65.64	December 31
Doosan GridTech LLC	Software and systems engineering	USA	100	100	58.05	65.64	December 31
Doosan GridTech CA LLC	Software and systems engineering	USA	100	100	58.05	65.64	December 31
Doosan GridTech EPC LLC	Software and systems engineering	USA	100	100	58.05	65.64	December 31
Doosan GridTech C&I LLC	Software and systems engineering	USA	100	100	58.05	65.64	December 31
Continuity Energy LLC	Software and systems engineering	USA	100	100	58.05	65.64	December 31
Doosan Skoda Power s.r.o	Manufacturing	Czech	100	100	58.05	65.64	December 31
Skoda Power Private Ltd.	Engineering	India	100	100	58.05	65.64	March 31
Doosan Power Systems Pension Trustee Co., Ltd.	Specialized service	UK	100	100	58.05	65.64	December 31
Doosan Power Systems Overseas Investments Ltd.	Holding company	UK	100	100	58.05	65.64	December 31
Doosan Babcock Ltd.	Engineering and service	UK	100	100	58.05	65.64	December 31
Doosan Power Systems Europe Limited GmbH	Engineering and service	Germany	100	100	58.05	65.64	December 31
Doosan Power Systems Americas LLC	Engineering and service, Wholesale and retail	USA	100	100	58.05	65.64	December 31
Doosan Lentjes GmbH	Engineering and service	Germany	100	100	58.05	65.64	December 31
Doosan Power Systems S.A.	Holding company	Luxembourg	100	100	58.05	65.64	December 31
Doosan Babcock Energy Services (Overseas) Ltd.	Engineering and service	UK	100	100	58.05	65.64	December 31
Doosan Babcock Energy Polska S.A.	Engineering and service	Poland	98.91	98.91	58.51	66.01	December 31
Doosan Babcock Energy Germany GmbH	Engineering and service	Germany	100	100	58.05	65.64	December 31
Doosan Lentjes Czech s.r.o	Specialized service	Czech	100	100	58.05	65.97	December 31
Doosan Power Systems (Scotland) Ltd. Partnership	Real estate	UK	100	100	58.05	65.64	December 31
Doosan Babcock General Maintenance Services LLC (*3)	Specialized service	UAE	49.00	49.00	79.44	83.16	December 31
Osungpower O&M	Engineering and service	Korea	100	100	58.05	65.64	December 31
KDPP 5th Co., Ltd. (*2)	Specialized in securitization	Korea	-	-	-	-	December 31
U BEST 5th Co., Ltd. (*2)	Specialized in securitization	Korea	-	-	-	-	December 31
Doosan Cuvex Co., Ltd	Golf and condominium	Korea	100	100	45.53	51.91	December 31
Doosan Infracore Co., Ltd. ("DI") (*3)	Manufacturing, sales	Korea	34.97	36.27	85.33	87.54	December 31
Doosan Infracore China Co., Ltd.	Manufacturing, sales	China	80.00	80.00	88.26	90.03	December 31
Doosan Infracore (China) Investment Co., Ltd.	Holding company	China	100	100	88.26	87.54	December 31
Doosan Infracore Hunan Corp.	Sales	China	100	-	88.26	-	December 31
Doosan Infracore Beijing Corp.	Sales	China	100	-	88.26	-	December 31
ECUBE Solution Co., Ltd.	Production and sale	Korea	60.00	-	91.2	-	December 31
Doosan Infracore North America LLC	Sales	USA	100	100	85.33	87.54	December 31
Doosan Infracore Japan Corp.	Purchases	Japan	100	100	85.33	87.54	December 31
Doosan (China) Financial Leasing Corp.	Finance	China	100	100	86.47	88.51	December 31

**Doosan Corporation and its subsidiaries**  
**Notes to the consolidated financial statements**  
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**1.2 Consolidated subsidiaries information (cont'd)**

Subsidiary	Type of business	Location	Ownership ratio of the Group (%) (*1)		Ownership ratio of non-controlling interests (%) (*1)		Financial closing date
			2020	2019	2020	2019	
Doosan Bobcat Chile S.A.	Sales	Chile	100	100	85.33	87.54	December 31
Doosan Infracore (Shandong) Co., Ltd.	Sales	China	100	100	87.24	89.16	December 31
Doosan Infracore Norway AS	Manufacturing, sales	Norway	100	100	85.33	87.54	December 31
Doosan Infracore South America Industria E Comercio De Maquinas De Construcao LTDA	Sales	Brazil	99.99	99.99	85.33	87.44	December 31
Doosan Infracore Construction Equipment India Private Ltd.	Sales	India	100	100	85.33	87.54	March 31
D20 Capital, LLC	Financial investment	USA	100	100	85.33	87.54	December 31
Clue Insight Inc.	Software development and sales	USA	72.47	71.98	89.37	91.03	December 31
D20 Capital FUND I, L.P. (*3)	Financial investment	USA	-	-	100	100	December 31
Doosan Bobcat Global Collaboration Center, Inc.	Other service	USA	100	100	92.51	93.64	December 31
Doosan Bobcat Inc.	Holding company	Korea	51.05	51.05	92.51	93.64	December 31
Doosan Bobcat Singapore Pte. Ltd.	Holding company	Singapore	100	100	92.51	93.64	December 31
Doosan Bobcat Korea Co., Ltd.	Sales	Korea	100	100	92.51	93.64	December 31
Doosan Bobcat Chile Compact SpA	Sales	Chile	100	100	92.51	93.64	December 31
Doosan Bobcat India Private Ltd.	Manufacturing, sales	India	100	100	92.51	93.64	March 31
Bobcat Corp.	Sales	Japan	100	100	92.51	93.64	December 31
Doosan Bobcat Mexico S.A. de C.V.	Other service	Mexico	100	100	92.51	93.64	December 31
Doosan Bobcat China Co., Ltd.	Manufacturing, sales	China	100	100	92.51	93.64	December 31
Clark Equipment Co.	Manufacturing, sales	USA	100	100	92.51	93.64	December 31
Bobcat Equipment Ltd.	Sales	Canada	100	100	92.51	93.64	December 31
Doosan International Australia Pty Ltd.	Sales	Australia	100	100	92.51	93.64	December 31
Bobcat Bensheim GmbH.	Sales	Germany	100	100	92.51	93.64	December 31
Doosan Holdings France S.A.S.	Holding company	France	100	100	92.51	93.64	December 31
Doosan Infracore Europe s.r.o. (formerly, Doosan Infracore Czech Republic s.r.o.) (*7, 8)	Sales	Czech	100	100	85.33	87.54	December 31
CJSC Doosan International Russia	Sales	Russia	100	100	92.51	93.64	December 31
Doosan International UK Ltd.	Sales	UK	100	100	92.51	93.64	December 31
Doosan International South Africa Pty Ltd.	Sales	Republic of South Africa	100	100	92.51	93.64	December 31
Doosan Bobcat EMEA s.r.o.	Manufacturing, Sales	Czech	100	100	92.51	93.64	December 31
Bobcat France S.A.	Manufacturing	France	100	100	92.51	93.64	December 31
Geith International Ltd.	Sales	Ireland	100	100	92.51	93.64	December 31
Doosan Engineering & Construction Co., Ltd. ("DEC")	Construction	Korea	100	89.03	58.05	69.41	December 31
DMbest 3rd Co.,Ltd. (*2)	Specialized in securitization	Korea	-	-	-	-	December 31
Greatgm 4th Co.,Ltd. (*2)	Specialized in securitization	Korea	-	-	-	-	December 31
Newstart DM 7th Co.,Ltd. (*2)	Specialized in securitization	Korea	-	-	-	-	December 31
Doosan E&C 4th Co., Ltd. (*2)	Specialized in securitization	Korea	-	-	-	-	December 31
Newstart DM 8th Co., Ltd. (*2)	Specialized in securitization	Korea	-	-	-	-	December 31
DSmunsuro 1st Co., Ltd. (*2)	Specialized in securitization	Korea	-	-	-	-	December 31
Buildup 1st Co., Ltd. (*2)	Specialized in securitization	Korea	-	-	-	-	December 31
J on Shindongbaek Co., Ltd. (*2)	Specialized in securitization	Korea	-	-	-	-	December 31
Valuegrowth Co., Ltd.	Specialized in securitization	Korea	100	-	58.05	-	December 31

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**1.2 Consolidated subsidiaries information (cont'd)**

Subsidiary	Type of business	Location	Ownership ratio of the Group (%) (*1)		Ownership ratio of non-controlling interests (%) (*1)		Financial closing date
			2020	2019	2020	2019	
Doosan Fuel Cell Co., Ltd. ("DFC") (*3)	Manufacturing	Korea	30.33	-	78.73	-	December 31

(\*1) The ownership interest held by the Group represents the aggregated total of ownership interests directly held by each entity within the Group. The ownership interest held by non-controlling interests represents the proportion of ownership interests that is not attributable, directly or indirectly, to the entities within the Group and it may differ from the aggregated total, less the effective ownership interest held by the Group.

(\*2) Although the Group does not own the equity of the special-purpose company, the Group gets profits from its operation according to the agreement, with structured investment. As the Group has control to decide its operational activity, it also influences the profits significantly.

(\*3) Potential voting rights held by the Group on the above subsidiaries for assessing whether or not it controls the subsidiaries are less than 50%, but the Group concluded that the Group has de facto control over the subsidiaries.

(\*4) During the current year, 'DLI Corporation' changed its name to 'Doosan Business Research Institute'.

(\*5) During the current year, 'Digital Innovation China LLC.' changed its name to 'Doosan Information & Communications Beijing Co., Ltd.'.

(\*6) During the current year, 'Doosan Industrial Vehicle Yantai Co., Ltd.' changed its name to 'Doosan Industrial Vehicle China Co., Ltd.'.

(\*7) During the current year, 'Doosan Infracore Czech Republic s.r.o.' changed its name to 'Doosan Infracore Europe s.r.o.'.

(\*8) During the current year, 'Doosan Infracore Europe B.V.' was acquired by 'Doosan Infracore Europe s.r.o.'.

(\*9) During the current year, 'Valueworks Co., Ltd.' was acquired by 'Doosan Mecatec Co., Ltd.'.

**Doosan Corporation and its subsidiaries**  
**Notes to the consolidated financial statements**  
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**1.2.1 Changes in the scope of consolidation**

Changes in the scope of consolidation for the year ended December 31, 2020 are as follows:

Subsidiary	Change	Description
Doosan Electro-Materials Vietnam Co., Ltd.	Included	Newly established
D-Pay 2nd Co., Ltd.	Included	New borrowing
New Star Motive 1st Co., Ltd.	Included	New borrowing
DFC	Included	Acquisition of equity
Mottrol Co., Ltd.	Included	Split-off
Bundang Doosan Tower Reit Co., Ltd.	Included	Newly established
Doosan Infracore Hunan Corp.	Included	Newly established
Doosan Infracore Beijing Corp.	Included	Newly established
ECUBE Solution Co., Ltd.	Included	Newly established
DSmunuro 1st Co., Ltd.	Included	New borrowing
Buildup 1st Co., Ltd.	Included	New borrowing
J on Star Co., Ltd.	Included	New borrowing
J on Shindongbaek Co., Ltd.	Included	New borrowing
Valuegrowth Co., Ltd.	Included	Newly established
Buildup 2nd Co., Ltd.	Included	New borrowing
KJDS 1st Co., Ltd.	Included	New borrowing
Neoplux Co., Ltd.	Excluded	Sale
D-Pay 1st Co., Ltd.	Excluded	Liquidation
Doosan Lentjes UK Limited	Excluded	Liquidation
Doosan Babcock Energy Technologies (Shanghai) Ltd.	Excluded	Liquidation
KDPP 3rd Co., Ltd.	Excluded	Borrowing redemption
Buildup 2nd Co., Ltd.	Excluded	Borrowing redemption
KJDS 1st Co., Ltd.	Excluded	Borrowing redemption
S.C. Doosan IMGB S.A.	Excluded	Sale
Pinetree City 1st Co., Ltd.	Excluded	Borrowing redemption
J on Star Co., Ltd.	Excluded	Borrowing redemption

**Doosan Corporation and its subsidiaries**  
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**1.3 Condensed financial information of the Group's significant consolidated subsidiaries**

Condensed financial information of the Group's significant consolidated subsidiaries (or intermediate parent) as of and for the year ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020				
	Assets	Liabilities	Sales	Profit (loss) for the year	Total comprehensive income (loss)
	₩	₩	₩	₩	₩
DHC	11,147,216	7,686,539	3,451,445	(1,880,174)	(1,907,279)
Doosan Mecatec Co., Ltd. and its subsidiaries	609,515	351,295	317,538	6,032	7,299
Doosan Heavy Industries Vietnam Co., Ltd.	464,543	274,632	509,155	82,384	82,384
Doosan Power Systems India Private Ltd.	662,058	699,383	363,956	(331,405)	(326,229)
Doosan Heavy Industries America Holdings Inc.	187,874	80,036	-	9,726	9,726
Doosan Babcock Ltd.	1,139,881	473,560	403,538	9,371	(6,489)
Doosan Lentjes GmbH	101,611	87,184	35,549	(8,795)	(39,451)
Doosan Power Systems S.A.	1,293,334	830,782	-	33,605	4,174
Doosan Cuvex Co., Ltd	307,707	106,780	69,373	4,153	4,280
DI	5,180,810	3,679,161	2,712,338	(37,858)	(24,342)
Doosan Infracore China Co., Ltd.	1,557,410	909,446	1,476,189	72,983	72,983
Doosan Infracore (China) Investment Co., Ltd.	226,536	5,034	10,435	4,314	4,314
Doosan Infracore North America LLC	279,903	194,292	285,039	11,829	11,829
Doosan (China) Financial Leasing Corp.	720,824	499,444	59,408	24,234	24,234
Doosan Bobcat EMEA s.r.o.	249,798	231,740	478,931	7,757	7,705
Doosan Bobcat Co., Ltd. and its subsidiaries	6,960,608	2,886,803	4,282,058	247,454	418,622
DEC	1,604,940	1,290,931	1,828,661	(179,061)	(180,669)
Valuegrowth Co.,Ltd.	266,012	84,656	-	(4,687)	(4,687)
Doosan E&C 4th Co., Ltd.	76,691	76,688	5,636	-	-
DBC Co., Ltd.	542,068	439,762	-	(938)	(940)
Doosan Industrial Vehicle America Corp.	90,213	53,460	224,345	3,466	3,466
Doosan Industrial Vehicle U.K. Ltd.	87,033	84,142	29,116	1,520	1,520
Rushlift Ltd.	135,759	121,622	57,965	957	957
Doosan Mottrol (Jiangyin) Co., Ltd.	168,983	104,804	395,268	18,280	18,280
Doosan Electro-Materials (Changshu) Co., Ltd.	136,110	85,502	179,927	16,485	16,485
Doosan Fuel Cell America, Inc.	344,635	283,091	242,412	8,933	8,933
Oricom	122,047	53,128	82,969	(843)	(156)
Mottrol Co., Ltd.	436,430	203,011	48,242	(6,284)	(5,831)
DFC	790,188	277,644	461,839	14,190	13,889

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**1.3 Condensed financial information of the Group's significant consolidated subsidiaries (cont'd)**

	2019				
	Assets	Liabilities	Sales	Profit (loss) for the year	Total comprehensive income (loss)
DHC	₩ 11,360,878	₩ 7,920,170	₩ 3,708,635	₩ (495,191)	₩ (546,471)
Doosan Heavy Industries Vietnam Co., Ltd.	449,480	328,217	384,782	61,026	61,026
Doosan Power Systems India Private Ltd.	781,789	688,851	701,513	(44,462)	(39,921)
Doosan Heavy Industries America Holdings Inc.	149,594	44,380	-	(1,625)	(1,625)
Doosan Power Systems Overseas Investments Ltd.	76,753	98,064	-	(3,370)	(3,370)
Doosan Babcock Ltd.	1,145,394	456,192	473,608	2,486	20,588
Doosan Power Systems S.A.	1,294,288	840,673	-	(34,347)	(49,361)
Doosan Cuvex Co., Ltd	220,792	103,295	68,412	934	6,358
DI	4,965,757	3,490,347	3,102,184	53,024	69,028
Doosan Infracore China Co., Ltd.	1,334,444	762,003	1,315,098	112,883	112,883
Doosan Infracore (China) Investment Co., Ltd.	221,149	5,449	11,674	1,690	1,690
Doosan Infracore North America LLC	310,758	231,261	267,184	14,686	12,045
Doosan (China) Financial Leasing Corp.	647,985	451,728	60,723	21,824	21,824
Doosan Infracore Europe B.V.	284,038	273,958	553,556	4,175	4,161
Doosan Bobcat Co., Ltd. and its subsidiaries	6,704,236	2,725,170	4,509,550	272,116	218,514
DEC	2,328,740	1,810,267	1,729,861	(95,534)	(94,482)
Newstart DM 7th Co.,Ltd.	140,298	140,308	3,091	(11)	(11)
DMbest 3rd Co.,Ltd.	90,004	90,004	6,854	-	-
Newstart DM 8th Co.,Ltd.	122,002	122,002	-	-	-
Doosan E&C 4th Co., Ltd.	97,104	97,101	4,671	-	-
Valueworks Co., Ltd.	206,282	1,941	5,640	2,542	2,542
DBC Co., Ltd.	322,297	219,050	-	(814)	(814)
Doosan Mecatec Co., Ltd.	427,951	224,357	311,753	14,890	16,023
Doosan Industrial Vehicle America Corp.	86,711	51,002	249,774	3,904	3,904
Doosan Industrial Vehicle U.K. Ltd.	107,258	105,822	47,618	335	335
Rushlift Ltd.	138,504	122,704	64,968	(741)	(741)
Doosan Mottrol (Jiangyin) Co., Ltd.	105,618	59,638	282,972	15,568	15,568
Doosan Electro-Materials (Changshu) Co., Ltd.	141,750	107,501	183,180	14,478	14,478
DFC	306,930	250,203	231,091	(14,893)	(14,893)
Oricom	140,917	69,645	113,009	3,283	3,536

**Doosan Corporation and its subsidiaries**  
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**1.4 Cash flows information**

A summarized cash flows information of main subsidiaries for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020		
	DHC and its subsidiaries	DI and its subsidiaries	DEC and its subsidiaries
Cash flows from operating activities	₩ (690,857)	₩ 1,050,847	₩ (55,328)
Cash flows from investing activities	(554,572)	(503,165)	375,618
Cash flows from financing activities	1,207,469	428,938	(263,731)
Effect of exchange rate changes on cash and cash equivalents	(30,364)	(69,334)	(8)
Net increase (decrease) in cash and cash equivalent	(68,324)	907,286	56,551
Cash and cash equivalents, beginning of the year	645,026	756,173	40,082
Cash and cash equivalents, end of the year	₩ 576,702	₩ 1,663,459	₩ 96,633
	2019		
	DHC and its subsidiaries	DI and its subsidiaries	DEC and its subsidiaries
Cash flows from operating activities	₩ (50,120)	₩ 567,418	₩ (74,316)
Cash flows from investing activities	(429,446)	(339,375)	(9,200)
Cash flows from financing activities	190,509	(549,790)	24,301
Effect of exchange rate changes on cash and cash equivalents	16,640	24,904	202
Net increase (decrease) in cash and cash equivalent	(272,417)	(296,843)	(59,013)
Cash and cash equivalents, beginning of the year	917,443	1,053,016	99,095
Cash and cash equivalents, end of the year	₩ 645,026	₩ 756,173	₩ 40,082

Above financial information vested in non-controlling interests is based on consolidated financial information of intermediate controlling company. However, financial information of DHC and its subsidiaries does not include financial information of DI, DEC and their subsidiaries, respectively.

**1.5 Financial information attributable to non-controlling interests**

The ownership interest held by non-controlling interests and details of financial position, result of operation and dividends vested in non-controlling interests by each of the major subsidiaries as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020					
	DHC and its subsidiaries		DI and its subsidiaries		DEC and its subsidiaries	
Ownership interest held by non-controlling interests (%)	58.1%		85.3%		58.1%	
Cumulative non-controlling interests	₩	1,456,517	₩	4,194,097	₩	(18,836)
Net income (loss) vested in non-controlling interests	(557,077)		263,352		(119,703)	
Dividends paid to non-controlling interests (*1)	-		(29,444)		-	

(\*1) Oricom except for above subsidiaries paid dividends of ₩889 million vested in non-controlling interests.

	2019					
	DHC and its subsidiaries		DI and its subsidiaries		DEC and its subsidiaries	
Ownership interest held by non-controlling interests (%)	65.6%		87.5%		69.4%	
Cumulative non-controlling interests	₩	1,010,523	₩	4,015,486	₩	192,651
Net income (loss) vested in non-controlling interests	(279,384)		357,177		(66,613)	
Dividends paid to non-controlling interests (*1)	(14,390)		(53,980)		-	

(\*1) Oricom except for above subsidiaries paid dividends of ₩844 million vested in non-controlling interests.

Above financial information vested in non-controlling interests is based on consolidated financial information of intermediate controlling company. However, financial information of DHC and its subsidiaries does not include financial information of DI, DEC and its subsidiaries, respectively.

## **2. Summary of significant accounting policies**

### **2.1 Basis of preparation**

The Group prepares statutory financial statements in Korean in accordance with KIFRS enacted by *the Act on External Audit of Stock Companies*.

Significant accounting policies applied in the preparation of the consolidated financial statements are described below. Significant accounting policies applied in the preparation of the consolidated financial statements for the year ended December 31, 2020 are the same as those adopted in the preparation of the consolidated financial statements for the year ended December 31, 2019, except for the effects related to the adoption of the standards or interpretations described below.

The accompanying consolidated financial statements have been prepared on the historical cost basis, except for certain properties/non-current assets and financial instruments that are measured at fair values, as explained in the accounting policies below. Historical cost is based on the fair values of the consideration given in exchange for assets.

#### **2.1.1 New and amended standards and interpretations**

The Group applied for the first-time certain standards and amendments, which are effective for annual periods beginning on or after January 1, 2020.

##### **Amendments to KIFRS 1103: *Definition of a Business***

The amendment to KIFRS 1103 *Business Combinations* clarifies that to be considered a business, an integrated set of activities and assets must include, at a minimum, an input and a substantive process that, together, significantly contribute to the ability to create output. Furthermore, it clarifies that a business can exist without including all of the inputs and processes needed to create outputs. These amendments had no impact on the consolidated financial statements of the Group, but may impact future periods should the Group enter into any business combinations.

##### **Amendments to KIFRS 1107, KIFRS 1109 and KIFRS 1039 *Interest Rate Benchmark Reform***

The amendments to KIFRS 1109 and KIFRS 1039 *Financial Instruments: Recognition and Measurement* provide a number of reliefs, which apply to all hedging relationships that are directly affected by interest rate benchmark reform. A hedging relationship is affected if the reform gives rise to uncertainty about the timing and/or amount of benchmark-based cash flows of the hedged item or the hedging instrument. These amendments have no impact on the consolidated financial statements of the Group as it does not have any interest rate hedge relationships.

##### **Amendments to KIFRS 1001 and KIFRS 1008 *Definition of Material***

The amendments provide a new definition of material that states, "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 clarify that materiality will depend on the nature or magnitude of information, either individually or in combination with other information, in the context of the financial statements. A misstatement of information is material if it could reasonably be expected to influence decisions made by the primary users. These amendments had no impact on the consolidated financial statements of, nor is there expected to be any future impact to the Group.

##### **Conceptual Framework for Financial Reporting issued on March 29, 2018**

The Conceptual Framework is not a standard, and none of the concepts contained therein override the concepts or requirements in any standard. The purpose of the Conceptual Framework is to assist the KASB in developing standards, to help preparers develop consistent accounting policies where there is no applicable standard in place and to assist all parties to understand and interpret the standards. This will affect those entities which developed their accounting policies based on the Conceptual Framework. The revised Conceptual Framework includes some new concepts, updated definitions and recognition criteria for assets and liabilities and clarifies some important concepts. These amendments had no impact on the consolidated financial statements of the Group.

### **2.1.1 New and amended standards and interpretations (cont'd)**

#### **Amendments to KIFRS 1116 COVID-19 Related Rent Concessions**

The amendments provide relief to lessees from applying KIFRS 1116 guidance on lease modification accounting for rent concessions arising as a direct consequence of the COVID-19 pandemic. As a practical expedient, a lessee may elect not to assess whether a COVID-19 related rent concession from a lessor is a lease modification. A lessee that makes this election accounts for any change in lease payments resulting from the COVID-19 related rent concession the same way it would account for the change under KIFRS 1116 if the change were not a lease modification. The amendment applies to annual reporting periods beginning on or after June 1, 2020. Earlier application is permitted. This amendment had no impact on the consolidated financial statements of the Group.

### **2.1.2 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 Group's financial statements are disclosed below. The Group intends to adopt these new and amended standards and interpretations, if applicable, when they become effective.

#### **Amendments to KIFRS 1001: Classification of Liabilities as Current or Non-current**

The amendments to paragraphs 69 to 76 of KIFRS 1001 specify the requirements for classifying liabilities as current or non-current. The amendments clarify:

- What is meant by a right to defer settlement
- That a right to defer must exist at the end of the reporting period
- That classification is unaffected by the likelihood that an entity will exercise its deferral right
- That only if an embedded derivative in a convertible liability is itself an equity instrument would the terms of a liability not impact its classification

The amendments are effective for annual reporting periods beginning on or after January 1, 2023 and must be applied retrospectively. The Group is currently assessing the impact the amendments will have on current practice and whether existing loan agreements may require renegotiation.

#### **Reference to the Conceptual Framework – Amendments to KIFRS 1103**

The amendments are intended to replace a reference to the Framework for the Preparation and Presentation of Financial Statements, issued in 1989, with a reference to the Conceptual Framework for Financial Reporting issued in March 2018 without significantly changing its requirements. The Board also added an exception to the recognition principle of KIFRS 1103 to avoid the issue of potential 'day 2' gains or losses arising for liabilities and contingent liabilities that would be within the scope of KIFRS 1037 or KIFRS 2121 *Levies*, if incurred separately. At the same time, the Board decided to clarify existing guidance in KIFRS 1103 for contingent assets that would not be affected by replacing the reference to the Framework for the Preparation and Presentation of Financial Statements. The amendments are effective for annual reporting periods beginning on or after January 1, 2022 and apply prospectively.

#### **Property, Plant and Equipment: Proceeds before Intended Use – Amendments to KIFRS 1016**

The amendments prohibit entities deducting from the cost of an item of property, plant and equipment, any proceeds from selling items produced while bringing that asset to the location and condition necessary for it to be capable of operating in the manner intended by management. Instead, an entity recognizes the proceeds from selling such items, and the costs of producing those items, in profit or loss. The amendment is effective for annual reporting periods beginning on or after January 1, 2022 and must be applied retrospectively to items of property, plant and equipment made available for use on or after the beginning of the earliest period presented when the entity first applies the amendment. The amendments are not expected to have a material impact on the Group.

### 2.1.2. Standards issued but not yet effective (cont'd)

#### **Onerous Contracts – Costs of Fulfilling a Contract – Amendments to KIFRS 1037**

The amendments specify which costs an entity needs to include when assessing whether a contract is onerous or loss-making. The amendments apply a “directly related cost approach”. The costs that relate directly to a contract to provide goods or services include both incremental costs and an allocation of costs directly related to contract activities. General and administrative costs do not relate directly to a contract and are excluded unless they are explicitly chargeable to the counterparty under the contract. The amendments are effective for annual reporting periods beginning on or after January 1, 2022. The Group will apply these amendments to contracts for which it has not yet fulfilled all its obligations at the beginning of the annual reporting period in which it first applies the amendments.

#### **2018-2020 annual improvements to KIFRS standards process**

#### **KIFRS 1101 *First-time Adoption of International Financial Reporting Standards – Subsidiary as a first-time adopter***

The amendment permits a subsidiary that elects to apply paragraph D16(a) of KIFRS 1101 to measure cumulative translation differences using the amounts reported by the parent, based on the parent's date of transition to KIFRS. This amendment is also applied to an associate or joint venture that elects to apply paragraph D16(a) of KIFRS 1101. The amendment is effective for annual reporting periods beginning on or after January 1, 2022 with earlier adoption permitted.

#### **KIFRS 1109 *Financial Instruments – Fees in the '10 per cent' test for derecognition of financial liabilities***

The amendment clarifies the fees that an entity includes when assessing whether the terms of a new or modified financial liability are substantially different from the terms of the original financial liability. These fees include only those paid or received between the borrower and the lender, including fees paid or received by either the borrower or lender on the other's behalf. An entity applies the amendment to financial liabilities that are modified or exchanged on or after the beginning of the annual reporting period in which the entity first applies the amendment. The amendment is effective for annual reporting periods beginning on or after January 1, 2022 with earlier adoption permitted. The Group will apply the amendments to financial liabilities that are modified or exchanged on or after the beginning of the annual reporting period in which the entity first applies the amendment. The amendments are not expected to have a material impact on the Group.

#### **KIFRS 1041 *Agriculture – Taxation in fair value measurements***

The amendment removes the requirement in paragraph 22 of KIFRS 1041 that entities exclude cash flows for taxation when measuring the fair value of assets within the scope of KIFRS 1041. An entity applies the amendment prospectively to fair value measurements on or after the beginning of the first annual reporting period beginning on or after January 1, 2022 with earlier adoption permitted. The amendments are not expected to have a material impact on the Group.

## **2.2 Basis of consolidation**

The consolidated financial statements comprise the financial statements of the Group as of December 31, 2020. Control is achieved when the Group is exposed, or has rights, to variable returns from its involvement with the investee and has the ability to affect those returns through its power over the investee. Specifically, the Group controls an investee if, and only if, the Group has:

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

When the Group has less than a majority of the voting or similar rights of an investee, the Group considers all relevant facts and circumstances in assessing whether it has power over an investee, including:

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

## **2.2 Basis of consolidation (cont'd)**

The Group re-assesses whether or not it controls an investee if facts and circumstances indicate that there are changes to one or more of the three elements of control. Consolidation of a subsidiary begins when the Group obtains control over the subsidiary and ceases when the Group loses control of the subsidiary. Assets, liabilities, income and expenses of a subsidiary acquired or disposed of during the period are included in the consolidated statement of comprehensive income from the date the Group gains control until the date the Group ceases to control the subsidiary.

Profit or loss and each component of other comprehensive income (OCI) are attributed to the equity holders of the parent of the Group and to the non-controlling interests, even if this results in the non-controlling interests having a deficit balance. When necessary, adjustments are made to the financial statements of subsidiaries to bring their accounting policies into line with the Group's accounting policies. All intra-group assets and liabilities, equity, income, expenses and cash flows relating to transactions between members of the Group are eliminated in full on consolidation.

A change in the ownership interest of a subsidiary, without a loss of control, is accounted for as an equity transaction.

If the Group loses control over a subsidiary, it derecognizes the related assets (including goodwill), liabilities, non-controlling interest and other components of equity while any resultant gain or loss is recognized in profit or loss. Any investment is recognized at fair value.

## **2.3 Business combinations**

Acquisitions of subsidiaries and businesses are accounted for using the acquisition method. The cost of an acquisition is measured as the aggregate of the consideration transferred, which is measured at acquisition date fair value, and the amount of any non-controlling interests in the acquiree. For each business combination, the Group elects whether to measure the non-controlling interests in the acquiree at fair value or at the proportionate share of the acquiree's identifiable net assets. Acquisition-related costs are recognized in profit or loss as incurred.

Acquired assets, liabilities and contingent liabilities that are identifiable at the acquisition date are recognized at fair value on the acquisition date except for the following:

- Deferred tax assets and liabilities or assets related to employee benefit arrangements are recognized and measured in accordance with KIFRS 1012 *Income Taxes* and KIFRS 1019 *Employee Benefits*, respectively.
- Liabilities or equity instruments related to share-based payment arrangements of the acquiree or share-based payment arrangements of the Group entered into to replace share-based payment arrangements of the acquiree are measured in accordance with KIFRS 1102 *Share-based Payment* at the acquisition date.
- Non-current assets (or disposal groups) classified as held for sale in accordance with KIFRS 1105 *Non-current Assets Held for Sale and Discontinued Operations* are measured in accordance with KIFRS 1105.

Goodwill is measured as the excess of the sum of the consideration transferred, the amount of any non-controlling interests in the acquiree and the fair value of the acquirer's previously held equity interest in the acquiree (if any) over the net of the acquisition-date amounts of the identifiable assets acquired and the liabilities assumed. If, after reassessment, the net of the acquisition-date amounts of the identifiable assets acquired and liabilities assumed exceeds the sum of the consideration transferred, the amount of any non-controlling interests in the acquiree and the fair value of the acquirer's previously held interest in the acquiree (if any), the excess is recognized immediately in profit or loss as a bargain purchase gain.

### **2.3 Business combinations (cont'd)**

Non-controlling interests that are present ownership interests and entitle their holders to a proportionate share of the entity's net assets in the event of liquidation may be initially measured either at fair value or at the non-controlling interests' proportionate share of the recognized amounts of the acquiree's identifiable net assets. The choice of measurement basis is made on a transaction-by-transaction basis. Other types of non-controlling interests are measured at fair value or, when applicable, on the basis specified in another KIFRS.

The transfer consideration of the Group as a result of the business combination includes the assets and liabilities from the contingent consideration arrangement and the contingent consideration is measured at the fair value at the acquisition date and is included as part of the consideration transferred. Changes in fair value after the acquisition date are adjusted retrospectively and adjusted in the corresponding goodwill if the conditions of the measurement period adjustments are met. Measurement Period Adjustments are adjustments that result from acquiring additional information about the facts and circumstances that existed at the acquisition date during the 'Adjustment Period' (which cannot exceed one year from the acquisition date).

Changes in fair value of contingent consideration that do not qualify for measurement period adjustments are accounted for in accordance with the classification of contingent consideration. Contingent consideration that is classified as equity is subsequently accounted for as equity if the settlement is not made at the reporting date. Contingent consideration that is classified as an asset or a liability is remeasured at subsequent reporting dates in accordance with KIFRS 1039 *Financial Instruments: Recognition and Measurement* or KIFRS 1037 *Provisions, Contingent Liabilities and Contingent Assets*. If the gain or loss is recognized, it is recognized in profit or loss.

In a staged business combination, the Group remeasures the previously held equity interest in the acquiree to its fair value at the acquisition date and, if any, the result is recognized in profit or loss. Recognition of changes in the value of interests in the acquiree prior to the acquisition date to other comprehensive income is reclassified to profit or loss in the same manner as if the previously held equity interests were disposed of directly.

If the initial accounting for the business combination cannot be completed by the end of the reporting period in which the business combination occurs, the Group reports provisional amounts in the consolidated financial statements for items for which accounting is not completed. In the event that there is newly acquired information about facts and circumstances that existed at the acquisition date during the measurement period (see above) the Group would have had an effect on the measurement of the amount recognized at the acquisition date. Recognized provision is adjusted retrospectively or additional assets and liabilities are recognized.

### **2.4 Investment in associates and joint ventures**

An associate is an entity over which the Group has significant influence. Significant influence is the power to participate in the financial and operating policy decisions of the investee, but is not control or joint control over those policies.

A joint venture is a type of joint arrangement whereby the parties that have joint control of the arrangement have rights to the net assets of the joint venture. Joint control is the contractually agreed sharing of control of an arrangement, which exists only when decisions about the relevant activities require unanimous consent of the parties sharing control.

Except for the case where an investment in an associate or a joint venture is classified as a held for sale in accordance with KIFRS 1105 *Non-current Assets Held for Sale and Discontinued Operations*, the profit or loss, are included in the consolidated financial statements by applying the equity method. In applying the equity method, investments in associates and joint ventures are carried at the acquisition cost less any impairment loss on the investments in associates and joint ventures, adjusted for changes in equity in net assets of associates and joint ventures consolidated financial statements. Losses of associates and joint ventures that exceed the interests of the Group in relation to the associates and joint ventures (including long-term investments that substantially form part of the net investment of the Group in the associates and joint ventures) Are legally or aggressively obligated, or are required to be paid on behalf of the joint venture.

The cost of acquisition over the fair value of identifiable assets, liabilities and contingent liabilities of associates and joint ventures at the acquisition date in excess of the Group's interest is recognized as goodwill.

## **2.4 Investment in associates and joint ventures (cont'd)**

Goodwill is included in the carrying amount of the investment and reviewed for impairment as part of the investment. If the Group's share of the net fair value of identifiable assets, liabilities and contingent liabilities exceeding the cost of the consideration, even after review, is recognized in profit or loss.

If the entity has retained some of the investment assets of existing associates and joint ventures even after it has lost significant influence over the associates and joint ventures, the fair value of the investment assets at the point of time when the significant influence is lost, Are considered to be the fair value at the initial recognition of the financial asset in accordance with KIFRS 1039. The difference between the carrying amount of the investment and the fair value of the investment is recognized in profit or loss, including the gain or loss on disposal of the associate. In addition, the investor accounts for all amounts recognized as other comprehensive income in relation to the associate and the joint venture on the same basis as the accounting treatment in case the associate and the joint venture directly dispose of the related asset or liability. Therefore, when an associate is required to reclassify the gain or loss previously recognized in other comprehensive income to the profit or loss as a result of the disposal of the asset or liability, the investor may reclassification gains or losses on equity Reclassified to profit or loss (reclassification adjustment).

If the equity method of accounting for associates or joint ventures decreases, but the equity method is applied, if the gain or loss previously recognized in other comprehensive income is reclassified to profit or loss as a result of the disposal of the related asset or liability, The proportionate portion of the decrease in ownership interest is reclassified to profit or loss. In addition, KIFRS 1105 is applied when a portion of investments in associates or joint ventures meets the criteria for sale.

The Group determines whether an impairment loss is recognized in respect of investments in associates and joint ventures in accordance with KIFRS 1039 *Financial Instruments: Recognition and Measurement*. If there is an indication of impairment, the total carrying amount of the associate and joint venture (including goodwill) is compared to the recoverable amount (the greater of fair value less cost to sell and value in use) in accordance with KIFRS 1036 *Asset Impairment*. The recognized impairment loss is not allocated to any assets (including goodwill) that are part of the carrying amount of associates and joint ventures. The reversal of impairment loss is recognized in accordance with KIFRS 1036 as the recoverable amount of the investment assets increases subsequently.

When an associate becomes a joint venture or, conversely, a joint venture becomes an associate, the Group continues to apply the equity method and does not remeasure residual equity.

When the Group transacts with an associate or a joint venture, the gain or loss on the transaction between the associate and the joint venture is recognized only to the extent of the equity interest in the associate and the joint venture, are recognized.

## **2.5 Investment in joint ventures**

A joint venture is a type of joint arrangement whereby the parties that have joint control of the arrangement have rights to the net assets of the joint venture. Joint control is the contractually agreed sharing of control of an arrangement, which exists only when decisions about the relevant activities require unanimous consent of the parties sharing control.

When an entity performs an activity under a joint venture, the entity recognizes, as a co-operative, its own interest in the joint venture as follows:

- Own assets. Include own shares of assets that are jointly owned.
- Own debt. Including own shares of jointly-generated debt.
- The own share of output from joint sales.
- The own share of the output of the joint sales.
- Own expenses. Include own share of the costs incurred jointly.

## **2.5 Investment in joint ventures (cont'd)**

The Group accounts for assets, liabilities, income and expenses of its own interests in joint ventures in accordance with the standards that apply to certain assets, liabilities, income and expenses.

If a joint operating entity, such as selling or investing in an asset in a joint operation, is deemed to perform a transaction with another party in the joint operation, the entity shall notify the other party. We are only aware of the limit on shareholding.

If the co-operative, the Group, conducts transactions such as joint sales and purchases of assets, the Group does not recognize its portion of the profit or loss until the assets are resold to a third party.

## **2.6 Goodwill**

Goodwill resulting from an acquisition of a business is carried at cost as established at the date of acquisition of the business less accumulated impairment losses, if any.

For the purpose of impairment testing, goodwill is allocated to each of the cash-generating units (CGUs) (or group of CGUs) that is expected to benefit from the synergies of the combination.

A CGU to which goodwill has been allocated is tested for impairment annually, or more frequently when there is indication that the unit may be impaired. If the recoverable amount of the CGU is less than its carrying amount, the impairment loss is allocated first to reduce the carrying amount of any goodwill allocated to the unit and then to the other assets of the unit on a pro rata basis based on the carrying amount of each asset in the unit. Any impairment loss for goodwill is recognized directly in profit or loss. An impairment loss recognized for goodwill is not reversed in subsequent periods.

On disposal of the relevant CGU, the attributable amount of goodwill is included in the determination of the profit or loss on disposal.

The Group's accounting policies for goodwill arising on the acquisition of an associate are set out in Note 2.4.

## **2.7 Assets held for sale and discontinued operations**

### **2.7.1 Assets held for sale**

Non-current assets and disposal groups are classified as held for sale if their carrying amount will be recovered principally through a sale transaction rather than through continuing use. This condition is regarded as met only when the sale is highly probable and the non-current asset (or disposal group) is available for immediate sale in its present condition. Management must be committed to the sale, which should be expected to qualify for recognition as a completed sale within one year from the date of classification.

If the Group commits a sale plan that results in a loss of control of the subsidiary, the Group will, if the Group has satisfied the conditions previously mentioned, regardless of whether the Group has a non-controlling interest in the former subsidiary after the sale, all assets and liabilities are classified as held for sale.

If the Group is committed to a sale of an investment in an associate or a joint venture, all or part of the investment in the associate or joint venture to be sold will be classified as held for sale if it meets the criteria for sale. And the Group ceases to apply the equity method for investments in associates or joint ventures related to the items classified as held for sale. The Group continues to apply the equity method of accounting for residual interests in investments in associates or joint ventures that are not classified as held for sale. However, if the Group has a significant influence over the associates or joint ventures, the Group ceases to apply the equity method at the time of sale.

Unless the Group continues to apply the equity method to the Group's remaining retained interests in an associate or joint venture after the sale of an investment in an associate or a joint venture, the Group shall retain the remaining amount of the investment in the associate or joint venture. Corporate KIFRS 1039 *Financial assets: Recognition and measurement*.

### **2.7.1 Non-current assets held for sale (cont'd)**

Non-current assets (and disposal groups) classified as held for sale are measured at the lower of their previous carrying amount and fair value less costs to sell.

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.

### **2.7.2 Assets scheduled for distribution to owners (or disposal groups)**

The Group also applied the accounting policies related to the types, presentation and measurement of non-current assets (or disposal groups) classified as held for sale to non-current assets (or disposal entities) that are classified as scheduled for distribution to owners who exercise their qualifications as owners.

In addition, if all owners with the same kind of equity instruments are treated equally in distributing these non-cash assets to owners who exercise their qualifications as owners free of charge and the assets are ultimately not controlled by the same party or parties before and after the distribution, we recognize any dividend payable at the time of declaring the distribution (when approved in the shareholders' meeting). The dividend payable is measured at the fair value of the non-cash assets to be distributed at the end of each reporting period and at the settlement date, and the change in the carrying amount of the dividend payable is recognized in other capital items in the financial statement as an adjustment to the amount of the distribution.

In settling the dividend payable, the Group shall recognize any difference between the carrying amount of the non-cash assets distributed and the carrying amount of the dividend payable as profit or loss.

### **2.7.3 Discontinued operation**

Disposal entity is a discontinued operation if:

- It is a separate main business line or business area.
- It is a part of a single plan to dispose of separate major business lines or business areas.
- It is a subsidiary acquired solely for sale.

The Group excludes the profit or loss from the results of the continuing operation and displays the profit or loss as a single amount in the income statement. Additional details of discontinued operations are disclosed in Note 38.

## **2.8 Revenue from contracts with customers**

### **A. Identifying performance obligations**

The Group mainly engages in business area, such as power generation facilities, industrial facilities, construction machinery, engines, manufacture of casting and forgings, and construction.

The Group identifies performance obligations that are distinct in the contract with the customer. Accordingly, a performance obligation, unit of revenue recognition, may be additionally identified in a single contract, or performance obligations in multiple contracts can be combined as a single performance obligation. The timing of the Group's revenue recognition may vary depending on whether each performance obligation identified is satisfied at a point in time or over time.

The Entity identifies a performance obligation as a distinct performance obligation when the customer can benefit from the good or service either on its own or together with other resources that are readily available to the customer and the Entity's promise to transfer the good or service to the customer is separately identifiable from other promises in the contract. Also, for performance obligations that are distinct, a transaction price is allocated based on stand-alone selling prices or, if they are not directly observable, estimated them and allocated to meet the allocation objective.

## **2.8 Revenue from contracts with customers (cont'd)**

The Group identifies (a) the EPC contract and (b) the O&M service as a distinct performance obligations and estimates the stand-alone selling price for each performance obligation to recognize revenue after allocating the transaction price. In addition, the Group recognizes a warranty that the customer has an option to purchase separately and shipping services and insurance provided in export sales as separate performance obligations. Revenue is recognized after the transaction price is allocated to such performance obligations.

### **B. Performance obligations satisfied over time**

The power and industry sector of the Group engage in manufacturing and selling power generation equipment ordered by the customer with design elements designated. The Group determines the contract as a construction contract, measures the progress the input method, and recognizes revenue based on the percentage-of-completion.

The Group recognizes revenue according to the percentage-of-completion only in case when it does not create an asset with an alternative use to the Group as it performs its performance obligations and has an enforceable right to payment for performance completed to date since it considers the control of the goods or services is transferred over time.

As a result of review on possibility of alternative use and right to payment by contracts, the Group recognizes revenue by applying the percentage-of-completion.

### **C. Measurement of progress using input method**

The power sector of the Group will purchase, manufacture, and install power generation related materials, such as boilers and turbines and generally carry out construction work over a long period of time.

At contract inception, the Group recognizes the same amount of revenue as the goods used to fulfil the performance obligation if the goods are not distinct and the costs of the goods transferred are expected to be significant compared to the total costs expected to be fully satisfied by the customer before the goods are received.

### **D. Variable consideration**

The Group estimates variable consideration using the expected value method that better predicts to which it will be entitled and recognizes revenue in the amount of the transaction price that include variable consideration that is constrained until it is highly probable that a significant revenue reversal in the amount of cumulative revenue recognized until the expiry of return date. The Group recognizes a refund liability for the amount to which it does not expect to be entitled among the consideration received or expected to receive.

### **E. Allocation of the transaction price**

The Group allocates the transaction price on the basis of the stand-alone selling price to the various performance obligations identified in a single contract. The Group uses the 'adjusted market assessment approach' to estimate the stand-alone selling price of each performance obligation and, in exceptional transactions, the 'expected cost plus a margin approach' to predict expected costs and add appropriate profit margins.

## **2.9 Rental income**

The Group's policy for recognition of revenue from operating leases is described in Note 2.10.

## **2.10 Leases**

The Group determines whether the contract itself is a lease or the contract contains lease at the time of agreement, considering whether the contract exchange the control of the identified asset for a certain period of time with price of the contract.

## **2.10 Leases (cont'd)**

### **The Group as a lessee**

The Group applies a single method on every lease except short-term leases and leases of low-value assets. The Group recognizes lease liabilities that represent the obligation to pay the leases and right-of-use assets that represents right-of-use.

#### **2.10.1 Right-of-use assets**

The Group recognizes right-of-use assets on lease commencement date (the date when the underlying asset is usable). Right-of-use asset is measured as cost, and the Group applies cost model on subsequent measurement. To apply cost model, the Group deducts accumulated depreciation and accumulated loss of impairment, and recognizes adjustments base on remeasurement of lease liabilities. The cost of the right-of-use assets includes the amount of the perceived lease liabilities, the initial direct cost, and the lease fee paid before or after the lease commencement date with received lease incentive deducted. The right-of-use assets are depreciated on a flat basis over a short period of time between the lease period and the estimated useful life of the assets.

If the ownership of the underlying asset is transferred to the Group at the end of the lease term or if the Group is expected to exercise the purchase option at the cost of the right-of-use assets, depreciation is calculated using the estimated useful life of the underlying asset of the asset.

The right-of-use assets are also subject to damage and the relevant accounting policy is described in Note 2.20.

#### **2.10.2 Lease liabilities**

On lease commencement date, the Group recognizes lease liabilities at the present value of the lease to be paid over the lease period. The lease fee consists of a fixed fee (including a substantial fixed fee, and the lease incentive to receive is deducted), a variable lease payment that varies according to the index or rate, and an amount expected to be paid according to the residual value guarantee. Lease fee also includes the amount to be borne to terminate the lease if the Group is fairly certain to exercise buying options, considering exercise cost of the buying options and termination options to lease term.

A variable lease that does not varies according to the index of rate (unless not from the production of inventories) is recognized during the period of time when an event or condition that causes a lease happens.

When the Group evaluates the present value of lease fee, it uses the incremental borrowing interest rate of the lease commencement date because it cannot easily calculate the internal rate of return of the lease. After the lease commencement date, the amount of lease liabilities increase to reflect interest and decreases to reflect the lease fee paid. In addition, the book values of the lease liabilities are remeasured if there is a change in the lease term, a change in the lease fee (for example, a change in the future lease due to a change in the index or rate used to calculate the lease fee), or a change in the option assessment to buy the underlying asset.

#### **2.10.3 Short-term lease and Leases of low-value assets**

The Group applies exemption rule for the recognition of short-term lease, which has a lease-term less than 12 months from the lease commencement date and do not include purchase options. In addition, the Group applies exemption rule for the recognition of leases of low-value assets on office equipment, etc., which is considered as low value assets. Lease fee of Short-term lease and leases of low-value of assets are recognized as cost based on straight-line method through the lease term.

### **The Group as lessor**

The Group classifies leases that do not transfer most of the risks and compensation for the ownership of underlying assets as operating leases. Lease revenues are recognized based on straight-line method through the lease term and it can be classified as sales in the consolidated statements of profit or loss depending on the nature of the business.

## **2.11 Foreign currencies**

The consolidated financial statements of the Group are presented in the currency of the primary economic environment in which the entity operates (its functional currency). For the purpose of the consolidated financial statements, the results and financial position of each group entity are expressed in Korean won, which is the functional currency of the entity and the presentation currency for the consolidated financial statements.

In preparing the financial statements, transactions in currencies other than the entity's functional currency (foreign currencies) are recognized at the rates of exchange prevailing at the dates of the transactions. At the end of each reporting period, monetary items denominated in foreign currencies are retranslated at the rates prevailing at that date. Non monetary items carried at fair value that are denominated in foreign currencies are retranslated at the rates prevailing at the date when the fair value was determined. Non monetary items that are measured in terms of historical cost in a foreign currency are not retranslated.

Exchange differences are recognized in profit or loss in the period in which they arise, except for:

- Exchange differences on foreign currency borrowings relating to assets under construction for future productive use, which are included in the cost of those assets when they are regarded as an adjustment to interest costs on those foreign currency borrowings
- Exchange differences on transactions entered into in order to hedge certain foreign currency risks (see Note 2.25 below for hedging accounting policies)
- Exchange differences on monetary items forming part of the net investment in the foreign operation.

In order to prepare consolidated financial statements, the assets and liabilities of foreign operations included in the Group are presented using the exchange rates at the end of the reporting period. Unless the foreign currency exchange rate fluctuates significantly during the period and the exchange rate at the transaction date is not required to be used, the items of profit or loss are translated at the average exchange rate for the year. Foreign exchange differences arising from such differences are recognized in other comprehensive income and accumulated in equity (If appropriate, allocate to non-controlling interests).

When a foreign operation is disposed of (In other words, the disposal of the entire amount of the Group's foreign operations, the disposal of the subsidiary including its overseas operations, the partial disposal of the equity of the joint venture, or the partial disposal of the equity interest in an associate If the equity interest is a financial asset that includes overseas business sites), the entire amount of foreign exchange differences related to the foreign operations attributable to the parent is reclassified to profit or loss. The cumulative exchange differences related to the foreign operations attributable to the non-controlling interests are eliminated but are not reclassified to profit or loss.

For certain dispositions that do not result in a loss of control over subsidiaries, including foreign operations, the proportionate share of the accumulated foreign exchange differences is reassigned to non-controlling interests and is not reclassified to profit or loss. For all other disposals (In other words, a decrease in ownership interest in an associate or joint venture of a group that does not result in significant influence or loss of joint control), the proportionate share of the accumulated foreign exchange differences is reclassified to profit or loss.

Fair value adjustments for goodwill and identifiable assets and liabilities arising from the acquisition of foreign operations are recognized in the income statement as assets and liabilities at the foreign operations and are translated at the exchange rates at the balance sheet date, the resulting foreign exchange difference is recognized as capital.

In determining the spot exchange rate to use on initial recognition of the related asset, expense or income (or part of it) on the derecognition of a non-monetary asset or non-monetary liability relating to advance consideration, the date of the transaction is the date on which the Group initially recognizes the non-monetary asset or non-monetary liability arising from the advance consideration. If there are multiple payments or receipts in advance, the Group determines the transaction date for each payment or receipt of advance consideration.

## **2.12 Borrowing costs**

Borrowing costs directly attributable to the acquisition, construction or production of qualifying assets, which are assets that necessarily take a substantial period of time to get ready for their intended use or sale, are added to the cost of those assets, until such time as the assets are substantially ready for their intended use or sale.

Investment income earned on the temporary investment of specific borrowings pending their expenditure on qualifying assets is deducted from the borrowing costs eligible for capitalization.

All other borrowing costs are recognized in profit or loss in the period in which they are incurred.

## **2.13 Retirement benefit costs and termination benefits**

The Group operates a defined benefit pension plan. The cost of providing benefits is determined using the projected unit credit method, with actuarial valuations being carried out at the end of each reporting period. Remeasurement, comprising actuarial gains and losses, the effect of the changes to the asset ceiling (if applicable) and the return on plan assets are reflected immediately in the consolidated financial statement with a charge or credit recognized in other comprehensive income in the period in which they occur. Remeasurement recognized in other comprehensive income is reflected immediately in retained earnings and will not be reclassified to profit or loss. Past service cost is recognized in profit or loss in the period of a plan amendment. Net interest is calculated by applying the discount rate at the beginning of the period to the net defined benefit liability or asset.

Defined benefit costs are composed of service cost (including current service cost, past service cost, as well as gains and losses on curtailments and settlements), net interest expense (income) and remeasurement.

The Group presents the service cost and net interest expense (income) components in profit or loss, and the remeasurement component in other comprehensive income. Curtailment gains and losses are accounted for as past service costs.

The retirement benefit liabilities recognized in the consolidated financial statement represents the actual deficit or surplus in the Group's defined benefit plans. Any surplus resulting from this calculation is limited to the present value of any economic benefits available in the form of refunds from the plans or reductions in future contributions to the plans.

A liability for a termination benefit is recognized at the earlier of when the entity can no longer withdraw the offer of the termination benefit and when the entity recognizes any related restructuring costs.

Contributions to defined contribution retirement benefit plans are recognized as an expense when employees have rendered service entitling them to the contributions.

## **2.14 Share-based payment transactions of the Group**

Equity-settled share-based payments to employees are measured at the fair value of the equity instruments at the grant date.

The fair value determined at the grant date of the equity-settled share-based payments is expensed on a straight-line basis over the vesting period, based on the Group's estimate of equity instruments that will eventually vest. At the end of each reporting period, the Group revises its estimate of the number of equity instruments expected to vest. The impact of the revision of the original estimates, if any, is recognized in profit or loss, such that the cumulative expense reflects the revised estimate, with a corresponding adjustment in other component of equity.

## **2.15 Taxation**

Income tax expenses represent the sum of the tax currently payable and deferred tax.

### **2.15.1 Current tax**

The tax currently payable is based on taxable profit for the year. Taxable profit differs from profit as reported in the consolidated statement of profit or loss and comprehensive income because of items of income or expense that are taxable or deductible in other years and items that are never taxable or deductible. The Group's liability for current tax is calculated using tax rates that have been enacted or substantively enacted by the end of the reporting period.

### **2.15.2 Deferred tax**

Deferred tax is recognized on temporary differences between the carrying amounts of assets and liabilities in the financial statements and the corresponding tax bases used in the computation of taxable profit. Deferred tax liabilities are generally recognized for all taxable temporary differences. Deferred tax assets are generally recognized for all deductible temporary differences to the extent that it is probable that taxable profits will be available against which those deductible temporary differences can be utilized. Such deferred tax assets and liabilities are not recognized if the temporary difference arises from goodwill or from the initial recognition (other than in a business combination) of other assets and liabilities in a transaction that affects neither the taxable profit nor the accounting profit.

The Group can control the timing of the extinguishment of the temporary difference and the additions to the subsidiary, the investment in the associate and the interest in the joint venture, unless it is probable that the temporary difference will not cease in the foreseeable future deferred tax liabilities are recognized for temporary differences. Deferred tax assets arising from temporary differences arising from these investments and investments are highly probable to be taxable enough to enable the benefits of the temporary difference and are likely to expire in the foreseeable future recognize only if high.

The carrying amount of deferred tax assets is reviewed at the end of each reporting period and reduced to the extent that it is no longer probable that sufficient taxable profits will be available to allow all or part of the asset to be recovered.

Deferred tax assets and liabilities are measured at the tax rates that are expected to apply in the period in which the liability is settled or the asset realized, based on tax rates (and tax laws) that have been enacted or substantively enacted by the end of the reporting period. The measurement of deferred tax liabilities and assets reflects the tax consequences that would follow from the manner in which the Group expects, at the end of the reporting period, to recover or settle the carrying amount of its assets and liabilities.

Deferred income tax assets and liabilities are recognized when the Group has a legally enforceable right to offset current tax assets and current tax liabilities and are subject to the same taxation entities as the taxable entity. Are intended to settle the liabilities at the same time as they are expected to be settled at the balance sheet date, if the Group intends to settle the current tax liabilities and assets on a net basis, deferred tax liabilities are settled or deferred tax assets are recovered only offset.

### **2.15.3 Current and deferred taxes for the year**

Current and deferred taxes are recognized in profit or loss, except when they relate to items that are recognized in other comprehensive income or directly in equity, in which case, the current and deferred taxes are also recognized in other comprehensive income or directly in equity, respectively. Where current tax or deferred tax arises from the initial accounting for a business combination, the tax effect is included in the accounting for the business combination.

## **2.16 Government grants**

Government grants are not recognized until there is reasonable assurance that the Group will comply with the conditions attaching to them and that the grants will be received.

The benefit of a government loan at a below-market rate of interest is treated as a government grant, measured as the difference between proceeds received and the fair value of the loan based on prevailing market interest rates.

Government grants related to assets are presented in the consolidated financial statement by deducting the grant from the carrying amount of the asset. The related grant is recognized in profit or loss over the life of a depreciable asset as a reduced depreciation expense.

Government grants related to income are recognized in profit or loss on a systematic basis over the periods in which the Group recognizes as expenses the related costs for which the grants are intended to compensate. Government grants that are receivable as compensation for expenses or losses already incurred or for the purpose of giving immediate financial support to the Group with no future-related costs are recognized in profit or loss in the period in which they become receivable.

## **2.17 Property, plant and equipment**

Property, plant and equipment are stated at cost less subsequent accumulated depreciation and accumulated impairment losses, other than land, for which revaluation model is applied after initial recognition. The cost of an item of property, plant and equipment is directly attributable to their purchase or construction, which includes any costs directly attributable to bringing the asset to the location and condition necessary for it to be capable of operating in the manner intended by management. It also includes the initial estimate of the costs of dismantling and removing the item and restoring the site on which it is located.

Subsequent costs are recognized in carrying amount of an asset or as a separate asset if it is probable that future economic benefits associated with the assets will flow to the Group and the cost of an asset can be measured reliably. Routine maintenance and repairs are expensed as incurred.

The Group does not depreciate land. Depreciation expense is computed using the straight-line method based on the estimated useful lives of the assets as follows:

	<u>Estimated useful lives (in years)</u>
Buildings	4-50
Structures	2-40
Machinery	2-20
Other property, plant and equipment	2-20

If each part of an item of property, plant and equipment has a cost that is significant in relation to the total cost of the item, it is depreciated separately.

The Group reviews the depreciation method, the estimated useful lives and residual values of property, plant and equipment at the end of each annual reporting period. If expectations differ from previous estimates, the changes are accounted for as a change in an accounting estimate.

An item of property, plant and equipment is derecognized upon disposal or when no future economic benefits are expected to arise from the continued use of the asset. Any gain or loss arising on derecognition of the property (calculated as the difference between the net disposal proceeds and the carrying amount of the asset) is included in profit or loss in the period in which the property is derecognized.

## **2.18 Investment properties**

Investment properties are properties held to earn rentals and/or for capital appreciation (including property under construction for such purposes). Investment properties are measured initially at cost, including transaction costs. Subsequent to initial recognition, investment properties are stated at fair value, with any gains or losses arising on fair value fluctuation recognized in profit or loss.

Subsequent costs are recognized in carrying amount of an asset or as a separate asset if it is probable that future economic benefits associated with the assets will flow into the Group and the cost of an asset can be measured reliably. Routine maintenance and repairs are expensed as incurred.

An investment property is derecognized upon disposal or when the investment property is permanently withdrawn from use and no future economic benefits are expected from the disposal. Any gain or loss arising on derecognition of the property (calculated as the difference between the net disposal proceeds and the carrying amount of the asset) is included in profit or loss in the period in which the property is derecognized.

## **2.19 Intangible assets**

### **2.19.1 Intangible assets acquired separately**

Intangible assets with finite useful lives that are acquired separately are carried at cost, less accumulated amortization and accumulated impairment losses. Amortization is recognized on a straight-line basis over their estimated useful lives. The estimated useful life and amortization method are reviewed at the end of each reporting period, with the effect of any changes in estimate being accounted for on a prospective basis. Intangible assets with indefinite useful lives that are acquired separately are carried at cost less accumulated impairment losses.

### **2.19.2 Internally generated intangible assets - research and development expenditure**

Expenditure on research activities is recognized as an expense in the period in which it is incurred.

Expenditure arising from development (or from the development phase of an internal project) is recognized as an intangible asset if, and only if, the development project is designed to produce new or substantially improved products, and the Group can demonstrate the technical and economic feasibility and measure reliably the resources attributable to the intangible asset during its development.

Subsequent to initial recognition, internally generated intangible assets are reported at cost, less accumulated amortization and accumulated impairment losses, on the same basis as intangible assets that are acquired separately.

### **2.19.3 Intangible assets acquired in a business combination**

Intangible assets that are acquired in a business combination are recognized separately from goodwill and are initially recognized at their fair value at the acquisition date (which is regarded as their cost). Subsequent to initial recognition, intangible assets acquired in a business combination are reported at cost less accumulated amortization and accumulated impairment losses, on the same basis as intangible assets that are acquired separately.

### **2.19.4 Derecognition of intangible assets**

An intangible asset is derecognized on disposal or when no future economic benefits are expected from its use. Gains or losses arising from derecognition of an intangible asset, measured as the difference between the net disposal proceeds and the carrying amount of the asset, are recognized in profit or loss when the asset is derecognized.

### **2.19.5 Amortization of intangible assets**

Intangible assets other than memberships with indefinite useful lives are amortized using the straight-line method with acquiring cost, except for residual value, with the amortization beginning when the asset is available for use. The estimated useful lives of the assets are as follows:

	<u>Estimated useful lives (in years)</u>
Development costs	3-20
Industrial rights	5-10
Other intangible assets	2-20

### **2.20 Impairment of property, plant, equipment and intangible assets other than goodwill**

At the end of each reporting period, the Group reviews the carrying amounts of its tangible and intangible assets to determine whether there is any indication that those assets have suffered an impairment loss. If any such indication exists, the recoverable amount of the asset is estimated in order to determine the extent of the impairment loss (if any). When it is not possible to estimate the recoverable amount of an individual asset, the Group estimates the recoverable amount of the CGU to which the asset belongs.

Memberships with indefinite useful lives and intangible assets not yet available for use are tested for impairment at least annually, and whenever there is an indication that the asset may be impaired.

Recoverable amount is the higher of fair value less costs to sell and value in use. If the recoverable amount of an asset (or a CGU) is estimated to be less than its carrying amount, the carrying amount of the asset (or the CGU) is reduced to its recoverable amount and the reduced amount is recognized in profit or loss.

Where an impairment loss subsequently reverses, the carrying amount of the asset (or a CGU) is increased to the revised estimate of its recoverable amount, but so that the increased carrying amount does not exceed the carrying amount that would have been determined had no impairment loss been recognized for the asset (or the CGU) in previous years. A reversal of an impairment loss is recognized immediately in profit or loss.

### **2.21 Inventories**

Inventories are stated at the lower of cost and net realizable value. Cost of inventories, except for those in transit, are measured under the weighted-average cost formula and consists of the purchase price, cost of conversion and other costs incurred in bringing the inventories to their present location and condition. Net realizable value represents the estimated selling price for inventories, less all estimated costs of completion and costs necessary to make the sale.

When inventories are sold, the carrying amount of those inventories is recognized as an expense (cost of sales) in the period in which the related revenue is recognized. The amount of any write-down of inventories to net realizable value and all losses of inventories is recognized as an expense in the period the write-down or loss occurs. The amount of any reversal of any write-down of inventories, arising from an increase in net realizable value, is recognized as a reduction in the amount of inventories recognized as an expense in the period in which the reversal occurs.

## **2.22 Provisions**

Provisions are recognized when the Group has a present obligation (legal or constructive) as a result of a past event, it is probable that the Group will be required to settle the obligation, and a reliable estimate can be made of the amount of the obligation.

The amount recognized as a provision is the best estimate of the consideration required to settle the present obligation at the end of the reporting period, taking into account the risks and uncertainties surrounding the obligation. When a provision is measured using the cash flows estimated to settle the present obligation, its carrying amount is the present value of those cash flows (where the effect of the time value of money is material). The discount rate used is a pretax rate that reflects current market assessments of the time value of money and the risks specific to the liability. Where discounting is used, the increase in the provision due to the passage is recognized in profit or loss as borrowing cost.

When some or all of the economic benefits required to settle a provision are expected to be recovered from a third party, a receivable is recognized as an asset if it is virtually certain that reimbursement will be received and the amount of the receivable can be measured reliably.

At the end of each reporting period, the remaining provision balance is reviewed and assessed to determine if the current best estimate is being recognized. If the existence of an obligation to transfer economic benefit is no longer probable, the related provision is reversed during the period.

## **2.23 Financial instruments**

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.

### **2.23.1 Financial assets**

#### **[Initial recognition and measurement]**

Financial assets are classified, at initial recognition, as subsequently measured at amortized cost, fair value through other comprehensive income (OCI), and fair value through profit or loss.

The classification of financial assets at initial recognition depends on the financial asset's contractual cash flow characteristics and the Group's business model for managing them.

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

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

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

#### **[Subsequent measurement]**

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

- Financial assets at amortized 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 derecognition (equity instruments)
- Financial assets at fair value through profit or loss

### **2.23.1 Financial assets (cont'd)**

#### ***Financial assets at amortized cost (debt instruments)***

The Group measures financial assets at amortized 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, and
- 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 amortized cost are subsequently measured using the effective interest rate(EIR) method and are subject to impairment. Gains and losses are recognized in profit or loss when the asset is derecognized, modified or impaired.

#### ***Financial assets at fair value through OCI (debt instruments)***

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

- The financial asset is held within a business model with the objective of both holding to collect contractual cash flows and selling, and
- 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 statements of profit or loss and computed in the same manner as for financial assets measured at amortized 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.

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

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

Gains and losses on these financial assets are never recycled to profit or loss. Dividends are recognized as other income in the statements of profit or loss when the right of payment has been established, except when the Group 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 Group can elect 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 amortized 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 statements of financial position at fair value with net changes in fair value recognized in profit or loss.

### **2.23.1 Financial assets (cont'd)**

This category contains derivatives and listed equity instruments that do not make an irrevocable choice to account for changes in fair value in other comprehensive income. Dividends on listed equity instruments are recognized in profit or loss at the time the rights are established.

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 recognized 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.

#### **[Derecognition]**

A financial asset (or, where applicable, a part of a financial asset or part of a group of similar financial assets) is primarily derecognized (i.e., removed from the Group's consolidated financial statement) when:

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

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

Continuing involvement that takes the form of a guarantee over the transferred asset is measured at the lower of the original carrying amount of the asset and the maximum amount of consideration that the Group could be required to repay.

#### **[Impairment of financial assets]**

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

ECLs are recognized 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).

### **2.23.1 Financial assets (cont'd)**

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

### **2.23.2 Financial liabilities**

#### **[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 and payables, net of directly attributable transaction costs.

#### **[Subsequent measurement]**

The measurement of financial liabilities depends on their classification, as described below.

#### ***Financial liabilities at fair value through profit or loss***

Financial liabilities at fair value through profit or loss include financial liabilities held for trading and financial liabilities designated upon initial recognition as of fair value through profit or loss.

Financial liabilities are classified as held for trading if they are incurred for the purpose of repurchasing in the near term. This category also includes derivative financial instruments entered into by the Group that are not designated as hedging instruments in hedge relationships as defined by KIFRS 1109. Separated embedded derivatives are also classified as held for trading unless they are designated as effective hedging instruments.

Gains or losses on liabilities held for trading are recognized in profit or loss.

Financial liabilities designated upon initial recognition at fair value through profit or loss are designated at the initial date of recognition, and only if the criteria in KIFRS 1109 are satisfied.

#### ***Loans and borrowings***

After initial recognition, interest-bearing loans and 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.

This category generally applies to interest-bearing loans and borrowings.

#### **[Derecognition]**

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 the derecognition of the original liability and the recognition of a new liability. The difference in the respective carrying amounts is recognized in profit or loss.

### **2.23.3 Offsetting of financial instruments**

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

### **2.23.4 Financial guarantee liabilities**

A financial guarantee contract is a contract that requires the issuer to make specified payments to reimburse the holder for a loss it incurs because a specified debtor fails to make payments when due in accordance with the terms of a debt instrument.

Financial guarantee liabilities are initially measured at their fair values and, if not designated as financial liabilities at fair value through profit or loss, or unless the transfer of a financial asset does not meet the derecognition criteria or the continuing involvement approach is applied are subsequently measured at the higher of:

- The amount loss allowances determined in accordance with KIFRS 1109 5.5, and
- The amount initially recognized, less cumulative amortization recognized in accordance with the KIFRS 1115

## **2.24 Equity instruments**

An equity instrument is any contract that evidences a residual interest in the assets of an entity after deducting all of its liabilities. Equity instruments issued by the Group are recognized at the proceeds received, net of direct issue costs.

Repurchase of the Group's own equity instruments is recognized and deducted directly in equity. No gain or loss is recognized in profit or loss on the purchase, sale, issue or cancellation of the Group's own equity instruments.

## **2.25 Derivative financial instruments and hedge accounting**

The Group uses derivative financial instruments, such as forward currency contracts, interest rate swaps and forward commodity contracts, to hedge its foreign currency risks, interest rate risks and commodity price risks, respectively. 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 the exposure to variability in cash flows that is either attributable to a particular risk associated with a recognized asset or liability or a highly probable forecast transaction or the foreign currency risk in an unrecognized firm commitment
- Hedges of a net investment in a foreign operation

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

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

## **2.25 Derivative financial instruments and hedge accounting (cont'd)**

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

Hedges that meet the strict criteria for hedge accounting are accounted for, as described below.

### ***Fair value hedges***

The change in the fair value of a hedging derivative is recognized in the statements of profit or loss. However, any changes in the fair value of a hedging derivative of equity instrument that the Group elects to present in OCI are recognized in OCI. 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 statements of profit or loss.

For fair value hedges relating to items carried at amortized cost, any adjustment to carrying value is amortized through profit or loss over the remaining term of the hedge using the EIR method. 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 hedged item is derecognized, the unamortized fair value is recognized immediately in 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 or loss recognized in profit and loss.

### ***Cash flow hedges***

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

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

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 recognized in OCI for the year. This also applies where the hedged forecast transaction of a non-financial asset or non-financial liability subsequently becomes a firm commitment for which fair value hedge accounting is applied.

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

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

## **2.25 Derivative financial instruments and hedge accounting (cont'd)**

### ***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.

## **2.26 Fair value**

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date, regardless of whether that price is directly observable or estimated using another valuation technique. In estimating the fair value of an asset or a liability, the Group takes into account the characteristics of the asset or liability if market participants would take those characteristics into account when pricing the asset or liability at the measurement date. Fair value for measurement and/or disclosure purposes in these consolidated financial statements is determined on such a basis, except for share-based payment transactions that are within the scope of KIFRS 1102 *Share-based Payment*, leasing transactions that are within the scope of KIFRS 1017 *Leases* and measurements that have some similarities to fair value but are not fair value, such as net realizable value in KIFRS 1002 *Inventories*, or value in use in KIFRS 1036 *Impairment of Assets*.

In addition, for financial reporting purposes, fair value measurements are categorized into Levels 1, 2 or 3 based on the degree to which the inputs to the fair value measurements are observable and the significance of the inputs to the fair value measurement in their entirety, which are described in Note 10.

## **2.27 Approval of consolidated financial statements**

The consolidated financial statements of the Group were approved by the Board of Directors on March 4, 2021 and will be finalized at the annual general meeting of shareholders on March 30, 2021.

## **3. Significant accounting judgements and key sources of estimation uncertainties**

In the application of the Group's accounting policies for the consolidated financial statements, which are described in Note 2, management is required to make judgments, estimates and assumptions about the carrying amounts of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates.

The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognized in the period in which the estimate is revised if the revision affects only that period or in the period of the revision and future periods if the revision affects both current and future periods.

### **3.1 Revenue recognition**

Revenue from a contract to provide services is recognized by reference to the stage of completion of the contract. The stage of completion of the contract is determined as reasonable estimation and is subject to change as related factors change.

### **3.2 Impairment of non-financial assets**

Determining whether non-financial assets is impaired requires an estimation of the recoverable amount of the CGUs to which non-financial assets has been allocated. The value in use calculation requires the directors to estimate the future cash flows expected to arise from the CGU and a suitable discount rate in order to calculate the present value.

### **3.3 Defined benefit liabilities**

The Group's defined benefit liabilities are determined based on the actuarial valuation carried out at the end of each annual reporting period. Actuarial assumptions are the Group's best estimates of the variables, such as discount rates, rates of expected future salary increases and mortality rates.

### **3.4 Provisions**

The Group provides warranty for products when it recognizes the relevant revenue. The Group calculates the guarantee provision as the best estimate that is deemed necessary to enhance future and current warranty obligations at the end of each reporting period. The Group continues to market new products using complex technologies, and depending on the local laws and practices, these accounting estimates may be changed to establish additional provisions in the future fiscal periods.

In addition, provisions for the expected cost of warranty obligations are recognized at the best estimate of the expenditure required to settle the Group's current and future obligations. Provisions are determined by the estimate based on past experience.

### **3.5 Revaluation model on land and fair value model on investment properties**

As stated in Note 12 and Note 14, the Group uses evaluation technique, including inputs that are not based on observable market data to approximate revalued amount of land classified as property, plant and equipment and fair value of investment properties. The Group's management believes that the evaluation technique and assumptions that are used for valuation on land and investment properties are fair.

### **3.6 Deferred tax**

Recognition and measurement of deferred tax assets and liabilities require the management's judgment, in particular, whether to recognize if the scope of deferred tax assets is affected by management's judgment and assumption in the future.

### **3.7 Special taxation for investment and promoting collaborative cooperation**

In accordance with the *Mutual Cooperation and Promotion Investment Tax Scheme*, if a certain portion of taxable income of each fiscal year is not utilized for investment and salary increase purpose, the Group is obliged to pay additional income taxes for 3 years from 2018. As a result, as the Group reflects the tax consequences for investment and promotion of collaborative cooperation when measuring the income tax in the same period, the income tax to be borne by the Group in the future may vary depending on the level of investment, wage increase and collaborative cooperation in each year.

### **3.8 Estimated useful lives of property, plant and equipment and intangible assets**

Useful lives for depreciation and amortization are determined by the management's judgment.

### **3.9 Lease - Calculation of incremental borrowing rate**

The Group 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 Group 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 Group 'would have to pay', which requires estimation when no observable rates are available (such as for subsidiaries that do not enter into financing transactions) or when they need to be adjusted to reflect the terms and conditions of the lease.

The Group 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).

### **3.10 Determining the lease term of contracts with renewal & termination options – Group as lessee**

The Group 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 Group has several lease contracts that include extension and termination options. The Group applies judgement in evaluating whether it is reasonably certain whether or not to exercise the option to renew or terminate the lease. That is, it considers all relevant factors that create an economic incentive for it to exercise either the renewal or termination. After the commencement date, the Group reassesses the lease term if there is a significant event or change in circumstances that is within its control and affects its ability to exercise or not to exercise the option to renew or to terminate (e.g., construction of significant leasehold improvements or significant customization to the leased asset).

### **3.11 Lease classification – Group as lessor**

The Group has sub-lease contracts for right-of-use assets classified as investment properties. The Group has determined, based on an evaluation of the terms and conditions of the arrangements for most sub-leasing contracts, such as the lease term not constituting a major part of the economic life of the right-of-use assets and the present value of the minimum lease payments not amounting to substantially all of the fair value of the right-of-use assets, that it retains substantially all the risks and rewards incidental to ownership of these properties and accounts for the contracts as operating leases.

### **3.12 Revenue recognition - Items deducted from sales**

The Group deducts the promotions and incentives provided to customers from sales, and if the sales deduction items related to the generated sales are not settled, the amount is recognized based on the occurrence standard.

Unsettled amounts such as promotions and incentives are estimated based on accumulated experience at the time of sale, and the revenue of the Group is affected by the predicted sales deduction.

### **3.13 Fair value**

When the fair values of financial instruments recorded in the consolidated financial statements 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.

### **3.14 Determination of consolidation**

As of December 31, 2020, the Company holds 42.0% of voting rights of DHC, and DHC holds 35.0% of voting rights of DI, and the Company and DHC together hold 30.3% of voting rights of DFC. Most of the remaining stakes are held by small shareholders of less than 1%. The management of the Group reassess whether it controls subsidiaries listed above for the first time (January 1, 2013) and at the end of each subsequent reporting period. The executives of the Group concluded that they have control over the absolute size of the voting rights of the Group and the relative size of other shareholding voting rights and the degree of shareholding of other voting rights holders.

#### 4. Financial risk management

The Group is exposed to various financial risks, such as market (foreign currency risk and interest rate risk), credit and liquidity related to the operations of the Group. The purpose of risk management policy is to minimize potential risks, which could have an adverse effect on financial performance.

Financial risk management activities are performed by Treasury and International Finance department, in accordance with the aforementioned documented risk management policies. In addition, the Group enters into derivative contracts to hedge against certain risks.

##### 4.1 Market risk

##### 4.1.1 Foreign currency risk

The Group's exposure to the risk of changes in foreign exchange rates relates primarily to the Group's operating activities (when revenue or expense is denominated in a foreign currency). The Group's basis for foreign currency risk management is to reduce income/loss volatility. Foreign currency risk is managed by the Group's policy on foreign currencies and foreign currency management for speculative purpose is strictly prohibited.

The Group reduces exposure to foreign currency risk by matching the inflow and the outflow of foreign currencies (natural hedge) and manages foreign currency risk for the remaining exposure by using derivatives, such as currency forwards.

The carrying amount of the Group's monetary assets and liabilities denominated in foreign currencies other than the Group's functional currency as of December 31, 2020 and 2019 is as follows (Korean won in millions):

	December 31, 2020					
	USD	EUR	JPY	GBP	Others	Total
Assets	₩ 1,851,984	₩ 238,771	₩ 19,015	₩ 228,223	₩ 622,976	₩ 2,960,969
Liabilities	1,484,934	264,274	40,074	38,145	270,388	2,097,815
	<u>₩ 367,050</u>	<u>₩ (25,503)</u>	<u>₩ (21,059)</u>	<u>₩ 190,078</u>	<u>₩ 352,588</u>	<u>₩ 863,154</u>

  

	December 31, 2019					
	USD	EUR	JPY	GBP	Others	Total
Assets	₩ 1,624,788	₩ 400,817	₩ 8,978	₩ 145,659	₩ 521,641	₩ 2,701,883
Liabilities	1,727,139	512,984	46,752	43,475	132,096	2,462,446
	<u>₩ (102,351)</u>	<u>₩ (112,167)</u>	<u>₩ (37,774)</u>	<u>₩ 102,184</u>	<u>₩ 389,545</u>	<u>₩ 239,437</u>

The table below summarizes the impact of 10% increase/decrease of currency exchange rates on profit before income tax expenses for the years are as follows (Korean won in millions):

	Impact on profit before income tax expenses	
	2020	2019
10% Increase	₩ 86,315	₩ 23,944
10% Decrease	(86,315)	(23,944)

The above-mentioned sensitivity analysis is based on monetary assets and liabilities denominated in foreign currencies other than the Group's functional currency as of December 31, 2020 and 2019.

#### 4.1.2 Interest rate risk

The Group's interest rate risk is related to borrowings and bank deposits with floating interest rates, and related interest income and expense are exposed to interest rate risk. The Group is exposed to interest rate risk mainly due to its borrowing with floating interest rates. The purpose of interest rate risk management is to minimize uncertainty and finance expenses arising from interest rate fluctuation.

To manage its interest rate risk, the Group minimizes external borrowings using internal funds and reduces borrowings with high interest rates and maintains an appropriate balance between borrowings with floating interest rate and fixed-interest rate and short-term and long-term borrowings. The Group manages its interest rate risk preemptively through regular monitoring and adjustments to the changing domestic and overseas markets conditions and nature of its interest rates.

The carrying amount of the Group's financial assets and liabilities with floating interest rates exposed to interest rate risk as of December 31, 2020 and 2019 is as follows (Korean won in millions):

	December 31, 2020	December 31, 2019
Financial assets	₩ 570,203	₩ 459,746
Financial liabilities	(2,331,875)	(3,429,260)
	<u>₩ (1,761,672)</u>	<u>₩ (2,969,514)</u>

A sensitivity analysis on the Group's profit before income tax expenses assuming a 1% increase and decrease in interest rates for the years ended December 31, 2020 and 2019 is as follows (Korean won in millions):

	Impact on profit before income tax expenses	
	2020	2019
1% Increase	₩ (17,617)	₩ (29,695)
1% Decrease	17,617	29,695

#### 4.1.3 Price risk

The Group is exposed to equity price risks arising from its listed equity investments. The Group periodically measures the risk as the fair value or future cash flows of equity investments may fluctuate due to the changes in market prices. Important investments in the Group's portfolio are individually managed, and acquisition and disposal are approved by the Board of Directors.

#### 4.2 Credit risk

Credit risk refers to risk of financial losses to the Group when the counterparty defaults on the obligations of the contract. Credit risk arises from financial assets which are not equity securities, deposits in financial institution, financial derivatives and guarantee limit, and others. As well as from the Group's normal transactions and investing activities. To manage credit risk, the Group evaluates the creditworthiness of each customer or counterparty considering the financial status, past experience and other factors. The Group establishes credit limit for each customer and counterparty.

The Group evaluates the creditworthiness using open financial information and information provided by credit rating institution when the Group contracts with new customers. The Group decides credit transaction limit and is provided with collateral and guarantee based on evaluation.

Also, the Group reevaluates customers' creditworthiness periodically, reassesses credit transaction limit and readjusts level of collateral. The Group reports the present condition of delayed collection and collection measures periodically to financial assets, which has delayed collection and takes measures by causes of delay.

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**4.2 Credit risk (cont'd)**

The carrying amount for the financial assets exposed to credit risk as of December 31, 2020 and 2019 is as follows (Korean won in millions). The carrying amount indicates the maximum exposure to credit risk.

	December 31, 2020	December 31, 2019
Cash and cash equivalents	₩ 2,707,379	₩ 1,840,834
Short-term and long-term financial instruments	497,711	301,079
Trade and other receivables	2,974,179	3,949,646
Deposits	495,024	356,690
Short-term and long-term investment securities (excluding equity securities):		
Financial assets at amortized cost	193,509	53,198
Financial assets at fair value through OCI	158,702	69,961
Financial assets at fair value through profit or loss	439,005	131,705
Derivative assets	96,318	54,941
	<u>₩ 7,561,827</u>	<u>₩ 6,758,054</u>

Apart from the above, in the case of contracts such as financial guarantees provided by the Group, the amount of guarantees to be paid by the Group at the request of the guarantee is the maximum amount exposed to the credit risk (see Note 33).

Details of trade receivables and due from customers for contract work exposed to credit risk, presented using forecast model, as of December 31, 2020 and 2019 are as follows (Korean won in millions):

December 31, 2020									
Trade receivables									
	Individually assessed trade receivables (*1)	Trade receivables assessed for impairment on a collective basis(*2)					Total	Due from customers for contract work (*1)	
		Within due	Less than 3 months	3-6 months	6-12 months	More than 12 months		Total	Total
Book value	₩ 1,848,168	₩ 1,432,366	₩ 115,282	₩ 21,000	₩ 12,280	₩ 42,873	₩ 3,471,969	₩ 1,942,070	₩ 5,414,039
Expected credit loss rate	63.55%	0.32%	0.87%	3.16%	13.53%	33.83%		4.26%	
Expected credit loss	₩ 1,174,569	₩ 4,596	₩ 1,000	₩ 664	₩ 1,662	₩ 14,506	₩ 1,196,997	₩ 82,701	₩ 1,279,698

(\*1) Trade receivables with indication of impairment that are individually identifiable, such as bankruptcy.

(\*2) Trade receivables that are not individually significant and are classified into groups according to their similar characteristics.

December 31, 2019									
Trade receivables									
	Individually assessed trade receivables (*1)	Trade receivables assessed for impairment on a collective basis(*2)					Total	Due from customers for contract work (*1)	
		Within due	Less than 3 months	3-6 months	6-12 months	More than 12 months		Total	Total
Book value	₩ 1,946,155	₩ 1,614,032	₩ 149,822	₩ 14,791	₩ 28,751	₩ 45,423	₩ 3,798,974	₩ 2,034,377	₩ 5,833,351
Expected credit loss rate	62.76%	0.20%	0.73%	9.17%	8.98%	55.61%		3.13%	
Expected credit loss	₩ 1,221,397	₩ 3,250	₩ 1,093	₩ 1,357	₩ 2,582	₩ 25,261	₩ 1,254,940	₩ 63,578	₩ 1,318,518

(\*1) Trade receivables with indication of impairment that are individually identifiable, such as bankruptcy.

(\*2) Trade receivables that are not individually significant and are classified into groups according to their similar characteristics.

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**4.2 Credit risk (cont'd)**

Details of other receivables among the financial assets as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020						
	Individually assessed other receivables	Other receivables assessed for impairment on a collective basis					Total
		Within due	Less than 3 months	3-6 months	6-12 months	More than 12 months	
Loans and non-trade receivables	₩ 2,134,774	₩ 8,815	₩ 35,070	₩ 86	₩ 706	₩ 16,611	₩ 2,196,062
Accrued income	110,046	10,356	-	-	-	-	120,402
Financial lease receivables	-	9,419	-	-	-	-	9,419
	<u>₩ 2,244,820</u>	<u>₩ 28,590</u>	<u>₩ 35,070</u>	<u>₩ 86</u>	<u>₩ 706</u>	<u>₩ 16,611</u>	<u>₩ 2,325,883</u>

	December 31, 2019						
	Individually assessed other receivables	Other receivables assessed for impairment on a collective basis					Total
		Within due	Less than 3 months	3-6 months	6-12 months	More than 12 months	
Loans and non-trade receivables	₩ 2,733,126	₩ 69,968	₩ 22,140	₩ 2,766	₩ 317	₩ 27,492	₩ 2,855,809
Accrued income	105,619	4,996	-	-	-	-	110,615
Financial lease receivables	-	12,035	-	-	-	-	12,035
	<u>₩ 2,838,745</u>	<u>₩ 86,999</u>	<u>₩ 22,140</u>	<u>₩ 2,766</u>	<u>₩ 317</u>	<u>₩ 27,492</u>	<u>₩ 2,978,459</u>

As of December 31, 2020 and 2019, allowance for doubtful accounts on other receivables above amounts to ₩1,561,335 million and ₩1,506,731 million, respectively.

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**4.3 Liquidity risk**

Liquidity risk is the risk that the Group will encounter difficulty in meeting its financial liabilities' obligations related to its financing for its operation.

Based on the establishment of a regular funding plan, the Group prepares for the funding balance of its business activities, investment activities and financing activities for the maturity of financial assets and liabilities. The Group manages the liquidity risks that may occur in the future in advance by securing and maintaining required liquidity.

A summary of the Group's non-derivative liabilities' maturity as of December 31, 2020 and 2019 is as follows (Korean won in millions):

		December 31, 2020				
		Nominal cash flows according to contract				
			Less than			More than
	Book value	Total	1 year	1-2 years	2-5 years	5 years
Financial liabilities	₩ 16,902,160	₩ 17,720,382	₩ 12,624,805	₩ 2,248,750	₩ 2,530,402	₩ 316,425
Interest on financial liabilities	-	722,620	556,580	103,400	62,621	19
	₩ 16,902,160	₩ 18,443,002	₩ 13,181,385	₩ 2,352,150	₩ 2,593,023	₩ 316,444
		December 31, 2019				
		Nominal cash flows according to contract				
			Less than			More than
	Book value	Total	1 year	1-2 years	2-5 years	5 years
Financial liabilities	₩ 17,975,228	₩ 18,091,657	₩ 13,583,916	₩ 2,141,556	₩ 2,224,070	₩ 142,115
Interest on financial liabilities	-	389,219	259,638	94,884	34,697	-
	₩ 17,975,228	₩ 18,480,876	₩ 13,843,554	₩ 2,236,440	₩ 2,258,767	₩ 142,115

The above-mentioned maturity analysis is based on an undiscounted cash flow according to the contract, which differs from the carrying amount of non-derivative liabilities presented in the consolidated financial statements. It also includes the interest expenses on financial liabilities to be paid in the future. Apart from the above-mentioned non-derivative liabilities, as of December 31, 2020, financial guarantee liabilities of the Group are explained in Note 33.

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**4.4 Capital risk**

The Group performs capital risk management to maintain its ability to continuously provide profits to shareholders and parties in interest and to maintain optimum capital structure to reduce capital expenses.

The Group manages its capital structure through dividend payments to shareholders, returns capital to shareholders and issues new shares and sells its assets for debt reduction. Debt-to-equity ratio calculated as total liabilities divided by equity is used as an index to manage the Group's capital similar to overall industry practice.

Debt-to-equity ratios as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020	December 31, 2019
Total liabilities	₩ 22,408,094	₩ 22,350,207
Total equity	7,709,529	6,819,539
Debt-to-equity ratio	290.65%	327.74%

**5. Restricted financial assets**

Details of restricted financial assets as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020	December 31, 2019	Description
Cash and cash equivalents	₩ 83,465	₩ 6,184	Advances from construction contracts and others
Short-term financial instruments	326,591	214,493	National R&D(*1), shared growth fund, establishment of the right of pledge, collaterals for borrowings and PRS guarantee deposits(*2) and others
Long-term financial instruments	36,205	2,809	Bank transaction deposits and others
	<u>₩ 446,261</u>	<u>₩ 223,486</u>	

(\*1) Can only be used for the purpose of carrying out specific national R&D tasks.

(\*2) Deposits for Price Return Swap signed at the time of shares disposals of Doosan Bobcat Inc.

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**6. Short-term and long-term investment securities**

Details of short-term and long-term investment securities as of December 31, 2020 and 2019 are as follows (Korean won in millions):

		December 31, 2020	December 31, 2019
Short-term investment securities	Financial assets at amortized cost	₩ 178,177	₩ 49,915
	Financial assets (designated) at fair value through OCI	158,702	69,961
	Financial assets at fair value through profit or loss	271,760	9,280
		<u>608,639</u>	<u>129,156</u>
Long-term investment securities(*1)	Financial assets at amortized cost	15,332	3,283
	Financial assets (designated) at fair value through OCI	70,370	226,274
	Financial assets at fair value through profit or loss	238,431	202,765
		<u>324,133</u>	<u>432,322</u>
		<u>₩ 932,772</u>	<u>₩ 561,478</u>

(\*1) As of December 31, 2020, some of the long-term investment securities are provided as collateral for project financing (see Note 34).

Short-term and long-term investment securities as of December 31, 2020 and 2019 are as follows (Korean won in millions):

			December 31, 2020	December 31, 2019
Financial assets at amortized cost	Beneficiary certificates	NewBestDM 4th Co., Ltd.	₩ 79,974	₩ 49,876
	Debt securities	Government and public bonds and others	113,535	3,322
			<u>193,509</u>	<u>53,198</u>
Financial assets (designated) at fair value through OCI	Marketable equity securities	Solus Advanced Materials Co., Ltd. (formerly, Doosan Solus Co., Ltd.) Preferred shares and others (*1)	19,429	219,917
	Non-marketable equity securities	Sosius-Well to Sea Investment 2nd Private Equity Funds for corporate Financial Stability and others	50,941	6,357
		Debt securities	Electronic Short-term bonds	158,702
			<u>229,072</u>	<u>296,235</u>
Financial assets at fair value through profit or loss	Marketable equity securities	HTC Pureenergy Inc and others	7,924	9,507
	Non-marketable equity securities	S-Y Highway Co., Ltd. and others	63,262	70,833
		Contributions	Construction Guarantee Cooperative and others	142,270
	Beneficiary certificates	MMW and others	293,835	14,539
	Debt securities	Others	2,900	800
			<u>510,191</u>	<u>212,045</u>
			<u>₩ 932,772</u>	<u>₩ 561,478</u>

(\*1) Some of these equity securities were provided as collateral to Korea Development Bank, The Korea Exim Bank, Korea Investment & Securities Co., Ltd. and Shinyoung Securities Co., Ltd. as of December 31, 2020 (see Note 34).

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**6. Short-term and long-term investment securities (cont'd)**

Changes in financial assets at fair value for the year ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020						
	Beginning balance	Acquisition	Disposal (*1, 2)	Valuation	Changes in scope of consolidation (see Note 40)	Others	Ending balance
Financial assets (designated) at fair value through OCI (*1, 2)	₩ 296,235	₩ 260,520	₩ (905,165)	₩ 578,307	₩ -	₩ (825)	₩ 229,072
Financial assets at fair value through profit or loss	212,045	911,697	(692,937)	64,944	9,376	5,066	510,191
	<u>₩ 508,280</u>	<u>₩ 1,172,217</u>	<u>₩ (1,598,102)</u>	<u>₩ 643,251</u>	<u>₩ 9,376</u>	<u>₩ 4,241</u>	<u>₩ 739,263</u>

(\*1) On December 14, 2020, Solus Advanced Materials Co., Ltd.'s (formerly, Doosan Solus Co., Ltd.) ordinary shares (5,521,220 shares) held by the Company was sold to SkyLake Long-term Strategic Investment Co., Ltd. (disposal amount: ₩237,035 million). As of the date of disposal, the fair value as of the disposal date was ₩277,717 million. The accumulated gain on valuation of financial assets at fair value through OCI of ₩145,620 million, which was recognized in accumulated other comprehensive income, was reclassified to retained earnings.

(\*2) On November 26, 2020, as the Company obtained control over DFC, the ordinary and preferred shares of DFC held by the Company were derecognized from the consolidated financial statements (see Note 40). On the date of derecognition, the fair value of the ordinary and preferred shares was ₩501,079 million. As of the date of derecognition, the accumulated gain on valuation of financial assets at fair value through OCI of ₩300,379 million, which was recognized in accumulated other comprehensive income, was reclassified to retained earnings.

	2019						
	Beginning balance	Acquisition	Disposal	Valuation	Increase due to division (see Note 37)	Others	Ending balance
Financial assets (designated) at fair value through OCI	₩ 23,322	₩ 66,438	₩ -	₩ 62,483	₩ 145,260	₩ (1,268)	₩ 296,235
Financial assets at fair value through profit or loss	194,771	39,933	(19,419)	(2,442)	-	(798)	212,045
	<u>₩ 218,093</u>	<u>₩ 106,371</u>	<u>₩ (19,419)</u>	<u>₩ 60,041</u>	<u>₩ 145,260</u>	<u>₩ (2,066)</u>	<u>₩ 508,280</u>

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**7. Trade and other receivables**

Details of trade and other receivables as of December 31, 2020 and 2019 are as follows (Korean won in millions):

		December 31, 2020			
		Gross amount	Present value discount	Provision for impairment	Book value
Current:					
Trade receivables	₩	3,466,907	₩ (14,435)	₩ (1,196,941)	₩ 2,255,531
Non-trade receivables		476,503	-	(206,698)	269,805
Accrued income		120,402	-	(73,915)	46,487
Short-term loans		311,058	-	(160,488)	150,570
Current portion of long-term financial lease receivables		2,621	(354)	-	2,267
	₩	<u>4,377,491</u>	₩ <u>(14,789)</u>	₩ <u>(1,638,042)</u>	₩ <u>2,724,660</u>

		December 31, 2020			
		Gross amount	Present value discount	Provision for impairment	Book value
Non-current:					
Trade receivables	₩	5,062	₩ (37)	₩ (56)	₩ 4,969
Non-trade receivables		12,975	(341)	(5,906)	6,728
Long-term loans		1,395,526	(49,172)	(1,114,328)	232,026
Financial lease receivables		6,798	(1,002)	-	5,796
	₩	<u>1,420,361</u>	₩ <u>(50,552)</u>	₩ <u>(1,120,290)</u>	₩ <u>249,519</u>

		December 31, 2019			
		Gross amount	Present value discount	Provision for impairment	Book value
Current:					
Trade receivables	₩	3,794,192	₩ (15,718)	₩ (1,254,704)	₩ 2,523,770
Non-trade receivables		740,893	-	(229,780)	511,113
Accrued income		110,615	-	(32,020)	78,595
Short-term loans		233,153	-	(143,838)	89,315
Current portion of long-term financial lease receivables		2,120	(498)	-	1,622
	₩	<u>4,880,973</u>	₩ <u>(16,216)</u>	₩ <u>(1,660,342)</u>	₩ <u>3,204,415</u>

		December 31, 2019			
		Gross amount	Present value discount	Provision for impairment	Book value
Non-current:					
Trade receivables	₩	4,782	₩ (58)	₩ (237)	₩ 4,487
Non-trade receivables		29,549	-	(8,934)	20,615
Long-term loans		1,852,214	(48,510)	(1,092,158)	711,546
Financial lease receivables		9,915	(1,332)	-	8,583
	₩	<u>1,896,460</u>	₩ <u>(49,900)</u>	₩ <u>(1,101,329)</u>	₩ <u>745,231</u>

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**7. Trade and other receivables (cont'd)**

Changes in allowance for doubtful accounts for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020				
	Beginning balance	Provision for impaired receivables (reversal)	Write off	Others (*1)	Ending balance
Current:					
Trade receivables	₩ 1,254,704	₩ 23,989	₩ (61,731)	₩ (20,021)	₩ 1,196,941
Non-trade receivables	229,780	(50,593)	(50,309)	77,820	206,698
Accrued income	32,020	31,707	(341)	10,529	73,915
Short-term loans	143,838	51,150	(316)	(34,184)	160,488
Non-current:					
Long-term trade receivables	237	-	-	(181)	56
Long-term non-trade receivables	8,934	47	-	(3,075)	5,906
Long-term loans	1,092,158	145,902	(94,765)	(28,967)	1,114,328
	<u>₩ 2,761,671</u>	<u>₩ 202,202</u>	<u>₩ (207,462)</u>	<u>₩ 1,921</u>	<u>₩ 2,758,332</u>

(\*1) Changes are caused by transfer to current, non-current, changes in scope of consolidation and foreign exchange difference and others.

	2019				
	Beginning balance	Provision for impaired receivables (reversal)	Write off	Others (*1)	Ending balance
Current:					
Trade receivables	₩ 1,320,695	₩ (8,565)	₩ (51,438)	₩ (5,988)	₩ 1,254,704
Non-trade receivables	185,092	50,158	(13,904)	8,434	229,780
Accrued income	32,463	8	(451)	-	32,020
Short-term loans	82,584	38,047	-	23,207	143,838
Non-current:					
Long-term trade receivables	241	-	-	(4)	237
Long-term non-trade receivables	8,529	405	-	-	8,934
Long-term loans	1,151,372	61,705	(57,280)	(63,639)	1,092,158
	<u>₩ 2,780,976</u>	<u>₩ 141,758</u>	<u>₩ (123,073)</u>	<u>₩ (37,990)</u>	<u>₩ 2,761,671</u>

(\*1) Changes are caused by transfer to current, non-current, business combination and foreign exchange difference and others.

Impairment loss (reversal of impairment loss) on impaired trade receivables is included in selling and administrative expenses in the consolidated statements of profit or loss, and that on receivables other than impaired trade receivables is included in other non-operating expenses (income).

## 8. Inventories

Inventories as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020			December 31, 2019		
	Acquisition cost	Valuation allowance	Book value	Acquisition cost	Valuation allowance	Book value
Merchandises	₩ 347,062	₩ (28,879)	₩ 318,183	₩ 401,030	₩ (26,858)	₩ 374,172
Finished goods	604,349	(43,480)	560,869	722,328	(36,621)	685,707
Work in process	428,388	(11,313)	417,075	538,293	(14,306)	523,987
Raw materials	792,973	(41,767)	751,206	845,884	(42,426)	803,458
Materials in transit	345,133	-	345,133	263,047	-	263,047
Supplies	27,961	(2,603)	25,358	25,448	(2,631)	22,817
Others	4,127	-	4,127	8,560	-	8,560
	₩ 2,549,993	₩ (128,042)	₩ 2,421,951	₩ 2,804,590	₩ (122,842)	₩ 2,681,748

The amount of write-down of inventories recognized is ₩6,853 million and ₩17,576 million for the years ended December 31, 2020 and 2019, respectively.

## 9. Derivatives

### 9.1 Details of derivatives and hedge accounting

Derivative contracts	Purpose	Description
Currency forward contracts	Cash flow hedge	The Group designated the currency forward contracts as hedging instrument to hedge the cash flow risk arising from changes in foreign currency of forecast sales
Interest rate swap	Cash flow hedge	The Group designated the interest rate swap as hedging instrument to hedge the cash flow risk arising from changes in interest rate
Equity forward contracts	Fair value hedge	The Group designated the equity forward contracts as hedging instrument to hedge the fair value risk arising from changes in the fair value of financial assets at fair value through OCI
Stock warrants and others	Held for trading	Changes in fair value are recognized in profit or loss

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**9.2 Details of gain (loss) on valuation of derivatives**

Details of gain (loss) on valuation of derivatives as of December 31, 2020 and 2019 are as follows (Korean won in millions, foreign currency in thousands):

December 31, 2020									
Buy		Sell		Assets (liabilities)	Gain (loss)	Accumulated other comprehensive income (*1)	Firm commitment assets (liabilities) (*2)		
Currency	Amount	Currency	Amount						
Currency forward contracts:									
KRW	2,002,220	USD	1,787,452	₩ 53,978	₩ 73,683	₩ 1,941	₩ (22,858)		
KRW	296,663	EUR	218,520	1,815	888	(76)	(655)		
KRW	132,388	JPY	11,468,220	9,253	2,919	1,000	(3,335)		
KRW	50,479	Other foreign currencies		2,513	2,430	62	(1,263)		
USD	428,842	KRW	482,949	(15,722)	(15,116)	(10,586)	1,906		
EUR	264,230	KRW	357,794	(184)	(1,364)	4,511	44		
JPY	14,548,410	KRW	180,952	(24,613)	(2,705)	(6,381)	130		
Other foreign currencies		KRW	54,232	(2,337)	(13)	(2,272)	7		
Other foreign currencies		Other foreign currencies		(40,768)	1,305	1,703	(328)		
Long-term borrowings in foreign currency (*3):									
KRW	-	USD	-	-	-	-	36		
Interest rate swap				(832)	-	(832)	-		
Currency swap				(43,774)	-	6,536	-		
Stock price swap (*4)				24,613	24,613	-	-		
Stock forward contracts (*5)				-	6,248	-	-		
				<u>₩ (36,058)</u>	<u>₩ 92,888</u>	<u>₩ (4,394)</u>	<u>₩ (26,316)</u>		

(\*1) The amounts are gain (loss) on valuation of derivatives designated as cash flow hedges before income tax effect.

(\*2) The Group recognizes ₩15,719 million and ₩42,035 million for firm commitment assets and liabilities, respectively, considering the amount adjusted for the current year sales in accordance with the application of fair value hedge accounting.

(\*3) In order to avoid risk of fair value changes in firm commitment, the Group designated foreign currency long-term borrowings as hedging instruments.

(\*4) During the current year, DHC, the Group's subsidiary, signed the Price Return Swap contract to exchange profits from changes in prices of shares of Doosan Bobcat Inc.

(\*5) Apart from gain (loss) on valuation of derivatives, a loss on valuation of fair value hedge derivatives of ₩34,024 million arising from stock forward contracts was recognized as other comprehensive income in the consolidated statements of comprehensive income. During the current reporting period, the entire amount of accumulated other comprehensive income was reclassified to retained earnings as stock forward contracts and hedged item were derecognized from the consolidated statement of financial position due to their maturity.

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**9.2 Details of gain (loss) on valuation of derivatives (cont'd)**

December 31, 2019									
Buy		Sell		Assets (liabilities)	Gain (loss)	Accumulated other comprehensive income(*1)	Firm commitment assets (liabilities)(*2)		
Currency	Amount	Currency	Amount						
Currency forward contracts:									
KRW	2,279,396	USD	1,867,078	₩ (43,151)	₩ (36,266)	₩ 6,133	₩ 26,444		
KRW	307,895	EUR	225,282	4,979	1,509	1,310	(706)		
KRW	199,713	JPY	18,082,201	3,449	(2,622)	(1,112)	(1,895)		
KRW	3,091	GBP	2,000	55	-	55	-		
KRW	104,240	Other foreign currencies		(860)	(978)	(62)	424		
USD	1,450,610	KRW	1,674,689	11,410	38,493	3,178	(3,497)		
EUR	269,516	KRW	364,052	(10,462)	(3,907)	(1,085)	129		
JPY	16,838,081	KRW	208,006	(24,110)	(1,527)	(132)	73		
Other foreign currencies		KRW		21,007	284	(88)	527		
Other foreign currencies		Other foreign currencies		(16,922)	(11,345)	570	(618)		
Long-term borrowings in foreign currency(*3):									
KRW	-	USD	-	-	-	-	180		
Interest rate swap				(1,204)	-	(1,204)	-		
Currency swap				12,753	1,588	(1,036)	-		
Stock price swap(*4)				(14,157)	(14,157)	-	-		
Stock forward contracts				-	(1)	-	-		
				₩ (77,936)	₩ (29,301)	₩ 7,142	₩ 20,534		

(\*1) The amounts are gain (loss) on valuation of derivatives designated as cash flow hedges before income tax effect.

(\*2) The Group recognizes ₩45,007 million and ₩24,472 million for firm commitment assets and liabilities, respectively, considering the amount adjusted for the current year sales in accordance with the application of fair value hedge accounting.

(\*3) In order to avoid risk of fair value changes in firm commitment, the Group designated foreign currency long-term borrowings as hedging instruments.

(\*4) During the current year, DHC, the Group's subsidiary, signed the Price Return Swap contract to exchange profits from changes in prices of shares of Doosan Bobcat Inc.

**9.3 Stock options granted to financial investors**

The Group participates in SOC and development project such as Masan sewer pipe BTL, Sangju-Yeongcheon highway, Suwon-Gwangmyeong highway, Seoul-Munsan highway and others as an investor of the construction. The Group signed a put option contract worth ₩12,600 million regarding shares acquired by the financial investors in order to gather financial investors. The put option can be exercised in case when conditions such as termination of the contract, cancellation of business designation and others occur.

The Group, together with Nuscale Korea LLC and others who are financial investors of the Group, acquired preferred shares of Nuscale Power LLC during the previous year. The Group has granted a put option contract in which can be exercised when contract conditions, such as design certifications and others, are not satisfied, for the shares of USD 39,800 thousand acquired by Nuscale Korea LLC and others as of December 31, 2020.

The Group classifies the option contract as a derivative asset, and there is no amount recognized as loss on valuation of derivatives or derivative liabilities for the changes in fair value of options.

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**10. Financial instruments by category**

Categories of financial instruments as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020					
	Financial assets at fair value through profit or loss	Financial assets (designated) at fair value through OCI	Other financial assets (*1)	Financial assets at amortized cost	Book value	Fair value
Cash and cash equivalents	₩ -	₩ -	₩ -	₩ 2,707,379	₩ 2,707,379	₩ 2,707,379
Short-term and long-term financial instruments	9,000	-	-	488,711	497,711	497,711
Short-term and long-term investment securities	510,191	229,072	-	193,509	932,772	932,772
Trade and other receivables	-	29,410	-	2,944,769	2,974,179	2,974,179
Derivative assets	30,728	-	65,590	-	96,318	96,318
Deposits	-	-	-	495,024	495,024	495,024
Assets held for sale	870	-	-	162,324	163,194	163,194
	<u>₩ 550,789</u>	<u>₩ 258,482</u>	<u>₩ 65,590</u>	<u>₩ 6,991,716</u>	<u>₩ 7,866,577</u>	<u>₩ 7,866,577</u>

	December 31, 2020				
	Financial liabilities at fair value through profit or loss	Other financial liabilities (*1)	Financial liabilities at amortized cost	Book value	Fair value
Trade and other payables	₩ -	₩ -	₩ 4,176,891	₩ 4,176,891	₩ 4,176,891
Borrowings, bonds and asset-backed loans	-	-	12,330,666	12,330,666	12,330,666
Lease liabilities	-	-	542,983	542,983	542,983
Derivative liabilities	20,260	112,116	-	132,376	132,376
Financial guarantee liabilities	-	26,406	-	26,406	26,406
Liabilities held for sale	-	-	129,280	129,280	129,280
	<u>₩ 20,260</u>	<u>₩ 138,522</u>	<u>₩ 17,179,820</u>	<u>₩ 17,338,602</u>	<u>₩ 17,338,602</u>

(\*1) Include derivative assets designated as effective hedging instruments.

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**10. Financial instruments by category (cont'd)**

	December 31, 2019					
	Financial assets at fair value through profit or loss	Financial assets (designated) at fair value through OCI	Other financial assets (*1)	Financial assets at amortized cost	Book value	Fair value
Cash and cash equivalents	₩ -	₩ -	₩ -	₩ 1,840,834	₩ 1,840,834	₩ 1,840,834
Short-term and long-term financial instruments	9,000	-	-	292,079	301,079	301,079
Short-term and long-term investment securities	212,045	296,235	-	53,198	561,478	561,478
Trade and other receivables	-	12,250	-	3,937,396	3,949,646	3,949,646
Derivative assets	9,547	-	45,394	-	54,941	54,941
Deposits	-	-	-	356,690	356,690	356,690
	<u>₩ 230,592</u>	<u>₩ 308,485</u>	<u>₩ 45,394</u>	<u>₩ 6,480,197</u>	<u>₩ 7,064,668</u>	<u>₩ 7,064,668</u>

	December 31, 2019				
	Financial liabilities at fair value through profit or loss	Other financial liabilities (*1)	Financial liabilities at amortized cost	Book value	Fair value
Trade and other payables	₩ -	₩ -	₩ 4,955,831	₩ 4,955,831	₩ 4,955,831
Borrowings, bonds and asset-backed loans	-	-	12,441,193	12,441,193	12,441,193
Lease liabilities	-	-	302,355	302,355	302,355
Derivative liabilities	45,863	87,015	-	132,878	132,878
Financial guarantee liabilities	-	16,055	-	16,055	16,055
	<u>₩ 45,863</u>	<u>₩ 103,070</u>	<u>₩ 17,699,379</u>	<u>₩ 17,848,312</u>	<u>₩ 17,848,312</u>

(\*1) Include derivative assets designated as effective hedging instruments.

Fair value measurements of financial instruments by fair value hierarchy levels as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020			
	Level 1	Level 2	Level 3	Total
<b>Financial assets:</b>				
Financial assets (designated) at fair value through OCI	₩ 19,429	₩ 188,112	₩ 50,941	₩ 258,482
Financial assets at fair value through profit or loss	7,924	303,705	239,160	550,789
Other financial assets	-	65,590	-	65,590
	<u>27,353</u>	<u>557,407</u>	<u>290,101</u>	<u>874,861</u>
<b>Financial liabilities:</b>				
Financial liabilities at fair value through profit or loss	-	20,260	-	20,260
Other financial liabilities	-	112,116	-	112,116
	<u>-</u>	<u>132,376</u>	<u>-</u>	<u>132,376</u>
	<u>₩ 27,353</u>	<u>₩ 425,031</u>	<u>₩ 290,101</u>	<u>₩ 742,485</u>

**10. Financial instruments by category (cont'd)**

	December 31, 2019			
	Level 1	Level 2	Level 3	Total
Financial assets:				
Financial assets (designated) at fair value through OCI	₩ 219,915	₩ 82,211	₩ 6,359	₩ 308,485
Financial assets at fair value through profit or loss	9,590	18,546	202,456	230,592
Other financial assets	-	45,394	-	45,394
	<u>229,505</u>	<u>146,151</u>	<u>208,815</u>	<u>584,471</u>
Financial liabilities:				
Financial liabilities at fair value through profit or loss	-	45,863	-	45,863
Other financial liabilities	-	87,015	-	87,015
	<u>-</u>	<u>132,878</u>	<u>-</u>	<u>132,878</u>
	<u>₩ 229,505</u>	<u>₩ 13,273</u>	<u>₩ 208,815</u>	<u>₩ 451,593</u>

The above table does not include information for those financial instruments, which are not measured at fair value because the carrying amount approximates fair value.

The Group uses the following hierarchy for determining and disclosing the fair value of financial instruments by valuation technique. The level of hierarchy of fair value is as follows:

	Significance of input factor
Level 1:	Unadjusted quoted prices in active markets for identical assets or liabilities
Level 2:	Inputs other than quoted prices that are observable for the asset or liability, either directly or indirectly
Level 3:	Inputs that are not based on observable market data (unobservable inputs)

The fair value of financial instruments traded in active markets is based on quoted market prices at the dates of the consolidated financial statements. These instruments are included in Level 1. Instruments included in Level 1 comprise primarily listed equity investments classified as financial assets at fair value.

The fair value of financial instruments that are not traded in an active market (for example, over-the-counter derivatives) is determined by using valuation techniques. These valuation techniques maximize the use of observable market data where it is available and rely as little as possible on entity-specific estimates. If all significant inputs required for fair value of an instrument are observable, the instrument is included in Level 2.

If one or more of the significant inputs is not based on observable market data, the instrument is included in Level 3.

Valuation techniques and inputs used for derivatives designated as hedging instruments (Level 2) are as follows:

Valuation technique	Observable inputs	Explanation of input parameters
Discounted cash flow method	Forward exchange rate	It is based on forward exchange rate, disclosed on the market that remaining year is the same till maturity of forward contracts. If the forward exchange rate is not disclosed on the market, it is calculated by using interpolation method.
	Discount rate	It is determined by using yield curve that is disclosed at the end of the reporting year.

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**10. Financial instruments by category (cont'd)**

Assumptions used in the valuation of financial assets at fair value that have been categorized into Level 3 as of December 31, 2020 are as follows:

Financial assets	Valuation techniques	Discount rate	Remarks
Incheon-Gimpo Expressway Co., Ltd. and others	Dividend evaluation model	6.67%	Expected dividend cash flow for each financial period
Kyunggi South Road Co., Ltd.	Discounted cash flow model	6.61%	Forecasted shareholder cash flows
Daegu South Circulation Road Corporation.	Discounted cash flow model	6.26%	Forecasted shareholder cash flows
S-Y highway Co., Ltd.	Discounted cash flow model	6.41%	Forecasted shareholder cash flows
Metropolitan Western Expressway Co., Ltd.	Net asset value assessment	6.00%	Amount available for sale under contract
Short term financial instruments (ABS)	Market value assessment	-	Recent market value
Busan Logistics Terminal Co., Ltd.	Cost methods	-	Recent measurement costs
Gyeonggi East-West Road Corporation Co., Ltd.	Net asset value assessment	-	Net asset value
Korea Exim Bank	Expected selling value estimation method	-	Expected selling value
Public Carbon Fund	Expected selling value estimation method	-	Expected selling value
Construction Guarantee Cooperative	Expected selling value estimation method	-	Expected selling value
Machinery Financial Cooperative	Expected selling value estimation method	-	Expected selling value
Plant & Mechanical Contractors Financial Cooperative	Expected selling value estimation method	-	Expected selling value
Engineering Guarantee Insurance	Expected selling value estimation method	-	Expected selling value
Gyeongnam-GNTECH Creative Economy Innovation Fund	Net asset value assessment	-	Net asset value
Emerald Technology Venture	Expected selling value estimation method	-	Return rate on investment
Lanco Kondapalli Power Ltd.	Net asset value assessment	-	Net asset value
Electric Contractors Financial Cooperative	Expected selling value estimation method and others	-	Expected selling value and others
Information & Communication Financial Cooperative	Expected selling value estimation method and others	-	Expected selling value and others
Korea Electric Engineers Association	Expected selling value estimation method and others	-	Expected selling value and others
Fire Guarantee	Expected selling value estimation method and others	-	Expected selling value and others
AI Asilah Desalination Company	Net asset value assessment	-	Net asset value
NuScale Power LLC	Net asset value assessment	-	Net asset value

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**10. Financial instruments by category (cont'd)**

In addition, changes in the carrying amount of financial assets at fair value through profit or loss and financial assets (designated) at fair value through OCI that have been categorized into Level 3 of fair value hierarchy for the year ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020							
	January 1, 2020	Total comprehensive income (loss)		Buy	Sell	Changes in scope of consolidation	Others	December 31, 2020
		Profit or loss	Other comprehensive income (loss)					
Financial assets (designated) at fair value through OCI	₩ 6,359	₩ -	₩ (4)	₩ 63,028	₩ (18,441)	₩ -	₩ (1)	₩ 50,941
Financial assets at fair value through profit or loss	202,456	(11,419)	-	53,342	(10,102)	4,500	383	239,160
	<u>₩ 208,815</u>	<u>₩ (11,419)</u>	<u>₩ (4)</u>	<u>₩ 116,370</u>	<u>₩ (28,543)</u>	<u>₩ 4,500</u>	<u>₩ 382</u>	<u>₩ 290,101</u>

  

	2019							
	January 1, 2019	Total comprehensive income (loss)		Buy	Sell	Transfer	Others	December 31, 2019
		Profit or loss	Other comprehensive income (loss)					
Financial assets (designated) at fair value through OCI	₩ 19,465	₩ -	₩ (12,046)	₩ 722	₩ -	₩ -	₩ (1,782)	₩ 6,359
Financial assets at fair value through profit or loss	182,221	(3)	-	39,720	(19,377)	(1)	(104)	202,456
	<u>₩ 201,686</u>	<u>₩ (3)</u>	<u>₩ (12,046)</u>	<u>₩ 40,442</u>	<u>₩ (19,377)</u>	<u>₩ (1)</u>	<u>₩ (1,886)</u>	<u>₩ 208,815</u>

Comprehensive income (loss) by categories of financial instruments for the years ended December 31, 2020 and 2019 is as follows (Korean won in millions):

	2020							
	Profit or loss (*1)							
	Interest	Dividend	Financial guarantee	Valuation gain/loss (except for derivatives)	Impairment and reversal		Disposal	Other comprehensive income (*2)
Impairment loss					Other impairment			
Financial assets:								
Financial assets at amortized cost	₩ 46,270	₩ -	₩ -	₩ -	₩ (206,467)	₩ -	₩ (19,585)	₩ -
Financial assets (designated) at fair value through OCI	4,829	32	-	-	-	-	(2,033)	578,307
Financial assets at fair value through profit or loss	454	1,287	-	(16,978)	-	-	997	-
Other financial assets	18	-	-	-	-	-	-	-
	<u>₩ 51,571</u>	<u>₩ 1,319</u>	<u>₩ -</u>	<u>₩ (16,978)</u>	<u>₩ (206,467)</u>	<u>₩ -</u>	<u>₩ (20,621)</u>	<u>₩ 578,307</u>
Financial liabilities:								
Financial liabilities at amortized cost	₩ (553,590)	₩ -	₩ -	₩ -	₩ -	₩ -	₩ (54,935)	₩ -
Others	-	-	(5,170)	-	-	-	-	-
	<u>₩ (553,590)</u>	<u>₩ -</u>	<u>₩ (5,170)</u>	<u>₩ -</u>	<u>₩ -</u>	<u>₩ -</u>	<u>₩ (54,935)</u>	<u>₩ -</u>

(\*1) Profit or loss includes the amounts classified as profit or loss from discontinued operations in consolidated statement of profit or loss.

(\*2) Other comprehensive income is before income tax effect.

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**10. Financial instruments by category (cont'd)**

	2019									
	Profit or loss (*1)									
	Interest	Dividend	Financial guarantee	Valuation gain/loss (except for derivatives)	Impairment and reversal			Other comprehensive income (*2)		
Impairment loss					Other impairment	Disposal				
Financial assets:										
Financial assets at amortized cost	₩ 48,498	₩ -	₩ -	₩ -	₩ (151,198)	₩ -	₩ (23,722)	₩ -		
Financial assets (designated) at fair value through OCI	2,530	18	-	-	-	-	-	-	62,483	
Financial assets at fair value through profit or loss	9,800	1,278	-	(2,442)	-	-	2,921	-		
Other financial assets	460	-	-	-	-	-	-	-		
	<u>₩ 61,288</u>	<u>₩ 1,296</u>	<u>₩ -</u>	<u>₩ (2,442)</u>	<u>₩ (151,198)</u>	<u>₩ -</u>	<u>₩ (20,801)</u>	<u>₩ -</u>	<u>₩ 62,483</u>	
Financial liabilities:										
Financial liabilities at amortized cost	₩ (613,219)	₩ -	₩ -	₩ -	₩ -	₩ -	₩ (7,884)	₩ -		
Others	-	-	(10,329)	-	-	-	-	-		
	<u>₩ (613,219)</u>	<u>₩ -</u>	<u>₩ (10,329)</u>	<u>₩ -</u>	<u>₩ -</u>	<u>₩ -</u>	<u>₩ (7,884)</u>	<u>₩ -</u>	<u>₩ -</u>	

(\*1) Profit or loss includes the amounts classified as profit or loss from discontinued operations in consolidated statement of profit or loss.

(\*2) Other comprehensive income is before income tax effect.

Apart from the above financial instruments, comprehensive income (loss) by derivatives for the years ended December 31, 2020 and 2019 is as follows (Korean won in millions):

	2020			2019		
	Profit or loss		Other comprehensive loss (*1)	Profit or loss		Other comprehensive income (*1)
	Valuation	Disposal		Valuation	Disposal	
Derivatives held of trading	₩ 27,373	₩ (14,989)	₩ -	₩ 22,694	₩ 2,089	₩ -
Derivatives designated as fair value hedges	35,267	(3,054)	(44,887)	(56,840)	(2,770)	-
Derivatives designated as cash flow hedges	30,247	(2,048)	(11,536)	4,845	(4,975)	16,945
	<u>₩ 92,887</u>	<u>₩ (20,091)</u>	<u>₩ (56,423)</u>	<u>₩ (29,301)</u>	<u>₩ (5,656)</u>	<u>₩ 16,945</u>

(\*1) Other comprehensive income (loss) is before income tax effect.

In addition, most of the foreign exchange differences (gain (loss) on foreign currency translations or transactions) from foreign currency transactions arise from financial assets (liabilities) at amortized cost other than derivative contracts.

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**10. Financial instruments by category (cont'd)**

Financial assets and liabilities subject to an enforceable master-netting arrangement or similar agreement as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020			December 31, 2019		
	Gross recognized financial instruments	Gross financial instruments set off	Net amounts presented in the statements of financial position	Gross recognized financial instruments	Gross financial instruments set off	Net amounts presented in the statements of financial position
<b>Financial assets:</b>						
Trade receivables	₩ 6,423	₩ (2,954)	₩ 3,469	₩ 8,332	₩ (4,260)	₩ 4,072
Other receivables	36	(36)	-	8,079	(1,208)	6,871
Derivative assets	79,580	(19,332)	60,248	60,726	(30,468)	30,258
	<u>₩ 86,039</u>	<u>₩ (22,322)</u>	<u>₩ 63,717</u>	<u>₩ 77,137</u>	<u>₩ (35,936)</u>	<u>₩ 41,201</u>
<b>Financial liabilities:</b>						
Trade payables	₩ 25,531	₩ (2,990)	₩ 22,541	₩ 43,110	₩ (5,468)	₩ 37,642
Derivative liabilities	59,929	(19,332)	40,597	123,343	(30,468)	92,875
	<u>₩ 85,460</u>	<u>₩ (22,322)</u>	<u>₩ 63,138</u>	<u>₩ 166,453</u>	<u>₩ (35,936)</u>	<u>₩ 130,517</u>

**11. Investments in associates and joint ventures**

Details of investments in associates and joint ventures as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	Location	Ownership interests (%)	Acquisition cost		Book value	
			December 31, 2020	December 31, 2019	December 31, 2020	December 31, 2019
<b>Associates:</b>						
The HS-City Expressway (*1)	Korea	27.29	₩ 9,578	₩ 9,578	₩ 3,081	₩ 3,806
Samcheok Blue Power Co.,Ltd. (formerly, Pospower Co., Ltd.) (*1, 3, 6)	Korea	9.00	43,568	43,568	38,086	42,961
Daejung Offshore Wind Power Co., Ltd. (*9)	Korea	26.65	3,196	2,827	2,771	2,617
Hychangwon Co., Ltd. (*8, 11)	Korea	18.52	3,000	-	2,810	-
ReCarbon, Inc. (*3)	USA	16.09	8,151	8,473	8,052	8,222
New Bundang Line Co., Ltd. (*2)	Korea	29.03	62,552	62,552	-	-
Kyunggi Railroad Co., Ltd. (*2, 3)	Korea	6.98	7,067	7,067	-	-
Neo Trans Co., Ltd.	Korea	42.86	43	43	21,883	21,810
New Seoul Railroad Co., Ltd. (*2, 3)	Korea	13.76	8,794	8,794	6,826	7,219
KIAMCO Kyunggi Railway Investment Private Property Investment Trust (*2, 9)	Korea	35.78	28,167	28,072	-	-
Incheon Fucell Co.,Ltd.	Korea	20.00	4,700	4,700	2,999	4,439
Daesan Green Energy Co., Ltd. (*3, 10)	Korea	10.00	5,100	-	3,085	-
Mastern Professional Investment Type Private Security Investment Trust No.98 (*8)	Korea	25.45	70,000	-	69,598	-
Geaenzymes Co (*7)	USA	-	-	750	-	713
Protera SAS (*3, 7)	France	8.05	591	-	637	-
NewWave #5 Start-up Investment (*4, 5)	Korea	-	-	6	-	85
2010 KIF-Neoplux IT Venture Fund (*4, 5)	Korea	-	-	1,826	-	18
KoFC-Neoplux R&D-Biz Creation 2013-1 Venture Capital Fund (*4)	Korea	-	-	3,127	-	5,317
Future-Creation Neoplux Venture Capital Fund (*4)	Korea	-	-	4,711	-	5,259
Neoplux Technology Valuation Investment Fund (*4)	Korea	-	-	7,833	-	8,584
Neoplux Market Frontier Secondary Fund (*4)	Korea	-	-	8,954	-	8,105
Gyeonggi-Neoplux Superman Fund (*4)	Korea	-	-	3,564	-	4,187
Shinhan-Neoplux Energy Newbiz Fund (*4)	Korea	-	-	3,000	-	2,799
New Wave 6th Investment Fund (*4)	Korea	-	-	2,000	-	1,786
KTC-NP-Growth Champ 2011-2 PEF (*4)	Korea	-	-	2,837	-	6,011
Neoplux No.3 Private Equity Fund (*4)	Korea	-	-	9,170	-	6,979
Stathera IP Holding Inc. (*3, 8)	Canada	15.82	2,875	-	2,839	-
PT. SEGARA AKASA (*8)	Indonesia	30.02	71	-	58	-
Prestolite Asia Ltd.	Korea	32.31	468	468	2,717	2,535
Wise Fashion Co., Ltd. (*3)	Korea	19.34	3,000	3,000	2,158	2,678
KDDI Korea Corporation (*3)	Korea	17.63	4,176	4,176	3,655	3,617
Others	USA etc.	-	13,004	5,333	6,936	-
			<u>278,101</u>	<u>236,429</u>	<u>178,191</u>	<u>149,747</u>

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**11. Investments in associates and joint ventures (cont'd)**

	Location	Ownership interests (%)	Acquisition cost		Book value	
			December 31, 2020	December 31, 2019	December 31, 2020	December 31, 2019
Joint venture:						
Sichuan Kelun-Doosan Biotechnology Co., Ltd.	China	50.00	2,526	2,526	3,453	4,052
Doosan Babcock BlackCat W.L.L	Qatar	49.00	243	243	640	-
Haman Industrial Complex (*5)	Korea	-	-	2,400	-	-
Tianjin Lovol Doosan Engine Co., Ltd. (*12)	China	50.00	28,163	25,640	16,327	17,787
Others (Doosan PSI LLC and others)	USA etc.	-	718	1,826	202	2,288
			<u>31,650</u>	<u>32,635</u>	<u>20,622</u>	<u>24,127</u>
			<u>₩ 309,751</u>	<u>₩ 269,064</u>	<u>₩ 198,813</u>	<u>₩ 173,874</u>

(\*1) The Group's investments in investee have been pledged as collateral for the investee's project financing and completion guarantee.

(\*2) Provided as collateral for project financing.

(\*3) Although the Group has less than 20% of shares in the investee, it is classified as an associate since the Group can exercise voting rights in its Board of Directors' meeting.

(\*4) The Group's investments in the investees were attributable to the Neoplux business. However, the investees were excluded from the list of associates due to the sale of the Neoplux business during the current year.

(\*5) During the current year, the investee was liquidated.

(\*6) The name of the investee was changed from POSPOWER Co., Ltd. to Samcheok Blue Power Co., Ltd. during the current year.

(\*7) The Group exchanged shares of Geanzymes Co. for shares of Protera SAS through stock exchange agreement during the current year.

(\*8) During the current year, the Group newly acquired the investee.

(\*9) During the current year, the Group additionally acquired the investee.

(\*10) As an investment attributable to DFC, the investee was included as an associate as the Group obtained control of DFC during the current year.

(\*11) The Group's ownership interest in the investee included preferred shares, and the investee is classified as an associate since the Group hold more than 20% of the shares with voting rights.

(\*12) The Group participated in the issuance of shares of Tianjin Lovol Doosan Engine Co. Ltd. and acquired 50% of the share for ₩2,523 million during the current year.

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**11. Investments in associates and joint ventures (cont'd)**

Changes in investment in associates and joint ventures for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020						
	Beginning balance	Acquisition (disposal)	Dividends	Share of profit (loss) of associates and joint ventures accounted for using the equity method	Share of other comprehensive income (loss) of associates and joint ventures	Other (*1)	Ending balance
Associates:							
The HS-City Expressway Samcheok Blue Power Co.,Ltd. (formerly, Pospower Co., Ltd.)	₩ 3,806	₩ -	₩ -	₩ (850)	₩ -	₩ 125	₩ 3,081
Daejung Offshore Wind Power Co., Ltd.	42,961	-	-	(4,873)	(2)	-	38,086
Hychangwon Co., Ltd. (*2)	2,617	369	-	(215)	-	-	2,771
ReCarbon, Inc.	-	3,000	-	(190)	-	-	2,810
New Bundang Line Co., Ltd. (*3)	8,222	-	-	(956)	857	(71)	8,052
Kyunggi Railroad Co., Ltd. (*3)	-	-	-	-	-	-	-
Neo Trans Co., Ltd.	-	-	-	-	-	-	-
New Seoul Railroad Co., Ltd.	21,810	-	-	73	-	-	21,883
KIAMCO Kyunggi Railway Investment Private Property Investment Trust	7,219	-	-	(393)	-	-	6,826
Incheon Fucell Co.,Ltd.	-	95	-	(95)	-	-	-
Daesan Green Energy Co. Ltd.	4,439	-	-	(1,438)	(2)	-	2,999
Mastern Professional Investment Type Private Security Investment Trust No.98	-	70,000	-	(402)	-	-	69,598
Geaenzymes Co	713	(591)	-	(149)	27	-	-
Protera SAS	-	591	-	38	8	-	637
NewWave #5 Start-up Investment (*4)	85	(6)	(79)	-	-	-	-
2010 KIF-Neoplux IT Venture Fund (*4)	18	(17)	-	(1)	-	-	-
KoFC-Neoplux R&D-Biz Creation 2013-1 Venture Capital Fund (*4)	5,317	(1,435)	-	176	-	(4,058)	-
Future Creation Neoplux Investment Partnership (*4)	5,259	(456)	-	817	-	(5,620)	-
Neoplux Technology Valuation Investment Fund (*4)	8,584	(1,064)	-	440	-	(7,960)	-
Neoplux Market Frontier Secondary Fund (*4)	8,105	584	-	(77)	-	(8,612)	-
Gyeonggi-Neoplux Superman Fund (*4)	4,187	918	-	(84)	-	(5,021)	-
Shinhan-Neoplux Energy Newbiz Fund (*4)	2,799	1,090	-	117	-	(4,006)	-
New Wave 6th investment fund (*4)	1,786	2,000	-	375	-	(4,161)	-
KTC-NP-Growth Champ 2011-2 PEF (*4)	6,011	-	(16)	(1,072)	-	(4,923)	-
Neoplux No.3 Private Equity Fund (*4)	6,979	2,820	(2)	(182)	-	(9,615)	-
Stathera IP Holding Inc.	-	2,875	-	(82)	46	-	2,839
PT. SEGARA AKASA	-	71	-	(10)	(3)	-	58
Prestolite Asia LTD.	2,535	-	-	182	-	-	2,717
Wise Fashion Co., Ltd.	2,678	-	-	(520)	-	-	2,158
KDDI Korea Corporation	3,617	-	(20)	58	-	-	3,655
Others	-	7,670	-	-	-	(734)	6,936
	149,747	88,514	(117)	(9,038)	931	(51,846)	178,191

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**11. Investments in associates and joint ventures (cont'd)**

	2020						Ending balance
	Beginning balance	Acquisition (disposal)	Dividends	Share of profit (loss) of associates and joint ventures accounted for using the equity method	Share of other comprehensive income (loss) of associates and joint ventures	Other (*1)	
Joint venture:							
Sichuan Kelun-Doosan Biotechnology Company Limited	₩ 4,052	₩ -	₩ (1,911)	₩ 1,368	₩ (56)	₩ -	₩ 3,453
Doosan Babcock BlackCat W.L.L	-	-	-	653	-	(13)	640
Haman Industrial Complex	-	-	-	-	-	-	-
Tianjin Lovol Doosan Engine Co., Ltd.	17,787	2,523	-	(4,217)	-	234	16,327
Others (Doosan PSI LLC and others)	2,288	(2,223)	-	358	-	(221)	202
	<u>24,127</u>	<u>300</u>	<u>(1,911)</u>	<u>(1,838)</u>	<u>(56)</u>	<u>-</u>	<u>20,622</u>
	<u>₩ 173,874</u>	<u>₩ 88,814</u>	<u>₩ (2,028)</u>	<u>₩ (10,876)</u>	<u>₩ 875</u>	<u>₩ (51,846)</u>	<u>₩ 198,813</u>

(\*1) Changes due to exchange rate differences and the scope of consolidation.

(\*2) Share of profit (loss) of equity method investees was calculated based on the Group's ownership ratio of 50% of ordinary shares.

(\*3) An additional share of loss of long-term investments of ₩3,737 million was recognized during the current year.

(\*4) Share of profit (loss) of associates and joint ventures accounted for using the equity method of the above entities are recognized as discontinued operations.

**Doosan Corporation and its subsidiaries**  
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**11. Investments in associates and joint ventures (cont'd)**

	2019						Ending balance
	Beginning balance	Acquisition (disposal)	Dividends	Share of profit (loss) of associates and joint ventures accounted for using the equity method	Share of other comprehensive income (loss) of associates and joint ventures	Other (*1)	
Associates:							
The HS-City Expressway	₩ 4,920	₩ -	₩ -	₩ (1,211)	₩ -	₩ 97	₩ 3,806
Pospower Co., Ltd.	43,448	-	-	(477)	(10)	-	42,961
Daejung Offshore Wind Power Co., Ltd.	2,772	-	-	(155)	-	-	2,617
Potenit Co., Ltd.	4,779	-	-	(4,779)	-	-	-
New Bundang Line Co., Ltd. (*4)	-	-	-	-	-	-	-
Kyunggi Railroad Co., Ltd. (*4)	-	-	-	-	-	-	-
Neo Trans Co., Ltd.	21,645	-	-	165	-	-	21,810
New Seoul Railroad Co., Ltd.	7,144	-	-	75	-	-	7,219
KIAMCO Kyunggi Railway Investment Private Property Investment Trust	-	-	-	-	-	-	-
Incheon Fucell Co., Ltd.	4,662	-	-	(223)	-	-	4,439
Dongbuk LRT	1,693	(1,665)	-	(28)	-	-	-
Daesan Green Energy Co. Ltd. (*3)	4,527	-	-	(1,957)	-	(2,570)	-
Geaenzymes	703	-	-	(21)	-	31	713
NewWave #5 Start-up Investment (*2)	774	(402)	(435)	148	-	-	85
KoFC-Neoplux Pioneer Champ 2010-7 Venture Capital Fund (*2)	1,958	(1,571)	62	(449)	-	-	-
2010 KIF-Neoplux IT Venture Fund (*2)	750	(631)	-	(101)	-	-	18
KoFC-Neoplux R&D-Biz Creation 2013-1 Venture Capital Fund (*2)	6,530	(1,547)	(855)	1,189	-	-	5,317
Future Creation Neoplux Investment Partnership (*2)	5,715	-	-	(456)	-	-	5,259
Neoplux Technology Valuation Investment Fund (*2)	9,736	(748)	-	(404)	-	-	8,584
Neoplux Market Frontier Secondary Fund (*2)	8,391	1,711	(659)	(1,338)	-	-	8,105
Gyeonggi-Neoplux Superman Fund (*2)	1,602	1,836	-	749	-	-	4,187
Shinhan-Neoplux Energy Newbiz Fund (*2)	1,391	1,500	-	(92)	-	-	2,799
New Wave 6th investment fund (*2)	-	2,000	-	(214)	-	-	1,786
Neoplux No.1 Private Equity Fund (*2)	152	-	-	(192)	-	40	-
KTC-NP-Growth Champ 2011-2 PEF (*2)	14,810	(1,844)	(7)	(6,708)	(240)	-	6,011
Neoplux No.3 Private Equity Fund (*2)	6,850	2,140	-	(2,011)	-	-	6,979
Prestolite Asia LTD.	2,346	-	-	189	-	-	2,535
Wise Fashion Co., Ltd.	-	3,000	-	(322)	-	-	2,678
ReCarbon, Inc.	-	8,473	-	(211)	-	(40)	8,222
KDDI Korea Corporation	3,572	-	(149)	194	-	-	3,617
	160,870	12,252	(2,043)	(18,640)	(250)	(2,442)	149,747

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**11. Investments in associates and joint ventures (cont'd)**

	2019						
	Beginning balance	Acquisition (disposal)	Dividends	Share of profit (loss) of associates and joint ventures accounted for using the equity method	Share of other comprehensive income (loss) of associates and joint ventures	Other(*1)	Ending balance
Joint ventures:							
Sichuan Kelun-Doosan Biotechnology Company Limited	₩ 3,220	₩ -	₩ (603)	₩ 1,383	₩ 52	₩ -	₩ 4,052
Doosan Babcock BlackCat W.L.L	-	-	-	-	-	-	-
Doosan PSI LLC	1,337	-	-	802	-	42	2,181
Doosan Infracore Liaoning Machinery Sales Co., Ltd	292	-	-	(193)	-	8	107
Tianjin Lovol Doosan Engine Co., Ltd.	8,235	12,913	-	(3,139)	-	(222)	17,787
	13,084	12,913	(603)	(1,147)	52	(172)	24,127
	<u>₩ 173,954</u>	<u>₩ 25,165</u>	<u>₩ (2,646)</u>	<u>₩ (19,787)</u>	<u>₩ (198)</u>	<u>₩ (2,614)</u>	<u>₩ 173,874</u>

(\*1) Changes due to exchange rate differences and the scope of consolidation.

(\*2) Share of profit (loss) of associates and joint ventures accounted for using the equity method of the above entities are classified as sales.

(\*3) Changes due to exchange rate differences and the scope of consolidation.

(\*4) In accordance with the amendment of KIFRS 1028, share of loss of associates and joint ventures on long-term investment interests are additionally recognized ₩4,795 million (see Note 2).

The changes above do not include associates and joint ventures that ceased to apply the equity method.

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**11. Investments in associates and joint ventures (cont'd)**

The condensed financial information of associates and joint ventures as of and for the years ended December 31, 2020 and 2019 is as follows (Korean won in millions):

	2020			
	Total assets	Total liabilities	Sales	Profit (loss) for the year
Associates:				
The HS-City Expressway	₩ 163,254	₩ 151,963	₩ 11,320	₩ (3,114)
Samcheok Blue Power Co.,Ltd. (formerly, Pospower Co., Ltd.)	1,169,343	700,267	-	(5,994)
Daejung Offshore Wind Power Co., Ltd.	6,282	1,634	-	(824)
Hychangwon Co., Ltd.	24,537	3	-	(378)
ReCarbon, Inc.	14,899	6,530	483	(5,848)
New Bundang Line Co., Ltd.	807,389	999,987	76,427	(56,434)
Kyunggi Railroad Co., Ltd.	613,198	746,790	36,379	(44,024)
Neo Trans Co., Ltd.	68,937	17,879	96,394	171
New Seoul Railroad Co., Ltd.	281,548	231,948	-	(2,862)
KIAMCO Kyunggi Railway Investment Private Property Investment Trust	78,718	16	-	4
Incheon Fucell Co.,Ltd.	192,213	170,976	-	(949)
Daesan Green Energy Co. Ltd.	275,911	211,476	62,286	15,145
Mastern Professional Investment Type Private Security Investment Trust No.98	881,142	607,723	7,983	(1,581)
Protera SAS	2,371	677	76	(1,172)
Stathera IP Holding Inc.	4,835	153	-	(1,273)
PT. SEGARA AKASA	195	2	-	(29)
Prestolite Asia LTD	11,857	3,448	12,027	563
Wise Fashion Co., Ltd.	1,287	1,303	8,615	(2,436)
KDDI Korea Corporation	27,624	6,891	33,721	324
Joint ventures:				
Sichuan Kelun-Doosan Biotechnology Company Limited	10,213	2,885	10,342	2,979
Doosan Babcock BlackCat W.L.L	7,183	5,904	36,828	2,913
Tianjin Lovol Doosan Engine Co. Ltd.	44,048	6,957	-	(8,435)
Doosan Infracore Liaoning Machinery Sales Co., Ltd.	2,537	1,613	24,731	223

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**11. Investments in associates and joint ventures (cont'd)**

	2019			
	Total assets	Total liabilities	Sales	Profit (loss) for the year
Associates:				
The HS-City Expressway	₩ 172,125	₩ 157,720	₩ 10,387	₩ 974
Pospower Co., Ltd.	707,051	199,846	-	(5,294)
Daejung Offshore Wind Power Co., Ltd.	6,181	1,450	-	(617)
Potenit Co., Ltd.	6,041	11,380	1,565	(2,243)
New Bundang Line Co., Ltd.	838,864	975,027	103,015	(25,043)
Kyunggi Railroad Co., Ltd.	643,509	733,172	45,556	(33,580)
Neo Trans Co., Ltd.	68,267	17,381	94,406	385
New Seoul Railroad Co., Ltd.	205,457	152,996	-	(2,595)
KIAMCO Kyunggi Railway Investment Private Property Investment Trust	78,705	16	-	4
Incheon Fucell Co.,Ltd.	22,669	475	-	(1,004)
Geaenzymes	589	1,071	412	(695)
NewWave #5 Start-up Investment	285	-	2,009	493
KoFC-Neoplux Pioneer Champ 2010-7 Venture Capital Fund	-	-	1,894	(2,282)
2010 KIF-Neoplux IT Venture Fund	84	-	726	(466)
KoFC-Neoplux R&D-Biz Creation 2013-1 Venture Capital Fund	30,904	2,911	8,700	6,257
Future-Creation Neoplux Venture Capital Fund	36,977	4,614	127	(2,808)
Neoplux Technology Valuation Investment Fund	58,187	961	3,873	(2,699)
Neoplux Market Frontier Secondary Fund	52,798	1,469	3,737	(8,471)
Gyeonggi-Neoplux Superman Fund	26,363	-	36	4,716
Shinhan-Neoplux Energy Newbiz Fund	33,593	-	28	(1,105)
New Wave 6th investment fund	8,930	-	17	(1,070)
Neoplux No.1 Private Equity Fund	-	-	2,924	(1,279)
KTC-NP-Growth Champ 2011-2 PEF	117,544	9,337	5,986	(120,731)
Neoplux No.3 Private Equity Fund	69,788	-	182	(20,107)
Prestolite Asia LTD.	11,979	4,134	12,526	598
Wise Fashion Co., Ltd.	2,514	861	5,780	(1,541)
ReCarbon, Inc.	15,439	6,461	216	(5,475)
KDDI Korea Corporation	26,485	5,964	34,058	1,109
Joint ventures:				
Sichuan Kelun-Doosan Biotechnology Company Limited	10,154	2,050	9,594	2,767
Doosan Babcock BlackCat W.L.L	813	1,559	10,183	(608)
Doosan PSI LLC	9,924	5,561	19,412	1,605
Doosan Infracore Liaoning Machinery Sales Co., Ltd	1,807	1,205	14,864	(449)
Tianjin Lovol Doosan Engine Co. Ltd.	41,629	1,007	-	(6,278)

Condensed financial information above does not include associates and joint ventures that ceased to apply the equity method.

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**11. Investments in associates and joint ventures (cont'd)**

Adjustments from net assets of associates and joint ventures to carrying amount of investments in associates and joint ventures as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020					
	Net assets	Percentage of ownership (%)	Group's shares in net assets	Adjustment amounts		Book value
				Goodwill	Internal transactions and others	
Associates:						
The HS-City Expressway	₩ 11,291	27.29	₩ 3,081	₩ -	₩ -	₩ 3,081
Samcheok Blue Power Co.,Ltd. (Pospower Co., Ltd.)	469,076	9.00	42,217	8,360	(12,491)	38,086
Daejung Offshore Wind Power Co., Ltd.	4,648	26.65	1,239	1,532	-	2,771
Hychangwon Co., Ltd.	5,622	18.52	2,811	-	(1)	2,810
ReCarbon, Inc.	8,369	16.09	1,347	6,560	145	8,052
New Bundang Line Co., Ltd.	(192,598)	29.03	(55,911)	-	55,911	-
Kyunggi Railroad Co., Ltd.	(133,592)	6.98	(9,328)	-	9,328	-
Neo Trans Co., Ltd.	51,058	42.86	21,883	-	-	21,883
New Seoul Railroad Co., Ltd.	49,600	13.76	6,826	-	-	6,826
KIAMCO Kyunggi Railway Investment Private Property						
Investment Trust	78,702	35.78	28,162	-	(28,162)	-
Incheon Fucell Co.,Ltd.	21,237	20.00	4,247	-	(1,248)	2,999
Daesan Green Energy Co. Ltd.	64,435	10.00	6,444	-	(3,359)	3,085
Mastern Professional Investment Type Private Security						
Investment Trust No.98	273,419	25.45	69,598	-	-	69,598
Protera SAS	1,694	8.05	137	500	-	637
Stathera IP Holding Inc.	4,682	15.82	741	2,098	-	2,839
PT. SEGARA AKASA	193	30.02	58	-	-	58
Prestolite Asia LTD	8,408	32.31	2,717	-	-	2,717
Wise Fashion Co., Ltd.	(16)	19.34	(3)	2,161	-	2,158
KDDI Korea Corporation	20,733	17.63	3,655	-	-	3,655
Joint ventures:						
Sichuan Kelun-Doosan						
Biotechnology Company Limited	7,328	50.00	3,664	-	(211)	3,453
Doosan Babcock BlackCat W.L.L	1,279	49.00	627	-	13	640
Tianjin Lovol Doosan Engine Co., Ltd.	37,091	50.00	18,546	-	(2,219)	16,327
Doosan Infracore Liaoning Machinery Sales Co., Ltd.	924	43.00	397	-	(195)	202

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**11. Investments in associates and joint ventures (cont'd)**

	December 31, 2019					
	Net assets	Percentage of ownership (%)	Group's shares in net assets	Adjustment amounts		Book value
				Goodwill	Internal transactions and others	
Associates:						
The HS-City Expressway	₩ 14,405	27.29	₩ 3,931	₩ -	₩ (125)	₩ 3,806
Pospower Co., Ltd.	507,205	9.00	45,648	8,360	(11,047)	42,961
Daejung Offshore Wind Power Co., Ltd.	4,731	25.00	1,183	1,434	-	2,617
Potenit Co., Ltd.	(5,339)	27.80	(1,485)	39	1,446	-
New Bundang Line Co., Ltd.	(136,163)	29.03	(39,528)	-	39,528	-
Kyunggi Railroad Co., Ltd.	(89,663)	6.99	(6,267)	-	6,267	-
Neo Trans Co., Ltd.	50,886	42.86	21,810	-	-	21,810
New Seoul Railroad Co., Ltd.	52,461	13.76	7,219	-	-	7,219
KIAMCO Kyunggi Railway Investment Private Property Investment Trust	78,689	35.70	28,092	-	(28,092)	-
Incheon Fucell Co.,Ltd.	22,194	20.00	4,439	-	-	4,439
Geaenzymes	(482)	10.00	(48)	683	78	713
NewWave #5 Start-up Investment	285	30.00	85	-	-	85
KoFC-Neoplux Pioneer Champ 2010-7 Venture Capital Fund	-	19.68	-	-	-	-
2010 KIF-Neoplux IT Venture Fund	84	21.67	18	-	-	18
KoFC-Neoplux R&D-Biz Creation 2013-1 Venture Capital Fund	27,993	19.00	5,317	-	-	5,317
Future Creation Neoplux Investment Partnership	32,362	16.25	5,259	-	-	5,259
Neoplux Technology Valuation Investment Fund	57,226	15.00	8,584	-	-	8,584
Neoplux Market Frontier Secondary Fund	51,329	15.79	8,105	-	-	8,105
Gyeonggi-Neoplux Superman Fund	26,363	15.88	4,187	-	-	4,187
Shinhan-Neoplux Energy Newbiz Fund	33,593	8.33	2,799	-	-	2,799
New Wave 6th investment fund	8,930	20.00	1,786	-	-	1,786
Neoplux No.1 Private Equity Fund	-	15.00	-	-	-	-
KTC-NP-Growth Champ 2011-2 PEF	108,207	5.56	6,011	-	-	6,011
Neoplux No.3 Private Equity Fund	69,788	10.00	6,979	-	-	6,979
Prestolite Asia LTD.	7,845	32.31	2,535	-	-	2,535
Wise Fashion Co., Ltd.	1,652	20.88	345	2,333	-	2,678
ReCarbon, Inc.	8,978	18.20	1,634	6,588	-	8,222
KDDI Korea Corporation	20,521	17.63	3,617	-	-	3,617
Joint ventures:						
Sichuan Kelun-Doosan Biotechnology Company Limited	8,104	50.00	4,052	-	-	4,052
Doosan Babcock BlackCat W.L.L	(746)	49.00	(365)	-	365	-
Doosan PSI LLC	4,363	50.00	2,181	-	-	2,181
Doosan Infracore Liaoning Machinery Sales Co., Ltd.	602	43.00	259	-	(152)	107
Tianjin Lovol Doosan Engine Co. Ltd.	40,622	50.00	20,312	-	(2,525)	17,787

The above adjustments do not include associates and joint ventures that ceased to apply the equity method.

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**12. Property, plant and equipment**

Changes in property, plant and equipment for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020					
	Land	Buildings and structures	Machinery	Others	Construction in progress	Total
January 1	₩ 4,778,292	₩ 1,468,166	₩ 917,477	₩ 394,626	₩ 394,798	₩ 7,953,359
Acquisition/capital expenditure	5,477	214,109	137,268	124,774	300,668	782,296
Reclassification	(164,207)	(41,304)	71,775	1,510	(130,988)	(263,214)
Disposal	(171,450)	(78,779)	(6,559)	(15,299)	(5,992)	(278,079)
Depreciation	(1,228)	(152,582)	(211,399)	(124,726)	-	(489,935)
Impairment loss (reversal)	-	-	26	-	(36,383)	(36,357)
Changes in scope of consolidation	3,048	12,540	20,684	1,498	3,412	41,182
Reclassification of assets as held for sale (see Note 39)	(259,267)	(18,587)	(27,559)	(6,213)	(334,023)	(645,649)
Others (*1)	(42,459)	(9,777)	(18,936)	(5,644)	(4,289)	(81,105)
December 31	₩ 4,148,206	₩ 1,393,786	₩ 882,777	₩ 370,526	₩ 187,203	₩ 6,982,498
Acquisition cost	₩ 2,502,816	₩ 2,634,893	₩ 3,268,139	₩ 1,226,082	₩ 225,907	₩ 9,857,837
Accumulated depreciation and accumulated impairment losses	(7,825)	(1,241,107)	(2,385,362)	(855,556)	(38,704)	(4,528,554)
Accumulated revaluation surplus	1,653,215	-	-	-	-	1,653,215

(\*1) Changes due to exchange rate difference and others.

	2019					
	Land	Buildings and structures	Machinery	Others	Construction in progress	Total
January 1	₩ 4,809,788	₩ 1,352,944	₩ 898,157	₩ 372,598	₩ 334,842	₩ 7,768,329
Effect of adoption of new accounting standards	18,858	196,377	20,633	56,244	-	292,112
Acquisition/capital expenditure	6,162	82,116	84,152	153,522	347,368	673,320
Reclassification	(15,034)	39,332	152,150	14,595	(209,446)	(18,403)
Disposal	(148,578)	(1,160)	(5,338)	(7,891)	(29,578)	(192,545)
Depreciation	(1,039)	(143,488)	(210,046)	(145,917)	-	(500,490)
Impairment loss (reversal)	2,163	(43,750)	(651)	(258)	(1,269)	(43,765)
Changes in scope of consolidation and others (*1)	(4,233)	(31,873)	(27,559)	(44,831)	(49,235)	(157,731)
Reclassification of assets as held for sale (see Note 39)	-	-	-	(10,961)	(710)	(11,671)
Asset revaluation	108,222	-	-	-	-	108,222
Others (*2)	1,983	17,668	5,979	7,525	2,826	35,981
December 31	₩ 4,778,292	₩ 1,468,166	₩ 917,477	₩ 394,626	₩ 394,798	₩ 7,953,359
Acquisition cost	₩ 3,050,376	₩ 2,745,957	₩ 3,335,872	₩ 1,246,289	₩ 396,098	₩ 10,774,592
Accumulated depreciation and accumulated impairment losses	(13,283)	(1,277,791)	(2,418,394)	(851,663)	(1,301)	(4,562,432)
Accumulated revaluation surplus	1,741,199	-	-	-	-	1,741,199

(\*1) Includes changes due to business transfer and decrease due to the spin-off (see Note 37).

(\*2) Changes due to exchange rate difference and others.

In addition, the Group's land and buildings are partially pledged as collateral for loans from financial institutions (see Note 34).

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**12. Property, plant and equipment (cont'd)**

Changes in right-of-use assets classified as property, plant and equipment for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020					
	Land	Buildings and structures	Machinery	Others	Construction in progress	Total
January 1	₩ 18,504	₩ 191,181	₩ 19,915	₩ 42,469	₩ -	₩ 272,069
Acquisition/capital expenditure	1,482	191,596	7,552	19,250	-	219,880
Reclassification to property, plant and equipment	-	-	-	(17)	-	(17)
Disposal (*1)	-	(7,449)	-	(1,997)	-	(9,446)
Depreciation	(1,185)	(70,692)	(8,123)	(29,614)	-	(109,614)
Changes in scope of consolidation	-	372	-	(51)	-	321
Reclassification of assets as held for sale	(2,821)	(8)	-	(329)	-	(3,158)
Others (*2)	88	739	(939)	(1,175)	-	(1,287)
December 31	₩ 16,068	₩ 305,739	₩ 18,405	₩ 28,536	₩ -	₩ 368,748
Acquisition cost	₩ 17,961	₩ 412,216	₩ 28,202	₩ 77,980	₩ -	₩ 536,359
Accumulated depreciation and accumulated impairment losses	(1,893)	(106,477)	(9,797)	(49,444)	-	(167,611)

(\*1) The amount due to the termination of the lease contract.

(\*2) Changes due to exchange rate difference and others.

	2019					
	Land	Buildings and structures	Machinery	Others	Construction in progress	Total
January 1	₩ -	₩ -	₩ 1,270	₩ 10,727	₩ -	₩ 11,997
Effect of adoption of new accounting standards	18,858	196,377	20,633	56,244	-	292,112
Acquisition/capital expenditure	276	46,304	5,435	22,079	-	74,094
Reclassification	-	32	-	-	-	32
Disposal (*1)	-	-	-	(192)	-	(192)
Depreciation	(996)	(55,077)	(8,036)	(45,900)	-	(110,009)
Changes in scope of consolidation and others (*2)	-	(1,209)	-	(301)	-	(1,510)
Others (*3)	366	4,754	613	(188)	-	5,545
December 31	₩ 18,504	₩ 191,181	₩ 19,915	₩ 42,469	₩ -	₩ 272,069
Acquisition cost	₩ 19,490	₩ 245,107	₩ 30,144	₩ 99,215	₩ -	₩ 393,956
Accumulated depreciation and accumulated impairment losses	(986)	(53,926)	(10,229)	(56,746)	-	(121,887)

(\*1) The amount due to the termination of the lease contract.

(\*2) Decrease due to the spin-off is included (see Note 37).

(\*3) Changes due to exchange rate difference and others.

## 12. Property, plant and equipment (cont'd)

The details of revaluation model, which the Group applies to measurement of the land, are as follows:

The Group recognizes subsequent measurement of the land as revaluation, and the revaluation amount is the fair value of the revaluation date. As of December 31, 2020, the fair value of land assets was determined from the appraisal that was undertaken by independently qualified valuers, the First Appraisal & Consulting Co., Ltd ("FACC") and Mirae & Saehan Appraisal Co., Ltd., on October 31, 2019.

FACC and Mirae & Saehan Appraisal Co., Ltd. are members of Korea Association of Property Appraisers and comprise of certified professionals that have a significant amount of industry experience.

Other comprehensive income recognized in the consolidated statement of comprehensive income related to revaluation model, which the Group applies to measurement of the land is ₩108,222 million as of December 31, 2019.

In addition, if the land were stated at cost, the land would amount to ₩2,494,991 million and ₩3,037,093 million as of December 31, 2020 and 2019, respectively.

Fair value measurements of land assets by fair value hierarchy level as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020			December 31, 2019		
	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3
Land	₩ -	₩ -	₩ 4,148,206	₩ -	₩ -	₩ 4,778,292

Valuation technique and inputs used for fair value measurement of land assets (Level 3) are as follows:

Valuation technique	Significant inputs that are not based on observable market data (unobservable inputs)	Explanation of input parameters
Official Assessed Reference Land Price ("OARLP"): OARLP of similar parcels nearby the subject land and reflating corrections necessary for differences between the subject and the comparable	Fluctuation rate of land price and others Parcel conditions and others Land conditions affecting the sales price and others	Fair value increases (decreases), if rate of land price increases (decreases). Fair value increases (decreases), if correction of parcel conditions and others increases (decreases). Fair value increases (decreases), if correction of land conditions affecting the sales price increases (decreases).
Trade Case Comparison method: When comparing the transaction case of an object that is similar to the target object, fair value is measured through the process of correcting the private information, correcting the timing, comparing the factors of the value formation and others	Private information correction Point-in-time correction Value formation factor	Fair value increases (decreases), If the private information correction increases (decreases). Fair value increases (decreases), if the point-in-time correction increases (decreases). Fair value increases (decreases), If the value forming factor increases (decreases).

Capitalized borrowing costs for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020	2019
Capitalized borrowing cost	₩ 2,117	₩ 3,619
Capitalization interest rate	3.40% ~ 3.97%	3.69% ~ 4.20%

**12. Property, plant and equipment (cont'd)**

Classification of depreciation for the years ended December 31, 2020 and 2019 is as follows (Korean won in millions):

	2020		2019
Cost of sales	₩ 372,122	₩	362,965
Selling and administrative expenses	86,728		91,961
Research and development cost and others	21,201		20,217
Loss from discontinued operations	9,884		25,347
	<u>₩ 489,935</u>	₩	<u>500,490</u>

Classification of depreciation for the year ended December 31, 2020 and 2019 incurred in right-of-use assets classified as property, plant and equipment is as follows (Korean won in millions):

	2020		2019
Cost of sales	₩ 59,496	₩	75,086
Selling and administrative expenses	48,197		33,286
Research and development cost and others	847		575
Loss from discontinued operations	1,074		1,062
	<u>₩ 109,614</u>	₩	<u>110,009</u>

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**13. Intangible assets**

Changes in intangible assets for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020				
	Goodwill	Industrial rights	Development costs	Other intangible assets	Total
January 1	₩ 4,686,321	₩ 1,156,203	₩ 1,265,946	₩ 249,319	₩ 7,357,789
Acquisition/capital expenditure	-	4,464	262,671	31,189	298,324
Reclassification	-	1,371	(17,614)	45,946	29,703
Disposal	-	(7)	-	(11,463)	(11,470)
Amortization	-	(2,608)	(128,221)	(64,445)	(195,274)
Impairment	-	-	(157,284)	(10,754)	(168,038)
Reversal of impairment loss	-	-	-	8,958	8,958
Changes in scope of consolidation	1,047,983	-	2,164	1,085	1,051,232
Reclassification of assets as held for sale (see Note 39)	(84,562)	(151)	(3,981)	(8,386)	(97,080)
Others (*1)	(71,314)	(32,661)	(9,433)	(2,518)	(115,926)
December 31	₩ 5,578,428	₩ 1,126,611	₩ 1,214,248	₩ 238,931	₩ 8,158,218
Acquisition costs	₩ 5,578,428	₩ 1,292,501	₩ 1,998,796	₩ 822,469	₩ 9,692,194
Accumulated amortization (accumulated impairment losses are included)	-	(165,890)	(784,548)	(583,538)	(1,533,976)

(\*1) Changes due to exchange rate difference and others.

	2019				
	Goodwill	Industrial rights	Development costs	Other intangible assets	Total
January 1	₩ 4,567,200	₩ 1,094,801	₩ 1,108,590	₩ 247,619	₩ 7,018,210
Acquisition/capital expenditure	-	33,199	343,441	42,073	418,713
Reclassification	-	635	(33,296)	31,622	(1,039)
Disposal	-	(57)	(476)	(1,217)	(1,750)
Amortization	-	(1,661)	(126,648)	(62,170)	(190,479)
Impairment	-	-	(18,607)	(4,296)	(22,903)
Reversal of impairment loss	-	-	-	2,054	2,054
Changes in scope of consolidation and others (*1)	8,726	(774)	(7,909)	603	646
Reclassification of assets as held for sale (see Note 39)	-	(29)	-	(9,764)	(9,793)
Others (*2)	110,395	30,089	851	2,795	144,130
December 31	₩ 4,686,321	₩ 1,156,203	₩ 1,265,946	₩ 249,319	₩ 7,357,789
Acquisition costs	₩ 4,686,321	₩ 1,340,349	₩ 2,009,416	₩ 783,649	₩ 8,819,735
Accumulated amortization (accumulated impairment losses are included)	-	(184,146)	(743,470)	(534,330)	(1,461,946)

(\*1) Includes changes due to business transfer and decrease due to the spin-off (see Note 37).

(\*2) Changes due to exchange rate difference and others.

The carrying amount of membership with indefinite useful lives in other intangible assets is ₩45,021 million and ₩41,661 million as of December 31, 2020 and 2019, respectively.

In addition, expenditure on research and development, which was recognized as expenses, amounted to ₩284,886 million and ₩276,940 million for the years ended December 31, 2020 and 2019, respectively.

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**13. Intangible assets (cont'd)**

Before impairment test, the carrying amount of goodwill was allocated to CGUs as follows (Korean won in millions):

Company	CGUs	December 31, 2020	December 31, 2019	Description
Doosan Corporation	Mottrol BG (*1)	₩ -	₩ 84,562	Manufacturing and sale of hydraulic components
	Industrial Vehicles BG	78,854	81,041	Manufacturing and sale of forklifts
	Fuel Cell BG	17,069	17,776	Manufacturing and sale of fuel cell
Oricom	Magazine	1,373	1,373	Advertising services
	Advertisement	9,690	9,690	
Doosan Logistics Solution Co., Ltd.	Logistics automation	12,891	12,891	Manufacturing and sale of logistics automation, maintenance
DHC	Power plant	666,741	670,382	Manufacturing and sale of power plant
DI	Construction machine	3,683,778	3,748,557	Manufacturing and sale of construction equipment
DEC	Construction industry	60,049	60,049	Housing construction and infrastructure construction
DFC	Fuel Cell (*2)			Manufacturing and sale of logistics automation, maintenance
		1,047,983	-	
		₩ 5,578,428	₩ 4,686,321	

(\*1) It is recognized as asset held for sale in the consolidated statement of financial position as of December 31, 2020 (see Note 39).

(\*2) It is a goodwill recognized from a business combination during the current year (see Note 40).

A recoverable amount of CGU is calculated based on fair value less cost of disposal, or value in use.

The major assumptions and measurement methods of recoverable amount of CGU as of December 31, 2020 is as follows.

Company	CGUs	Discount rate	Permanent growth rate	Recoverable amount assessment methods
Doosan Corporation	Industrial vehicles	10.90%	1.00%	Value in use
	Fuel Cell	10.64%, 15.37%	1.00%	Value in use
Oricom	Magazine	10.93%	1.00%	Value in use
	Advertisement	10.93%	1.00%	Value in use
Doosan Logistics Solution Co., Ltd.	Logistics automation	11.66%	1.00%	Value in use
DHC	Power plant	Estimate quoted active market price	Estimate quoted active market price	Net fair value
DI	Construction machine	7.50%, 8.50%	1.50%	Value in use
DEC	Construction industry	Market value assessment	Market value assessment	Net fair value
DFC	Fuel Cell	Estimate quoted active market price	Estimate quoted active market price	Net fair value

The Group uses cash flow projections based on financial budgets approved by the directors covering five-year years for a value in use calculation. The financial budgets are determined based on historical result and expectation of market growth. Cash flows beyond that five-year years have been extrapolated using a '0–1.50%' growth rate, continuing the fifth-year cash flow. Permanent growth rate does not exceed long-term average growth rate of market, and the discount rates used reflect relevant risks specific to the CGUs.

The amount of fair value less cost of disposal was determined based on the quoted price in an active market.

The fair value less cost of disposal is calculated based on stock prices or market value approach. Market value approach is a method which estimates recoverable amount by multiplying the target entity's EBITDA by "Multiple" calculated based on that of the similar listed entities' value and EBITDA.

The recoverable amount may change according to changes in key assumptions. Accordingly, the Group's management regularly observes relevant turnovers and industrial trends.

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**13. Intangible assets (cont'd)**

Capitalized borrowing costs for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020	2019
Capitalized borrowing cost	₩ 26,696	₩ 24,547
Capitalization interest rate	3.40% ~ 3.97%	3.69% ~ 4.20%

Classification of amortization for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020	2019
Cost of sales	₩ 129,798	₩ 128,798
Selling and administrative expenses	61,327	55,923
Research and development cost and others	4,801	233
Loss from discontinued operations	348	4,525
	₩ 195,274	₩ 190,479

Development costs for the year ended December 31, 2020 are as follows (Korea won in millions):

Company	Individual assets	December 31, 2020	Residual depreciation year (*1)
DHC	Large-sized Heavy-Duty Gas Turbine Development for Power Generation	₩ 518,802	-
	Gas Turbine 7F Retrofit	34,275	-
	Mid-sized Gas Turbine Development Phase1 (*2)	861	8.58 years
	Mid-sized Gas Turbine Development Phase2 (*2)	17,835	-
	5.5MW Offshore Wind Power	17,220	-
	8MW Offshore Wind Power	15,728	-
	DI	Stage5 Response Engine Development (*2)	12,659
Stage5 Response Engine Development (*2)		30,411	3.83 ~ 4.92 years
Stage5 Excavator/wheel loader Development (*2)		21,713	-
Stage5 Excavator/wheel loader Development (*2)		26,710	3.67 ~ 4.42 years
Electronic generator Engine Development		13,277	4.33 years
Loader R Series 8X Development (*2)		7,487	-
	Loader R Series 7X (*2)	23,326	4 years

(\*1) If the amortization begins, the remaining amortization year is recorded. If not started, it is marked with '-'.  
(\*2) Some sub-projects among the development costs commenced depreciation and they are presented separately.

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**13. Intangible assets (cont'd)**

Intangible assets for which an impairment loss has been recognized for the year ended December 31, 2020 are as follows (Korea won in millions):

Company	Classification	Individual assets	Amount of impairment loss			Recoverable amount assessment methods
			2020	Accumulated	December 31, 2020	
DHC	Development costs	500MW Standard TPP (*1)	₩ 55,931	₩ 55,931	₩ -	Value in use
	Development costs	IGCC Gasification Plant (*1)	44,197	44,197	-	Value in use
	Development costs	3MW Class III Wind Turbine Generator (*1)	14,293	14,293	-	Value in use
	Development costs	USC CFB Boiler RPM Development (*1)	10,921	10,921	-	Value in use
	Development costs	Others (*1)	24,746	24,746	-	Value in use
	DI	Development costs	Development for DL06 Engine (*2)	297	2,615	-
	Development costs	Development for DX12 Engine (*2)	6,174	6,174	7,074	Value in use
Doosan Corporation	Development costs	Low Modulus PPG development and others	725	725	-	Value in use
			157,284	159,602	7,074	
DHC	Other intangible assets	Reclamation License Right	10,749	30,149	10,749	Value in use
Doosan Cuvex Co., Ltd.	Other intangible assets	Resort membership and others	5	5	89	Net fair value
			10,754	30,154	10,838	
			₩ 168,038	₩ 189,756	₩ 17,912	

(\*1) The Group recognized impairment loss as value in use decreases due to changes in energy policies and others.

(\*2) The Group recognized related carrying amount as impairment loss, due to a decrease in value in use compared to estimates at the time of development.

Intangible assets recognized for the reversal of impairment loss for the years ended December 31, 2020 are as follows (Korea won in millions):

Company	Classification	Individual asset	Reversal of impairment loss	Recoverable amount assessment methods
DHC	Other intangible assets	Golf membership	₩ 4,420	Net fair value
DI	Other intangible assets	Golf membership	4,538	Net fair value
			₩ 8,958	

The accounts on the statements of comprehensive income for which the Group recognizes an impairment loss (reversal) for the years ended December 31, 2020 and 2019 are as follows (Korea won in millions):

	2020	2019
Other non-operating expenses	₩ 168,038	₩ 22,549
Other non-operating income	(8,958)	(2,054)
Loss from discontinued operations	-	7,473
	₩ 159,080	₩ 27,968

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**14. Investment properties**

Changes in investment properties for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020			2019		
	Land	Building	Total	Land	Building	Total
January 1	₩ 393,568	₩ 113,620	₩ 507,188	₩ 376,581	₩ 78,209	₩ 454,790
Acquisition/capital expenditure	-	140,650	140,650	993	4,191	5,184
Disposal	(337,086)	(141,329)	(478,415)	-	(1,188)	(1,188)
Revaluation (*1)	3,748	(7,327)	(3,579)	9,285	(4,203)	5,082
Reclassification of assets as held for sale (see Note 39)	(60)	(90)	(150)	(5,136)	-	(5,136)
Reclassification	158,982	63,463	222,445	11,845	36,611	48,456
Others (*2)	(260)	143	(117)	-	-	-
December 31	₩ 218,892	₩ 169,130	₩ 388,022	₩ 393,568	₩ 113,620	₩ 507,188

(\*1) Gain or loss on revaluation of investment properties is included in other non-operating income and expenses in the consolidated statements of profit or loss.

(\*2) Changes due to exchange rate difference and others.

The Group's land and buildings included in the above investment properties are pledged as collateral for borrowings from financial institutions (see Note 34).

In addition, lease income related to investment properties amounted to ₩22,263 million and ₩25,215 million for the years ended December 31, 2020 and 2019, respectively.

Changes in right-of-use assets for the year ended December 31, 2020 incurred in right-of-use assets classified as Investment properties, buildings are as follows (Korean won in millions):

	2020
January 1	₩ 27,729
Acquisition	135,009
Revaluation	(6,511)
December 31	₩ 156,227

Details of fair value model that the Group applies for measurement of investment properties are as follows:

The Group recognizes subsequent measurement of investment properties using fair value. The fair value of investment properties was determined from the appraisal that was undertaken by independently qualified valuers, the First Appraisal & Consulting Co., Ltd ("FACC") and Mirae & Saehan Appraisal Co., Ltd., on November 30, 2020.

FACC and Mirae & Saehan Appraisal Co., Ltd. are members of Korea Association of Property Appraisers, and comprise of certified professionals who have a significant amount of industry experience.

Fair value measurements of investment properties by fair value hierarchy level as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020			December 31, 2019		
	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3
Land	₩ -	₩ -	₩ 218,892	₩ -	₩ -	₩ 393,568
Buildings	-	-	169,130	-	-	113,620
	₩ -	₩ -	₩ 388,022	₩ -	₩ -	₩ 507,188

**14. Investment properties (cont'd)**

Valuation techniques and inputs used for fair value measurement of investment properties (Level 3) are as follows:

Valuation techniques	Significant inputs that are not based on observable market data (unobservable inputs)	Correlation between unobservable inputs and fair value arguments
Official Assessed Reference Land Price ("OARLP"): OARLP of similar parcels nearby the subject land and reflating corrections necessary for differences between the subject and the comparable	Fluctuation rate of land price and others  Parcel conditions and others  Land conditions affecting the sales price and others	Fair value increases (decreases), if rate of land price increases (decreases).  Fair value increases (decreases), if correction of parcel conditions and others increases (decreases).  Fair value increases (decreases), if correction of land conditions affecting the sales price increases (decreases).
Trade case comparison method: When comparing the transaction case of an object that is similar to the target object, fair value is measured through the process of correcting the private information, correcting the timing, comparing the factors of the value formation and others	Private information correction  Point-in-time correction  Value formation factor	Fair value increases (decreases), If the private information correction increases (decreases).  Fair value increases (decreases), if point-in-time correction increases (decreases).  Fair value increases (decreases), If the value-forming factor increases (decreases).
Estimated cost price approach: Fair value is based on depreciation and replacement costs considered with structure, building materials, construction condition, building equipment, end use, present condition and management condition	Replacement cost	Fair value decreases (increases), if replacement cost increases (decreases).

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**15. Bonds and borrowings**

**15.1 Bonds**

Bonds as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	Annual interest rate (%)	December 31, 2020	December 31, 2019
Public issued bonds	1.00~5.88	₩ 2,122,200	₩ 1,506,680
Private placement bonds (*1)	3.50~6.52	714,100	413,000
Convertible bonds	2.81~2.87	33,900	-
Bonds with stock warrants	1.00~4.00	122,800	1,057,185
Bonds payables in foreign currency	-	-	621,980
		2,993,000	3,598,845
Less: Adjustment for conversion rights		(2,985)	-
Less: Warrants adjustment		(20,766)	(126,462)
Add: Premium on bonds		19,341	108,674
Less: Discount on bonds		(19,762)	(23,726)
Less: Current portion of long-term bonds		(835,035)	(2,423,498)
		₩ 2,133,793	₩ 1,133,833

(\*1) The Group's Property, plant and equipment are pledged as collateral for the above bonds (see Note 34).

**15.2 Convertible bonds**

Changes in convertible bonds issued by the Group for the year ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020			
	January 1	Repayment	Exercise/ amortization	December 31
Convertible bonds	₩ -	₩ 33,900	₩ -	₩ 33,900
Yield to maturity premium	-	2,326	-	2,326
Discount on bonds	-	(217)	29	(188)
Adjustment for conversion rights	-	(3,429)	444	(2,985)
Book value	₩ -	₩ 32,580	₩ 473	₩ 33,053
Consideration for conversion rights (other capital surplus)	₩ -	₩ 836	₩ -	₩ 836
	2019			
	January 1	Repayment (*1)	Exercise/ amortization	December 31
Convertible bonds	₩ 6,265	₩ (6,265)	₩ -	₩ -
Yield to maturity premium	679	(679)	-	-
Discount on bonds	(42)	-	42	-
Adjustment for conversion rights	(132)	-	132	-
Book value	₩ 6,770	₩ (6,944)	₩ 174	₩ -
Consideration for conversion rights (other capital surplus)	₩ 277	₩ (277)	₩ -	₩ -

(\*1) During the previous year, DEC, a subsidiary, repaid 85th convertible bond issued in 2015.

## 15.2 Convertible bonds (cont'd)

The details of convertible bonds are as follows:

The 65th convertible bonds issued by DI, a subsidiary, is as follows (Korean won in millions):

Issue date	Maturity date	Par interest rate	Guaranteed rate of return	Exercisable year	Exercise price (Korean won)	Par value	Issue value(*1)	Book value
June 8, 2020	June 8, 2023	2.87%	4.82%	From one year after the date of bond issue to one month before the maturity	₩6,291 per share	₩ 2,400	₩ 2,288	₩ 2,333

(\*1) Issue value is the par value less the discount on bonds.

### ① Early redemption

The early redemption right is exercisable as a whole or in part against the face value of convertible bonds at the interest payment date after June 8, 2022, which is 2 years after the date of issuance of bonds.

### ② Redemption at maturity

On June 8, 2023, the maturity date of the bond, 106.2537% of the remaining bond principal is to be paid in full.

### ③ Exercise price

The exercise price is adjusted when there is an increase in paid-in capital through issuance of shares at a price lower than the market price, bonus issue, stock dividends, or capitalization of reserves, before exercising the stock warrants, or when there is an issuance of stock purchase warrants or debt securities with warrants.

The 69th convertible bonds issued by DI, a subsidiary, is as follows (Korean won in millions):

Issue date	Maturity date	Par interest rate	Guaranteed rate of return	Exercisable year	Exercise price (Korean won)	Par value	Issue value (*1)	Book value
August 3, 2020	August 8, 2023	2.81%	4.96%	From one year after the date of bond issue to one month before the maturity	₩7,421 per share	₩ 31,500	₩ 30,292	₩ 30,720

(\*1) Issue value is the par value less the discount on bonds.

### ① Early redemption

The early redemption right is exercisable as a whole or in part against the face value of convertible bonds at the interest payment date after August 3, 2022, which is 2 years after the date of issuance of bonds.

### ② Redemption at maturity

On August 3, 2023, the maturity date of the bond, 106.9085% of the remaining bond principal is to be paid in full.

### ③ Exercise price

The exercise price is adjusted when there is an increase in paid-in capital through issuance of shares at a price lower than the market price, bonus issue, stock dividends, or capitalization of reserves, before exercising the stock warrants, or when there is an issuance of stock purchase warrants or debt securities with warrants.

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**15.3 Bonds with stock warrants**

Changes in bonds with stock warrants issued by the Group for the year ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020			
	January 1	Repayment	Exercise/ amortization	December 31
Bonds with stock warrants	₩ 1,057,185	₩ (934,175)	₩ (210)	₩ 122,800
Yield to maturity premium	108,674	(91,626)	(33)	17,015
Discount on bonds	(12,141)	9,375	2,051	(715)
Adjustment for stock warrants	(126,462)	82,653	23,043	(20,766)
Book value	<u>₩ 1,027,256</u>	<u>₩ (933,773)</u>	<u>₩ 24,851</u>	<u>₩ 118,334</u>
Consideration for stock warrants (other capital surplus)	₩ 98,640	₩ -	₩ (5,539)	₩ 93,101

  

	December 31, 2019				
	January 1	Issue/ repayment	Exercise/ amortization	Adjustment	December 31
Bonds with stock warrants	₩ 1,224,771	₩ (167,570)	₩ (15)	₩ (1)	₩ 1,057,185
Yield to maturity premium	123,209	(14,532)	(2)	(1)	108,674
Discount on bonds	(21,816)	2,163	4,689	2,823	(12,141)
Adjustment for stock warrants	(176,863)	8,913	45,005	(3,517)	(126,462)
Book value(*1)	<u>₩ 1,149,301</u>	<u>₩ (171,026)</u>	<u>₩ 49,677</u>	<u>₩ (696)</u>	<u>₩ 1,027,256</u>
Consideration for stock warrants (other capital surplus)	₩ 103,468	₩ -	₩ (4,828)	₩ -	₩ 98,640

(\*1) The book value was substituted by liquidity for the current year.

The details of bond with stock warrants are as follows:

94th bond with stock warrants issued by DEC, a subsidiary, is as follows (Korean won in millions):

Issue date	Maturity date	Par interest rate	Guaranteed rate of return	Exercisable year	Exercise price (Korean won)	Par value	Issue value(*1)	Book value
May 11, 2018	May 11, 2021	4.00%	7.00%	From one month after the date of bond issue to one month before maturity	₩2,070 per share	₩ 70,000	₩ 67,033	₩ 8,033

(\*1) Issue value is the par value less the discount on bonds.

① Early redemption

An early repayment right can be exercised for all or part of the principal amount outstanding on the interest payment date, which is 1.5 years from the issue date, and interest payment date of the 6 months from the issue date.

② Redemption at maturity

The bond pays interest at an interest rate of 4.0% and, for bonds that do not convert to maturity, the Group will repay 109.9188% of the principal amount of with the yield to maturity(YTM) at an annual rate of 7.0% (3-month compound interest) on May 11, 2021.

③ Exercise price

The exercise price is adjusted when there is an increase in paid-in capital through issuance of shares at a price lower than the pre-adjustment exercise price, stock dividends, or capitalization of reserves, before exercising the stock warrants, or when there is an issuance of stock purchase warrants or debt securities with warrants.

④ Exercise of stock warrants

Due to the exercise of stock warrants, 0.05% of the principal amount was exercised, and 0.04% of the bond principal was paid as of December 31, 2020. The number of shares issued as a result of exercise of stock warrants is 11,508 shares as of December 31, 2020.

### 15.3 Bonds with stock warrants (cont'd)

48th bond with stock warrants issued by DHC, a subsidiary, is as follows (Korean won in millions):

Issue date	Maturity date	Par interest rate	Guaranteed rate of return	Exercisable year	Exercise price (Korean won)	Par value	Issue value(*1)	Book value
May 4, 2017	May 4, 2022	1.00%	2.00%	From one month after the date of bond issue to one month before maturity	₩14,900 per share	₩ 500,000	₩ 491,546	₩ 14,735

(\*1) Issue value is the par value less the discount on bonds.

#### ① Early redemption

The early redemption right is exercisable as a whole or in part against the par value of bond with stock warrants at the interest payment date in 3 years after the date of issuance of bonds. In addition, according to the exercise of the early redemption right, ₩484,957 million was repaid on May 4, 2020, and the remaining unexercised portion will be repaid on the maturity date.

#### ② Redemption at maturity

The bond pays interest at an interest rate of 1.00% and, for bonds that do not convert to maturity, the Group will repay 105.2448% of the principal amount of with the yield on maturity(YTM) at an annual rate of 2.00% (3-month compound interest) on May 4, 2022.

#### ③ Exercise price

The exercise price is adjusted when there is an increase in paid-in capital through issuance of shares at a price lower than the pre-adjustment exercise price, stock dividends, or capitalization of reserves, before exercising the stock warrants, or when there is an issuance of stock purchase warrants or debt securities with warrants.

#### ④ Exercise of stock warrants

Due to the exercise of stock warrants, 0.05% of the principal amount was exercised, and 0.04% of the bond principal was paid for as of December 31, 2020. The number of shares issued from the exercise of stock warrants of a bond with stock warrant is 12,541 shares as of December 31, 2020.

### 15.3 Bonds with stock warrants (cont'd)

31st bond with stock warrants issued by DI, a subsidiary, is as follows (Korean won in millions):

Issue date	Maturity date	Par interest rate	Guaranteed rate of return	Exercisable year	Exercisable price (Korean won)	Par value	Issue value(*1)	Book value
August 1, 2017	August 1, 2022	2.00%	4.75%	From one month after the date of bond issue to one month before maturity	₩6,430 per share	₩ 500,000	₩ 491,607	₩ 105,941

(\*1) Issue value is the par value less the discount on bonds.

#### ① Early redemption

The early redemption right is exercisable as a whole or in part against the par value of bond with stock warrants at the interest payment date in 3 years after the date of issuance of bonds. In addition, according to the exercise of the early redemption right, ₩393,821 million was repaid on August 3, 2020, and the remaining unexercised portion will be repaid on the maturity date.

#### ② Redemption at maturity

The bond pays interest at an interest rate of 2.00% and, for bonds that do not convert to maturity, the Group will repay 115.4175% of the principal amount of with the yield on maturity(YTM) at an annual rate of 4.75% (3-month compound interest) on August 1, 2022.

#### ③ Exercise price

The exercise price is adjusted when there is an increase in paid-in capital through issuance of shares at a price lower than the pre-adjustment exercise price, stock dividends, or capitalization of reserves, before exercising the stock warrants, or when there is an issuance of stock purchase warrants or debt securities with warrants.

#### ④ Exercise of stock warrants

Due to the exercise of stock warrants, 1.13% of the principal amount was exercised, and 1.13% of the bond principal was paid as of December 31, 2020. The number of shares issued from the exercise of stock warrants of a 31st bond with stock warrant is 8,476,311 shares as of December 31, 2020.

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**15.4 Short-term borrowings**

Short-term borrowings as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	Creditor	Annual interest rate (%)	December 31, 2020 (*6)	December 31, 2019
Borrowings in Korean won:				
Doosan Corporation (*3, 4, 5)	Korea Exim Bank and others	1.36 ~ 7.00	₩ 786,100	₩ 604,149
DHC (*2, 5)	KDB and others	1.14 ~ 5.83	3,802,627	2,239,206
DI (*1)	Korea Exim Bank and others	2.55 ~ 3.34	516,994	350,986
DEC (*1)	Construction Guarantee Cooperative	1.43	27,039	49,039
			<u>5,132,760</u>	<u>3,243,380</u>
Borrowings in foreign currency:				
Doosan Corporation (*3)	Woori Bank and others	0.24 ~ 5.00	159,134	220,744
DHC (*2)	Woori Bank and others	0.13 ~ 9.65	590,098	871,686
DI (*1)	KDB and others	0.30 ~ 4.89	405,740	251,988
	Disposal of receivables in foreign currency (*5)	-	8,106	10,013
DEC (*1)	Asia Commercial Bank and others	-	-	16,256
			<u>1,163,078</u>	<u>1,370,687</u>
			<u>₩ 6,295,838</u>	<u>₩ 4,614,067</u>

(\*1) It includes its own consolidated subsidiaries.

(\*2) It includes its own consolidated subsidiaries other than those mentioned in (\*1) above.

(\*3) It includes its own consolidated subsidiaries other than those mentioned in (\*1) and (\*2) above.

(\*4) The Group entered into put options on all or part of the preferred shares held by investors, and the related commitment amount is recognized as short-term borrowings.

(\*5) In the case of the disposal of financial assets that do not meet the "derecognition of financial assets" requirement, the Group continues to recognize the assets in the consolidated financial statements, and the related amounts received are recognized as short-term borrowings (see Note 33-(3)).

(\*6) The Group pledges property, plant and equipment and investments in subsidiaries as collateral for the above borrowings (see Note 34).

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**15.5 Long-term borrowings**

Long-term borrowings as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	Creditor	Annual interest rate (%)	December 31, 2020 (*4)	December 31, 2019
Borrowings in Korean won:				
Doosan Corporation (*3)	KDB and others	1.36 ~ 6.70	₩ 469,685	₩ 679,499
DHC (*2)	Korea Exim Bank and others	2.34 ~ 4.81	513,291	538,097
DI (*1)	KDB and others	2.81 ~ 4.20	214,000	380,000
DEC (*1)	KDB and others	7.50, CD +2.50	75,000	95,000
Doosan Cuvex Co., Ltd (*1)	SBI Saving Bank and others	-	-	1,000
			<u>1,271,976</u>	<u>1,693,596</u>
Borrowings in foreign currency:				
Doosan Corporation (*3)	Korea Exim Bank and others	2.14 ~ 4.98	27,660	51,704
DHC (*2)	Mashreq bank and others	2.78 ~ 5.19	424,561	634,722
DI (*1)	USA Institutional investors and banks and others	2.25 ~ 8.00	744,006	1,002,720
			<u>1,196,227</u>	<u>1,689,146</u>
			<u>₩ 2,468,203</u>	<u>₩ 3,382,742</u>
Less: present value discounts			₩ (9,093)	₩ (14,658)
Less: current portion of long-term borrowings			<u>(1,263,652)</u>	<u>(1,109,271)</u>
			<u>₩ 1,195,458</u>	<u>₩ 2,258,813</u>

(\*1) It includes its own consolidated subsidiaries.

(\*2) It includes its own consolidated subsidiaries other than those mentioned in (\*1) above.

(\*3) It includes its own consolidated subsidiaries other than those mentioned in (\*1) and (\*2) above.

(\*4) The Group repays the principal amount of the above borrowings in installments and pledged its property, plant and equipment as collateral (see Note 34).

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**15.6 Asset-backed loans**

The Group has transferred some of its future trade receivables and others to the securitization companies to carry out the asset-backed securitizations (ABS). Detail of the long-term asset-backed loans as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	Creditor	Annual interest rate (%)	December 31, 2020 (*4)	December 31, 2019
Asset-backed loans:				
Doosan Corporation (*3)	Hana Bank and others	4.54 ~ 4.76	₩ 263,000	₩ 155,000
DHC (*2)	KDB and others	4.69 ~ 6.00	287,200	369,000
DEC (*1)	Shinyoung Securities and others	4.00 ~ 7.70	59,814	382,100
			<u>₩ 610,014</u>	<u>₩ 906,100</u>
Less: present value discounts			₩ (3,124)	₩ (4,391)
Less: short-term asset-backed loans			(59,551)	(381,574)
Less: current portion of long-term asset-backed loans			<u>(332,022)</u>	<u>(227,845)</u>
			<u>₩ 215,317</u>	<u>₩ 292,290</u>

(\*1) It includes its own consolidated subsidiaries.

(\*2) It includes its own consolidated subsidiaries other than those mentioned in (\*1) above.

(\*3) It includes its own consolidated subsidiaries other than those mentioned in (\*1) and (\*2) above. In addition, the carrying amount of trade receivables and others recognized in the consolidated financial statements as of December 31, 2020 and 2019 are ₩25,630 million and ₩1,852 million, respectively, as it does not meet the requirement for derecognition of financial instruments in relation to the asset-backed loans (see Note 33-(3)).

(\*4) The Group pledged property, plant and equipment as collateral for the above asset-backed loans (see Note 34).

**16. Lease**

**16.1 Right-of-use assets**

Changes in right-of-use assets classified as property, plant and equipment and investment properties for the years ended December 31, 2020 and 2019 are described in Notes 12 and 14. The composition of depreciation expenses by accounts arising from right-of-use assets classified as property, plant and equipment for the years ended December 31, 2020 and 2019 is described in Note 12.

In addition, the Company sold Doosan Tower, located in 275, Jangchungdan-ro, Jung-gu, Seoul, to Mastern Professional Investment Type Private Security Investment Trust No.98 during the current year at ₩800,000 million. Upon sale of the asset, the Company also entered into a lease agreement with Mastern Professional Investment Type Private Security Investment Trust No.98 for lease of the asset. The net gain of ₩30,866 million from the sale and leaseback transaction was included in other non-operating income and expenses in the consolidated statement of profit or loss.

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**16.2 Lease liabilities**

Changes in lease liabilities for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020	2019
January 1	₩ 302,355	₩ -
Effect of adoption of new accounting standards and account reclassification	-	335,526
Payment of lease fees	(129,108)	(126,499)
Acquisition of lease assets	364,721	74,094
Cancel contracts	(9,309)	(500)
Interest expense	21,852	18,803
Changes in scope of consolidation	343	-
Decrease due to division (see Note 37)	-	(3,071)
Reclassification of assets as held for sale (see Note 39)	(360)	-
Others	(7,511)	4,002
December 31	₩ 542,983	₩ 302,355

The maturity analysis of lease liabilities as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020				
	Nominal cash flows according to contract				
	Total	Less than 1 year	1 ~ 2 years	2 ~ 5 years	More than 5 years
Lease liabilities	₩ 661,530	₩ 117,791	₩ 89,833	₩ 214,056	₩ 239,850

  

	December 31, 2019				
	Nominal cash flows according to contract				
	Total	Less than 1 year	1 ~ 2 years	2 ~ 5 years	More than 5 years
Lease liabilities	₩ 352,048	₩ 97,542	₩ 61,066	₩ 108,487	₩ 84,953

Classification of expenses for the years ended December 31, 2020 and 2019 incurred in short-term lease and leases of low-value assets that are not included in right-of-use assets are as follows (Korean won in millions):

	2020	2019
Cost of sales	₩ 11,910	₩ 9,948
Selling and administrative expenses	9,135	16,834
Research and development cost and others	69	1,360
Loss from discontinued operations	39	302
	₩ 21,153	₩ 28,444

Cash outflows from financing activities due to the repayment of lease liabilities are ₩129,108 million and ₩126,499 million for the years ended December 31, 2020 and 2019, respectively. Cash outflows from operating activities due to short-term and leases of low value fees are ₩21,153 million and ₩28,444 million for the years ended December 31, 2020 and 2019, respectively. Therefore, the total cash outflow of the lease is ₩150,261 million and ₩154,943 million for the years ended December 31, 2020 and 2019, respectively.

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**16.3 Lease receivables**

The maturity analysis of lease receivables as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020				
	Nominal cash flows according to contract				
	Total	Less than 1 year	1 ~ 2 years	2 ~ 5 years	More than 5 years
Lease receivables	₩ 9,419	₩ 2,503	₩ 2,999	₩ 3,365	₩ 552

  

	December 31, 2019				
	Nominal cash flows according to contract				
	Total	Less than 1 year	1 ~ 2 years	2 ~ 5 years	More than 5 years
Lease receivables	₩ 12,724	₩ 2,134	₩ 2,756	₩ 6,934	₩ 900

**17. Net defined benefit liabilities**

The Group operates a defined benefit plan for employees, and the actuarial valuation of plan assets and the defined benefit liabilities is performed by a reputable actuary using the projected unit credit method.

Details of net defined benefit liabilities as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020	December 31, 2019
Present value of defined benefit liabilities	₩ 2,544,596	₩ 2,600,437
Fair value of plan assets	(1,798,129)	(1,884,124)
Net defined benefit liabilities	₩ 746,467	₩ 716,313

Retirement benefits generated by defined benefits retirement pension charged to profit or loss for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020	2019
Current service costs	₩ 114,220	₩ 106,687
Net interest costs	20,774	25,289
Effect from curtailment and settlement	1,321	(9,129)
	₩ 136,315	₩ 122,847

Classification of the retirement benefits generated by defined benefits retirement pension recognized in the consolidated statements of profit or loss for the years ended December 31, 2020 and 2019 is as follows (Korean won in millions):

	2020	2019
Cost of sales	₩ 84,625	₩ 62,223
Selling and administrative expenses	39,026	48,042
Research and development cost and others	9,500	9,206
Loss from discontinued operations	3,164	3,376
	₩ 136,315	₩ 122,847



**17. Net defined benefit liabilities (cont'd)**

	2019		
	Defined benefit liabilities	Plan assets	Net defined benefit liabilities
Transfer in and out	₩ 4,061	₩ 362	₩ 4,423
Changes in scope of consolidation and others (*1)	(31,943)	25,721	(6,222)
Contributions by employer directly to plan assets	3,118	(14,504)	(11,386)
Contributions by user directly to plan assets	-	(144,762)	(144,762)
Benefit payments	(241,853)	206,602	(35,251)
Others	77,447	(48,981)	28,466
Ending balance	₩ 2,600,437	₩ (1,884,124)	₩ 716,313

(\*1) Changes due to the spin-off (see Note 37).

Assumptions used for actuarial valuation as of December 31, 2020 and 2019 are as follows:

	December 31, 2020	December 31, 2019
Discount rate (%)	1.00~7.39	1.30~7.39
Salary growth rate (%)	0.00~8.00	0.08~8.00

Details of plan assets as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020	December 31, 2019
Equity securities	₩ 303,809	₩ 384,019
Debt securities	744,335	653,650
Saving deposits and others	749,985	846,455
	₩ 1,798,129	₩ 1,884,124

Plan assets are mostly invested in assets that have a quoted market price in an active market.

The sensitivity analysis for the significant actuarial assumptions as of December 31, 2020 and 2019 is as follows (Korean won in millions):

			Amount	Ratio
December 31, 2020	Discount rate	1% increase	₩ (314,566)	(-)12.36%
		1% decrease	375,022	14.74%
	Salary growth rate	1% increase	60,950	2.4%
		1% decrease	(29,085)	(-)1.14%
December 31, 2019	Discount rate	1% increase	(296,685)	(-)11.41%
		1% decrease	378,240	14.55%
	Salary growth rate	1% increase	124,670	4.79%
		1% decrease	(98,085)	(-)3.77%

The weighted average maturity of defined benefit liabilities as of December 31, 2020 and 2019 is 13.55 years and 12.98 years, respectively. The Group expects to contribute ₩186,439 million for defined benefit plans in 2021.

In addition, the amount recognized for the defined contribution retirement benefit plan is ₩26,029 million and ₩26,229 million as of December 31, 2020 and 2019, respectively.

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**18. Provisions**

Changes in provisions for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020						
	Beginning balance	Increase (decrease)	Used	Others (*1)	Ending balance	Current	Non-current
Provision for product warranties	₩ 479,389	₩ 166,618	₩ (163,909)	₩ 1,964	₩ 484,063	₩ 247,097	₩ 236,966
Provision for restoration	19,194	3,482	-	(15,339)	7,337	3,220	4,118
Provision for loss compensation	778	-	-	(778)	-	-	-
Provision for construction losses	12,712	123,383	(224)	(5,921)	129,950	47,177	82,773
Others (*2)	-	134,442	(26,315)	191,362	299,489	239,424	60,064
	<u>₩ 512,073</u>	<u>₩ 427,925</u>	<u>₩ (190,448)</u>	<u>₩ 171,288</u>	<u>₩ 920,838</u>	<u>₩ 536,918</u>	<u>₩ 383,921</u>

(\*1) It includes changes in the amounts from foreign exchange rate, the scope of consolidation and others.

(\*2) As of December 31, 2020, others include provisions related to guaranteed return on membership fee of ₩54,855 million, related provisions for pending litigations and others.

	2019						
	Beginning balance	Increase (decrease)	Used	Others (*1)	Ending balance	Current	Non-current
Provision for product warranties	₩ 411,003	₩ 229,287	₩ (164,982)	₩ 4,081	₩ 479,389	₩ 247,772	₩ 231,617
Provision for restoration	6,036	14,414	(1,338)	82	19,194	-	19,194
Provision for loss compensation	42	8,209	(7,419)	(54)	778	-	778
Provision for construction losses	15,950	(3,748)	(23)	533	12,712	12,712	-
	<u>₩ 433,031</u>	<u>₩ 248,162</u>	<u>₩ (173,762)</u>	<u>₩ 4,642</u>	<u>₩ 512,073</u>	<u>₩ 260,484</u>	<u>₩ 251,589</u>

(\*1) It includes changes in the amounts from foreign exchange rate, the scope of consolidation, and others.

(\*2) Other than (\*1), as of December 31, 2019, the Group has provisions related to guaranteed return on membership fee of ₩54,855 million, related provisions for pending litigations and others of ₩224,919 million, which are recognized as other current or non-current liabilities in the consolidated statement of financial position.

The Group recognizes the expected expenses due to quality assurance, exchange and refund, defect repair, and subsequent post-service as provisions based on the warranty year and past experience rate.

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**19. Share capital and share premium**

Changes in share capital and share premium for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions, except for share data):

	Number of shares		Share capital			Share premium
	Ordinary shares	Preferred shares	Ordinary shares	Preferred shares	Total	
Balance at January 1, 2019	18,238,102	5,396,759	₩ 107,862	₩ 26,984	₩ 134,846	₩ 355,915
Spin-off (*1)	(1,714,267)	(507,259)	(8,571)	(2,537)	(11,108)	(33,453)
Balance at December 31, 2019	<u>16,523,835</u>	<u>4,889,500</u>	<u>₩ 99,291</u>	<u>₩ 24,447</u>	<u>₩ 123,738</u>	<u>₩ 322,462</u>
Balance at January 1, 2020	16,523,835	4,889,500	₩ 99,291	₩ 24,447	₩ 123,738	₩ 322,462
Balance at December 31, 2020	<u>16,523,835</u>	<u>4,889,500</u>	<u>₩ 99,291</u>	<u>₩ 24,447</u>	<u>₩ 123,738</u>	<u>₩ 322,462</u>

(\*1) The number of shares, share capital and paid-in capital in excess of par value were decreased due to the spin-off (see Note 37).

The Group's number of shares authorized is 400,000,000 shares with a par value of ₩5,000 per share. The amount of share capital is not the same as total par value of shares issued due to retirement of shares.

The number of shares with the limited voting rights under commercial law are 3,000,866 shares and 3,000,866 shares as of December 31, 2020 and 2019, respectively. In addition, if there is a resolution at the shareholders' meeting that the Group does not pay a certain dividend to the preferred shareholders, the preferred shares are deemed to have the voting right from the next shareholders' meeting until the end of the shareholders' meeting where shareholders resolute to pay dividends to preferred shareholders.

**20. Capital surplus**

Details of capital surplus as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020	December 31, 2019
Share premium	₩ 322,462	₩ 322,462
Revaluation reserves	277,542	277,542
Other capital surplus	490,770	132,262
	<u>₩ 1,090,774</u>	<u>₩ 732,266</u>

**21. Other equity items**

Other capital items as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020	December 31, 2019
Treasury stocks	₩ (185,025)	₩ (185,025)
Loss on disposal of treasury stocks	(16,738)	(16,738)
Stock options	2,104	3,265
Loss from capital reduction	(948,311)	(948,311)
Others	(46,629)	(46,112)
	<u>₩ (1,194,599)</u>	<u>₩ (1,192,921)</u>

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**21.1 Treasury stocks**

The Group acquired registered ordinary shares and non-voting preferred shares, and recognized them as other capital items for the stabilization of share price. Changes in treasury stocks for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions, except for share data):

	Number of treasury stocks			Book value of treasury stocks		
	Ordinary shares	Preferred shares	Total	Ordinary shares	Preferred shares	Total
Balance at January 1, 2019	3,306,169	673,054	3,979,223	₩ 188,515	₩ 15,052	₩ 203,567
Decrease due to spin-off (see Note 37)	(310,760)	(63,264)	(374,024)	(17,719)	(1,415)	(19,134)
Acquisition	5,457	2,314	7,771	435	157	592
Balance at December 31, 2019	3,000,866	612,104	3,612,970	₩ 171,231	₩ 13,794	₩ 185,025
Balance at January 1, 2020	3,000,866	612,104	3,612,970	₩ 171,231	₩ 13,794	₩ 185,025
Balance at December 31, 2020	3,000,866	612,104	3,612,970	₩ 171,231	₩ 13,794	₩ 185,025

**21.2 Share-based payment**

The Group granted stock options to its directors several times in the past. Stock options are settled based on the Board of Directors' decision by issuance of new shares, treasury stocks or cash settlement. Vesting condition offers two-year service after the resolution at the shareholders' meeting. The number of granted options as of December 31, 2020 is as follows (Korean won, except for share data):

	Date of grant	Number of granted options	Exercisable period	Exercisable price	Expected fair value at the date of grant
13th	2011.3.25	2,444	2014.3.25 - 2021.3.25	137,500	68,045
14th	2012.3.30	5,885	2015.3.30 - 2022.3.30	156,200	63,647
15th	2013.3.29	16,303	2016.3.29 - 2023.3.28	128,100	43,353
16th	2014.3.28	21,646	2017.3.28 - 2024.3.27	134,300	39,558

The Group calculated expenses by applying the fair value approach. Assumptions used in determining fair value of stock options are as follows:

	Risk-free interest rate	Expected exercisable year	Expected volatility	Expected dividend yield ratio
13th	3.66%	3.29	73.42%	40.00%
14th	3.57%	3.41	62.76%	43.00%
15th	2.45%	3.42	49.22%	46.00%
16th	2.88%	3.60	40.90%	48.00%

Risk-free interest rate is based on a three-year treasury bond yield rate.

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**21.2 Share-based payment (cont'd)**

Changes in stock options for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions, except for share data):

	2020							
	Number of ordinary shares to be issued			Valuation amount				
	Beginning	Forfeited	Ending	Beginning	Forfeited	Ending		
12th	4,258	(4,258)	-	₩ 240	₩ (240)	₩ -		
13th	3,168	(724)	2,444	215	(49)	166		
14th	6,880	(995)	5,885	438	(63)	375		
15th	25,362	(9,059)	16,303	1,100	(393)	707		
16th	32,152	(10,506)	21,646	1,272	(416)	856		
	71,820	(25,542)	46,278	₩ 3,265	₩ (1,161)	₩ 2,104		

  

	2019							
	Number of ordinary shares to be issued				Valuation amount			
	Beginning	Forfeited	Spin-off(*1)	Ending	Beginning	Forfeited	Spin-off(*1)	Ending
10th	1,850	(1,850)	-	-	₩ 99	₩ (99)	₩ -	₩ -
12th	5,800	(1,100)	(442)	4,258	327	(62)	(25)	240
13th	4,000	(500)	(332)	3,168	272	(34)	(23)	215
14th	8,500	(900)	(720)	6,880	541	(57)	(46)	438
15th	28,800	(800)	(2,638)	25,362	1,249	(35)	(114)	1,100
16th	39,900	(4,400)	(3,348)	32,152	1,578	(174)	(132)	1,272
	88,850	(9,550)	(7,480)	71,820	₩ 4,066	₩ (461)	₩ (340)	₩ 3,265

(\*1) During the current year, the company was succeeded to the newly incorporated company according to the spin-off (see Note 37).

The weighted-average of remaining contractual period (from December 31, 2020 to maturity) of stock options is 2.5 years.

**22. Accumulated other comprehensive income**

Accumulated other comprehensive income as of December 31, 2020 and 2019 is as follows (Korean won in millions):

	December 31, 2020	December 31, 2019
Profit (Loss) on valuation of financial assets (designated) at fair value through OCI (*1)	₩ (18,384)	₩ 33,163
(Negative) equity changes in equity method	(3,441)	(8,866)
Loss on foreign operations translation	(102,202)	(83,569)
Gain on valuation of derivatives designated as hedges (*2)	35,545	41,790
Land revaluation surplus	568,933	666,189
	₩ 480,451	₩ 648,707

(\*1) During the current year, ₩445,999 million was reclassified to retained earnings (see Note 6).

(\*2) A loss on valuation of fair value hedge derivatives of ₩34,024 million incurred during the current year was reclassified to retained earnings (See Note 9).

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**23. Retained earnings**

Retained earnings as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020	December 31, 2019
Legal reserves	₩ 67,423	₩ 67,423
Unappropriated retained earnings	1,091,885	1,183,302
	<u>₩ 1,159,308</u>	<u>₩ 1,250,725</u>

The Commercial Code of the Republic of Korea requires the Group to appropriate an amount equal to a minimum of 10% of annual cash dividends declared as a legal reserve until the reserve equals 50% of its issued share capital.

Details of dividends for the year ended December 31, 2020 are as follows (Korean won, except for share data and dividend amount):

	2020		
	Preferred shares (old)	Preferred shares (new)	Ordinary shares
Par value per share	₩ 5,000	₩ 5,000	₩ 5,000
Year end (planned):			
Number of shares issued	3,996,462	893,038	16,523,835
Number of treasury stocks	564,242	47,862	3,000,866
Shares eligible for dividends	3,432,220	845,176	13,522,969
Number of shares owned by the largest shareholder with no dividend to be paid (*1)	670,126	43,397	7,208,417
Number of shares eligible for dividends	2,762,094	801,779	6,314,552
Rate of dividend per par value	41%	40%	40%
Dividend per share (Korean won)	₩ 2,050	₩ 2,000	₩ 2,000
Dividend amount (planned) (Korean won in millions)	₩ 5,662	₩ 1,604	₩ 12,629

(\*1) In accordance with a resolution at the Board of Directors' meeting held on February 9, 2021, the Group decided to pay differential dividends to all shareholders, except for those shares owned by Jeongwon Park and other related parties.

Details of dividends paid by the Group for the year ended December 31, 2020 are as follows (Korean won in millions):

	Preferred shares (old)	Preferred shares (new)	Ordinary shares	Total
Annual dividends for previous year:				
Shares eligible for dividends	3,432,220	845,176	13,522,969	
Dividend per share (Korean won)	₩ 1,350	₩ 1,300	₩ 1,300	
	<u>₩ 4,633</u>	<u>₩ 1,099</u>	<u>₩ 17,580</u>	<u>₩ 23,312</u>

## 24. Information for non-controlling interests

As a subsidiary, DHC completed the redemption rights exercise on December 6, 2019 for the redeemable convertible preferred stock issued on December 6, 2014. Details are as follows:

	Details
Issue date	December 06, 2014
Issued shares	Cumulative non-participating preferred shares
Total number of outstanding shares	13,203,540 shares
Issue price per share	₩28,250
Redemption date	December 06, 2019
Total number of redemption shares	12,904,210 shares (Excluding 299,330 shares converted to ordinary shares due to exercise of conversion rights of preferred shareholders after the issue date and before the redemption date)
Redemption price per share	Deduction of dividend prepayment from the amount of 5.48% per annum added to the issue price

## 25. Operating segment information

The Group is engaged in various businesses, such as heavy industry, machinery manufacturing, apartment construction industry and service industry, key products and services of each division are as follows:

Operating segment	Main products and services
Electro-Materials BG (*1)	Manufacture and sale of copper clad laminates
Mottrol BG (*1)	Manufacture and sale of hydraulic equipment
Industrial Vehicle BG	Manufacture and sale of forklifts
Doosan Digital Innovation BU (*2)	Development and maintenance service of information technology system and others
Others (*1, *3)	Advertisement, manufacture and sale of industrial equipment, operations of golf club and condominium, etc.
DHC (*3)	NSSS, BOP, Turbine, freshwater and water treatment facilities, plant facilities installment construction, road construction, etc.
DI	Internal combustion engine, various construction machinery, transportation equipment and parts, etc.
DEC	Apartment construction, etc.
DFC (*4)	Manufacture and sale of fuel cell, etc.

(\*1) As described in Note 38 to the consolidated financial statements, the operating performance of each business segment, such as duty-free, Neoplux, Mottrol, fuel cell and materials, is presented as discontinued operations, and accordingly, the consolidated statements of profit or loss for the year ended December 31, 2019, which is presented for comparative purpose, was restated (see Note 38).

(\*2) During the previous year, the Information and Communication BU changed its name to Digital Innovation BU.

(\*3) The operating segment information DHC includes the information of Doosan Mecatec Co., Ltd., which was newly classified as a subsidiary of DHC during the current year, and the Group has restated the prior year's operating segment information to reflect such change.

(\*4) The Group acquired control over DFC during the current year and has newly included as one of the Group's operating segments.

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**25. Operating segment information (cont'd)**

Information on each business segment for the years ended December 31, 2020 and 2019 is as follows (Korean won in millions):

	2020				
	Total sales	Inter-segment sales (*2)	Net sales	Operating profit (loss)	Profit (loss) for the year
Electro-Materials BG	₩ 816,124	₩ -	₩ 816,124	₩ 97,722	₩ 69,658
Mottrol BG (*1)	662,871	(170,673)	492,198	57,072	8,802
Industrial Vehicle BG	807,046	(499)	806,547	40,140	20,667
Doosan Digital Innovation BU	237,269	(209,787)	27,482	16,671	13,687
Others (*1)	648,662	(158,826)	489,836	(25,483)	(83,562)
DHC	5,518,524	(229,804)	5,288,720	(544,586)	(1,638,023)
DI	7,934,105	(68,359)	7,865,746	658,599	285,074
DEC	1,891,692	(190,992)	1,700,700	37,241	(165,066)
DFC	109,677	(28,689)	80,988	3,097	1,498
	18,625,970	(1,057,629)	17,568,341	340,473	(1,487,265)
Adjustment for discontinued operations (*1)	(667,531)	68,521	(599,010)	(50,898)	(6,769)
Consolidation adjustments	(989,108)	989,108	-	(14,578)	523,373
	₩ 16,969,331	₩ -	₩ 16,969,331	₩ 274,997	₩ (970,661)

(\*1) It includes duty-free, Neoplux and Mottrol segment classified as discontinued operations.

(\*2) It contains the amount of adjustment for discontinued operations of the duty-free, Neoplux and Mottrol segment classified as discounted operation.

	2019				
	Total sales	Inter-segment sales (*2)	Net sales	Operating profit (loss)	Profit (loss) for the year
Electro-Materials BG (*1)	₩ 1,160,400	₩ (273,488)	₩ 886,912	₩ 113,337	₩ 134,689
Mottrol BG (*1)	562,691	(82,053)	480,638	38,917	30,455
Industrial Vehicle BG	912,744	(195)	912,549	61,611	43,202
Doosan Digital Innovation BU	250,029	(220,388)	29,641	26,678	21,893
Others (*1)	1,442,062	(231,521)	1,210,541	(82,409)	402,502
DHC	6,262,486	(280,174)	5,982,312	170,538	(575,039)
DI	8,185,840	(73,242)	8,112,598	840,397	395,698
DEC	1,782,184	(104,025)	1,678,159	64,558	(75,166)
	20,558,436	(1,265,086)	19,293,350	1,233,627	378,234
Adjustment for discontinued operations (*1)	(1,716,830)	465,047	(1,251,783)	10,219	(530,437)
Consolidation adjustments	(800,039)	800,039	-	(15,295)	54,873
	₩ 18,041,567	₩ -	₩ 18,041,567	₩ 1,228,551	₩ (97,330)

(\*1) It includes the duty-free, Neoplux, Mottrol, HSRG, the fuel cell and materials segment classified as discontinued operations.

(\*2) It contains the amount of adjustment for discontinued operations of the duty-free, Neoplux, Mottrol, HSRG, the fuel cell and materials segment classified as discounted operation.

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**25. Operating segment information (cont'd)**

Segment assets and liabilities as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020		December 31, 2019	
	Assets	Liabilities	Assets	Liabilities
Electro-Materials BG	₩ 457,894	₩ 183,686	₩ 488,424	₩ 242,908
Mottrol BG	524,848	250,976	344,996	256,314
Industrial Vehicle BG	673,389	343,002	679,213	415,645
Doosan Digital Innovation BU	136,511	76,054	115,067	85,978
Others (*1)	5,612,488	4,263,564	4,890,242	2,778,860
DHC (*1)	14,543,223	10,066,379	14,802,562	10,247,441
DI	12,026,886	7,537,888	11,338,593	7,071,041
DEC	1,550,362	1,253,762	2,329,566	1,763,226
DFC	790,188	277,644	-	-
	36,315,789	24,252,955	34,988,663	22,861,413
Consolidation adjustments	(6,198,166)	(1,844,861)	(5,818,916)	(511,206)
	₩ 30,117,623	₩ 22,408,094	₩ 29,169,747	₩ 22,350,207

(\*1) DHC includes the details of Doosan Mecatec Co., Ltd., which is classified as a subsidiary of DHC during the current year and has restated the end-of-year information.

**26. Revenues**

**26.1 Disaggregation of revenues**

Details of disaggregation of revenues for the year ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020	2019
Revenues from contracts with customers:		
Sales on merchandise and finished goods	₩ 9,623,437	₩ 10,122,162
Construction contracts	6,737,823	7,427,865
Others	500,358	465,956
	16,861,618	18,015,983
Others:		
Rental income and others (*1)	107,713	25,584
	₩ 16,969,331	₩ 18,041,567

(\*1) It includes hedge gains and losses adjusted from sales in accordance with the application of hedge accounting.

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**26.1 Disaggregation of revenues (cont'd)**

	2020					
	Electro- Materials BG	Mottrol BG (*1)	Industrial Vehicle BG	DDI BU	Others (*1)	DHC
Geographical market:						
Korea	₩ 529,268	₩ 183,142	₩ 375,332	₩ 20,513	₩ 295,981	₩ 2,438,080
USA	6,591	-	229,817	729	193,735	195,607
Asia	280,265	309,056	23,102	1,080	120	1,494,772
Middle East	-	-	-	-	-	374,170
Europe	-	-	178,296	5,160	-	746,757
Others	-	-	-	-	-	39,334
	<u>₩ 816,124</u>	<u>₩ 492,198</u>	<u>₩ 806,547</u>	<u>₩ 27,482</u>	<u>₩ 489,836</u>	<u>₩ 5,288,720</u>
Timing of revenue recognition:						
Transfer at a point in time	₩ 809,530	₩ 490,519	₩ 725,548	₩ 998	₩ 253,756	₩ 254,891
Transfer over time	6,594	1,679	80,999	26,484	236,080	5,033,829
	<u>₩ 816,124</u>	<u>₩ 492,198</u>	<u>₩ 806,547</u>	<u>₩ 27,482</u>	<u>₩ 489,836</u>	<u>₩ 5,288,720</u>

	2020					
	DI	DEC	DFC	Subtotal	Adjustment for discontinued operations(*1)	Total
Geographical market:						
Korea	₩ 1,581,740	₩ 1,609,449	₩ 80,988	₩ 7,114,493	₩ (204,515)	₩ 6,909,978
USA	3,440,493	31,540	-	4,098,512	-	4,098,512
Asia	1,562,889	55,811	-	3,727,095	(394,495)	3,332,600
Middle East	-	-	-	374,170	-	374,170
Europe	1,273,471	3,900	-	2,207,584	-	2,207,584
Others	7,153	-	-	46,487	-	46,487
	<u>₩ 7,865,746</u>	<u>₩ 1,700,700</u>	<u>₩ 80,988</u>	<u>₩ 17,568,341</u>	<u>₩ (599,010)</u>	<u>₩ 16,969,331</u>
Timing of revenue recognition:						
Transfer at a point in time	₩ 7,611,371	₩ 34,978	₩ 75,536	₩ 10,257,127	₩ (598,722)	₩ 9,658,405
Transfer over time	254,375	1,665,722	5,452	7,311,214	(288)	7,310,926
	<u>₩ 7,865,746</u>	<u>₩ 1,700,700</u>	<u>₩ 80,988</u>	<u>₩ 17,568,341</u>	<u>₩ (599,010)</u>	<u>₩ 16,969,331</u>

(\*1) It includes the Neoplux, Mottrol and duty-free segment classified as discontinued operations.

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**26.1 Disaggregation of revenues (cont'd)**

	2019					
	Electro- Materials BG	Mottrol BG	Industrial Vehicle BG	DDI BU	Others (*1,*2)	DHC (*2)
Geographical market:						
Korea	₩ 487,956	₩ 197,696	₩ 427,889	₩ 21,974	₩ 1,095,643	₩ 2,592,777
USA	15,733	-	253,325	314	114,881	118,698
Asia	317,332	282,943	26,140	794	15	1,701,854
Middle East	-	-	-	-	-	617,228
Europe	65,891	-	205,195	6,559	-	947,734
Others	-	-	-	-	-	4,021
	<u>₩ 886,912</u>	<u>₩ 480,639</u>	<u>₩ 912,549</u>	<u>₩ 29,641</u>	<u>₩ 1,210,539</u>	<u>₩ 5,982,312</u>
Timing of revenue recognition:						
Transfer at a point in time	₩ 886,709	₩ 477,906	₩ 834,247	₩ 1,019	₩ 956,349	₩ 181,589
Transfer over time	203	2,733	78,302	28,622	254,190	5,800,723
	<u>₩ 886,912</u>	<u>₩ 480,639</u>	<u>₩ 912,549</u>	<u>₩ 29,641</u>	<u>₩ 1,210,539</u>	<u>₩ 5,982,312</u>

	2019				
	DI	DEC (*1)	Subtotal	Adjustment for discontinued operations (*1)	Total
Geographical market:					
Korea	₩ 1,682,037	₩ 1,614,399	₩ 8,120,371	₩ (964,786)	₩ 7,155,585
USA	3,664,566	-	4,167,517	120,138	4,287,655
Asia	1,362,654	48,132	3,739,864	(341,244)	3,398,620
Middle East	-	-	617,228	-	617,228
Europe	1,394,750	15,629	2,635,758	(65,891)	2,569,867
Others	8,591	-	12,612	-	12,612
	<u>₩ 8,112,598</u>	<u>₩ 1,678,160</u>	<u>₩ 19,293,350</u>	<u>₩ (1,251,783)</u>	<u>₩ 18,041,567</u>
Timing of revenue recognition:					
Transfer at a point in time	₩ 7,885,785	₩ 11,223	₩ 11,234,827	₩ (1,246,225)	₩ 9,988,602
Transfer over time	226,813	1,666,937	8,058,523	(5,558)	8,052,965
	<u>₩ 8,112,598</u>	<u>₩ 1,678,160</u>	<u>₩ 19,293,350</u>	<u>₩ (1,251,783)</u>	<u>₩ 18,041,567</u>

(\*1) It includes the duty-free, Neoplux, Mottrol, HRSG, the fuel cell and materials segment classified as discontinued operations.

(\*2) DHC includes the details of Doosan Mecatec Co., Ltd., which is classified as a subsidiary of DHC during the current year, and has restated the end-of-year information.

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**26.2 Contract balances**

Receivables, contract assets and liabilities arising from contracts with customers as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020	December 31, 2019
Receivables in trade and other receivables (*1)	₩ 2,543,765	₩ 2,743,974
Contract assets (*2)	1,883,920	1,973,317
Contract liabilities	(2,102,542)	(1,915,771)

(\*1) As of December 31, 2020 and 2019, provisions of ₩1,199,059 million and ₩1,254,940 million are included.

(\*2) As of December 31, 2020 and 2019, provisions of ₩82,710 million and ₩63,578 million are included.

Contract assets are amounts unbilled that the Group has a right to receive as consideration in exchange for the goods or services transferred to the customer and are transferred to receivables upon billings. Contract liabilities are advances from customers for construction contracts performed over time and are recognized as revenue as the Group transfers the goods or services to the customer.

The Group recognized assets for the costs it spent to enter into a contract with the customer, such as brokerage fees, which would not have been incurred unless the contract was entered into.

Details of incremental cost of obtaining a contract as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020	2019
Incremental cost of obtaining a contract recognized as an asset as of December 31, 2020 and 2019	₩ 49,919	₩ 54,901
Amount of amortization recognized as cost of sales for the year ended December 31, 2020 and 2019	26,087	17,442

The incremental cost of obtaining a contract is amortized and recognized as expenses in the same manner as revenue recognized over the progress of the particular contract concerned.

The Group recognized design costs of an asset to be transferred for certain contracts that are not yet approved as an asset as they relate directly to a contract or to an anticipated contract with the customer that the entity can specifically identify, generate or enhance resources of the entity that will be used in satisfying performance obligations in the future, and are expected to be recovered.

Details of costs to fulfill a contract as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020	2019
Costs to fulfill a contract recognized as assets as of December 31, 2020 and 2019	₩ 117,924	₩ 123,701
Amount of amortization recognized as cost of sales for the year ended December 31, 2020 and 2019	63,248	79,329

The costs to fulfill a contract are amortized and recognized as expenses on a systematic basis consistent with the transfer of the related goods or services to the customers.

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**26.3 Change in the balance of construction contracts**

As a contract that recognizes revenue over time by applying the cost-based input method, changes in the balance of construction contracts for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

		2020			
Project		Beginning balance	Changes	Recognized construction revenue	Ending balance
DHC (*1)	Fadhili CHP and others	₩ 14,290,419	₩ 4,759,157	₩ (5,026,075)	₩ 14,023,501
DEC	Bumil integrated district 3 and others	7,614,476	1,283,400	(1,847,501)	7,050,375
Doosan Logistics Solution Co., Ltd.	Amorae Osan shuttle system and others	2,300	27,976	(13,624)	16,652
		21,907,195	6,070,533	(6,887,200)	21,090,528
Inter-company transactions		(256,000)	(16,055)	171,306	(100,749)
Amount attributable to discontinued operation segment		(9,077)	9,077	-	-
		<u>₩ 21,642,118</u>	<u>₩ 6,063,555</u>	<u>₩ (6,715,894)</u>	<u>₩ 20,989,779</u>

(\*1) It contains the details of Doosan Mecatec Co., Ltd., which is classified as a subsidiary of DHC during the current year.

		2019			
Project		Beginning balance	Changes	Recognized construction revenue	Ending balance
DHC	Fadhili CHP and others	₩ 15,381,173	₩ 3,906,870	₩ (5,401,992)	₩ 13,886,051
DEC (*1)	Gimhae Centum We've and others	7,703,952	1,659,097	(1,748,573)	7,614,476
Doosan Mecatec Co., Ltd.	SPL Tr.6 MVA0-00002 and others	340,479	375,456	(311,567)	404,368
		23,425,604	5,941,423	(7,462,132)	21,904,895
Inter-company transactions		(437,982)	89,485	92,497	(256,000)
Amount attributable to discontinued operation segment		(9,240)	(95)	258	(9,077)
		<u>₩ 22,978,382</u>	<u>₩ 6,030,813</u>	<u>₩ (7,369,377)</u>	<u>₩ 21,639,818</u>

(\*1) The construction contracts which belongs to discontinued operations that are not transferred in accordance with the terms and conditions of a business transfer contract as of December 31, 2020 are included.

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**26.4 The effect of changing in accounting estimate that related contracts recognized revenue over a year by applying the cost-based input method**

Changes in profit or loss in the current and succeeding reporting years and the amount of due from customers for contract work (excluding foreign currency translation effect) resulting from changes in total contract revenue and in total estimated contract costs for construction contracts in progress as of December 31, 2020 are as follows (Korean won in millions):

	2020					
	Provision for construction loss	Changes in total contract amount	Changes in total contract cost	Impact on profit or loss for the current year	Impact on profit or loss for the succeeding year	Changes in due from/to customers for contract work
DHC (*1)	₩ 129,689	₩ 330,498	₩ 1,066,302	₩ (389,789)	₩ (346,015)	₩ (389,789)
DEC	261	90,297	132,849	(59,599)	17,047	(59,599)
	₩ 129,950	₩ 420,795	₩ 1,199,151	₩ (449,388)	₩ (328,968)	₩ (449,388)

(\*1) It contains the details of Doosan Mecatec Co., Ltd., which is classified as a subsidiary of DHC during the current year.

The impacts on profit or loss for the current year and succeeding year are determined based on total estimated contract costs which are estimated based on the circumstances present from the start of the contract to the end of current year and the estimated contract revenue as of December 31, 2020. The total contract costs and contract revenue may change in the future.

As of December 31, 2020, contracts in which revenue has been recognized over time, which is more than 5% of sales of the year ended December 31, 2020 are as follows (Korean won in millions):

	Contract date	Contractual completion date(*1)	Percentage-of-completion (%)	Due from customers		Trade receivables (receivables from construction contracts)	
				Total	Accumulated impairment loss	Total	Provision for impairment
UAE BNPP #1, 2 NSSS	2010-06-30	2021-12-08	98.88	₩ -	₩ -	₩ 6,190	₩ 72
Samcheok #1, 2 EPC	2018-07-24	2024-04-30	28.97	243,595	609	-	-
Shingori #5, 6 NSSS	2014-08-28	2024-06-30	76.86	-	-	2,017	5
Vinh Tan 4 TPP	2014-02-26	2021-10-31	99.85	21,105	53	20,958	4,192
UAE BNPP #3, 4 NSSS	2010-06-30	2023-11-30	98.59	14,757	37	-	-
Shinhanul #1, 2 NSSS	2009-07-31	2021-08-31	98.25	-	-	-	-
Shingori #3 and 4 NSSS	2006-08-28	2019-08-31	100.00	-	-	-	-
Yanbu ph.3 MSF	2012-12-04	2021-12-31	98.54	-	-	-	-
Qurayyah Add-On	2009-09-16	2020-05-14	99.99	-	-	-	-
Fadhili CHP	2016-11-12	2021-05-31	98.76	6,954	17	1,103	67
Song Hau 1	2015-04-10	2022-03-31	87.40	23,318	58	-	-
Nghi Son II	2014-12-24	2022-07-10	78.23	244,792	483	55,472	50
Jawaharpur	2016-12-22	2023-04-21	63.60	23,480	-	25,434	-
Obra C	2016-12-22	2023-06-20	55.81	-	-	6,913	-
Jawa #9, 10	2019-03-20	2025-02-15	1.89	-	-	-	-

(\*1) Negotiating to extend contract period with respective contract party or due date/delivery date in contract.

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**27. Breakdown of expenses by nature**

Breakdown of expenses by nature for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020	2019
Changes in inventories	₩ 332,253	₩ (304,313)
Purchases of raw materials and merchandise	6,977,827	8,852,346
Employee benefits expenses	2,520,203	2,531,535
Depreciation and amortization	674,977	661,097
Others	6,189,074	5,072,350
	<u>₩ 16,694,334</u>	<u>₩ 16,813,015</u>

**28. Selling and administrative expenses**

Selling and administrative expenses for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020	2019
Salaries	₩ 664,093	₩ 675,871
Retirement benefits	228,593	51,043
Employee benefits	137,211	132,794
Travel expenses	22,426	62,492
Sales commission	98,185	93,663
Taxes and dues	31,036	33,527
Depreciation	86,728	91,961
Insurance expenses	29,203	30,229
Repairing expenses	9,740	10,870
Advertising expenses	56,213	64,330
Packaging expenses	12,421	13,898
Research and development	259,586	246,818
Training expenses	8,409	11,217
Freight expenses	22,273	23,270
Promotional expenses	13,831	14,778
Commission expenses	144,676	127,063
Service contract expenses	10,023	10,442
(Reversal of) bad debt expenses	44,508	(6,465)
Amortization	61,327	55,923
Expansion expenses of overseas market	12,697	15,668
Warranty expenses	15,015	18,021
Others	184,958	68,651
	<u>₩ 2,153,152</u>	<u>₩ 1,846,064</u>

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**29. Finance income and expenses**

Finance income and expenses for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020		2019
Finance income:			
Interest income	₩ 51,839	₩	60,156
Dividend income	1,303		1,296
Gain on foreign currency transaction	227,083		156,628
Gain on foreign currency translation	156,706		91,891
Gain on derivative transactions	109,697		73,056
Gain on valuation of derivatives	121,274		85,279
Gain on valuation of firm commitment	10,454		67,884
Gain on repayment of borrowings	-		314
Financial guarantee income	1,410		1,767
	<u>679,766</u>		<u>538,271</u>
Finance expenses:			
Interest expense	554,422		598,490
Loss on foreign currency transactions	249,951		169,218
Loss on foreign currency translations	183,872		130,032
Loss on derivative transactions	129,788		78,712
Loss on valuation of derivatives	28,386		114,580
Loss on valuation of firm commitment	70,281		23,778
Loss on repayment of bonds	54,924		7,482
Loss on repayment of borrowings	-		2,144
Financial guarantee expense	55,377		76,220
Loss on repayment of liabilities	10		24
Others	3,755		2,421
	<u>1,330,766</u>		<u>1,203,101</u>
	<u>₩ (651,000)</u>	₩	<u>(664,830)</u>

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**30. Other non-operating income and expenses**

Other non-operating income and expenses for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020	2019
Other non-operating income:		
Gain on disposal of short-term investment securities	₩ 540	₩ 558
Gain on disposal of long-term investment securities	1,467	3,115
Gain on valuation of long-term and short-term investment securities	7,422	8,242
Gain on disposal of property, plant and equipment	8,300	2,842
Gain on disposal of intangible assets	745	90
Gain on disposal of investment properties	41,829	-
Gain on valuation of investment properties	6,791	9,315
Reversal of impairment loss of intangible asset	8,958	2,054
Others	28,563	34,780
	<u>104,615</u>	<u>60,996</u>
Other non-operating expenses:		
Loss on disposal of trade receivables	19,315	23,597
Loss on disposal of property, plant and equipment	4,840	34,211
Loss on disposal of intangible assets	268	203
Loss on disposal of investment properties	14,190	1,188
Impairment loss of property, plant and equipment	36,383	44,592
Impairment loss of intangible assets	168,038	22,549
Loss on valuation of investment properties	10,370	4,235
Loss on disposal of investments in subsidiaries	10,792	-
Bad debt expenses of others	179,556	153,348
Donations	19,189	19,649
Others	149,851	169,126
	<u>612,792</u>	<u>472,698</u>
	<u>₩ (508,177)</u>	<u>₩ (411,702)</u>

**31. Income tax expenses**

Details of income tax expenses for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020	2019
Income tax on profit for the year	₩ 341,482	₩ 187,023
Deferred tax:		
Origination and reversal of temporary differences	81,379	65,539
Charged or credited directly to equity	(300,117)	(7,257)
Others	(413)	105
Income tax revenues(expenses) classified as profit or loss from discontinued operations	(50,971)	(8,805)
Income tax expenses	<u>₩ 71,360</u>	<u>₩ 236,605</u>

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**31. Income tax expenses (cont'd)**

Changes in deferred tax assets and liabilities for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020		
	Beginning balance	Changes	Ending balance
Allowance for doubtful accounts	₩ 457,299	₩ 27,126	₩ 484,425
Derivatives	21,697	(28,407)	(6,710)
Property, plant and equipment	(732,922)	57,548	(675,374)
Intangible assets	42,023	37,213	79,236
Assets and liabilities in foreign currencies	10,554	(7,837)	2,717
Defined benefit liabilities	241,151	(8,457)	232,694
Investment properties	(40,339)	16,708	(23,631)
Others	(67,644)	(168,965)	(236,609)
	₩ (68,181)	₩ (75,071)	₩ (143,252)

  

	2019		
	Beginning balance	Changes	Ending balance
Allowance for doubtful accounts	₩ 226,684	₩ 230,615	₩ 457,299
Derivatives	(665,911)	687,608	21,697
Property, plant and equipment	(21,457)	(711,465)	(732,922)
Intangible assets	399,397	(357,374)	42,023
Assets and liabilities in foreign currencies	49	10,505	10,554
Defined benefit liabilities	14,643	226,508	241,151
Reserve for research and human resource	13,732	(13,732)	-
Investment properties	(45,628)	5,289	(40,339)
Others	86,381	(154,025)	(67,644)
	₩ 7,890	₩ (76,071)	₩ (68,181)

The Group offsets deferred tax assets and deferred tax liabilities, if the Group has a legally enforceable right to set off current tax assets against current tax liabilities and the deferred tax assets against deferred tax liabilities relating to income taxes levied by the same taxation authority.

Temporary differences, net loss and tax credit carryforwards, which have not been recognized as deferred income tax assets and expired or unused as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020	December 31, 2019
Deductible temporary differences and others	₩ 3,276,600	₩ 2,445,301
Net loss carried over	2,073,311	1,710,135
Carried forward tax credit	27,533	26,259
	₩ 5,377,444	₩ 4,181,695

The probability of realizing deferred tax assets depends on the Group's ability to generate taxable income in future years, economic situation and industry forecast. The Group periodically reviews these matters.

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**31. Income tax expenses (cont'd)**

Temporary differences from investments in subsidiaries, joint ventures and associated investments, which are not recognized as deferred tax assets (liabilities), are as follows (Korean won in millions):

	December 31, 2020	December 31, 2019	Remarks
Investments in subsidiaries	₩ 1,317,191	₩ (77,702)	Able to control the reversal of the temporary difference
Investments in associates and joint ventures	5,752	7,809	Probable that the temporary difference will not reverse in the foreseeable future
	<u>₩ 1,322,943</u>	<u>₩ (69,893)</u>	

A reconciliation of income tax expenses and profit before income tax expenses for the years ended December 31, 2020 and 2019 is as follows (Korean won in millions):

	2020	2019
Profit (loss) before income tax expenses	₩ (899,302)	₩ 139,275
Tax expense by applicable tax rates	(229,300)	79,721
Adjustments:		
Non-taxable income and non-deductible expenses	49,955	85,957
Tax credits	(20,245)	(38,659)
Temporary difference not recognized as deferred income tax	198,945	25,195
Others	72,005	84,391
Income tax expenses	<u>₩ 71,360</u>	<u>₩ 236,605</u>
Average effective tax rate (Income tax expenses/Profit before income tax expenses)	-	169.88%

**32. Earnings (losses) per share**

**32.1 Basic earnings (losses) per share**

Basic earnings (losses) per share for the years ended December 31, 2020 and 2019 are as follows (Korean won):

	2020		
	Continuing	Discontinued	Total
Basic earnings (losses) per ordinary share	₩ (31,496)	₩ 404	₩ (31,092)
Basic earnings (losses) per old-type preferred share (*1)	(31,496)	404	(31,052)

	2019		
	Continuing	Discontinued	Total
Basic earnings (losses) per ordinary share	₩ (7,884)	₩ 29,784	₩ 21,900
Basic earnings (losses) per old-type preferred share (*1)	(7,900)	29,845	21,945

(\*1) The Group calculated earnings per share for old-type preferred share due to the nature of the share, which does not have preferred right on dividends and liquidation. Therefore, the share is considered as ordinary share, based on KIFRS 1033 *Earnings per share*.

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**32.1 Basic earnings (losses) per share (cont'd)**

Profit (loss) for the year attributable to the ordinary equity holders of the parent is as follows (Korean won):

	2020		
	Continuing	Discontinued	Total
Profit (loss) for the year attributable to the equity holders of the Company	₩ (560,167,098,513)	₩ 6,858,725,905	₩ (553,308,372,608)
Less: Profit (loss) attributable to new-type preferred Shares	26,278,094,854	-	26,278,094,854
Less: Profit (loss) attributable to old-type preferred shares	107,962,973,811	(1,386,970,775)	106,576,003,036
Profit (loss) for the year attributable to the ordinary equity holders of the Company	<u>₩ (425,926,029,848)</u>	<u>₩ 5,471,755,130</u>	<u>₩ (420,454,274,718)</u>

  

	2019		
	Continuing	Discontinued	Total
Profit (loss) for the year attributable to the equity holders of the Company	₩ (124,201,687,886)	₩ 544,584,655,558	₩ 420,382,967,672
Less: Profit (loss) attributable to new-type preferred Shares	(19,951,981,523)	-	(19,951,981,523)
Less: Profit (loss) attributable to old-type preferred shares	29,230,139,935	(110,425,809,857)	(81,195,669,922)
Profit (loss) for the year attributable to the ordinary equity holders of the Company	<u>₩ (114,923,529,474)</u>	<u>₩ 434,158,845,701</u>	<u>₩ 319,235,316,227</u>

The weighted-average number of ordinary shares and old-type preferred shares outstanding used in basic earnings per share calculation for the years ended December 31, 2020 and 2019 are as follows:

	2020		2019	
	Ordinary shares	Old-type preferred shares	Ordinary shares	Old-type preferred shares
Beginning outstanding shares	13,522,969	3,432,220	14,931,933	3,790,262
Decrease due to spin-off	-	-	(355,136)	(90,246)
Weighted-average number of shares outstanding	<u>13,522,969</u>	<u>3,432,220</u>	<u>14,576,797</u>	<u>3,700,016</u>

**32.2 Diluted earnings (losses) per share**

Diluted earnings (losses) per share for the years ended December 31, 2020 and 2019 are as follows:

	2020		
	Continuing	Discontinued	Total
Diluted earnings (losses) per ordinary share	₩ (31,496)	₩ 404	₩ (31,092)
Diluted earnings (losses) per old-type preferred share	(31,456)	404	(31,052)

  

	2019		
	Continuing	Discontinued	Total
Diluted earnings (losses) per ordinary share	₩ (7,884)	₩ 29,784	₩ 21,900
Diluted earnings (losses) per old-type preferred share	(7,900)	29,845	21,945

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**32.2 Diluted earnings (losses) per share (cont'd)**

Diluted profit (loss) for the year attributable to the ordinary equity holders of the parent for the years ended December 31, 2020 and 2019 is as follows:

	2020		
	Continuing	Discontinued	Total
Profit (loss) for the year attributable to the ordinary equity holders of the parent	₩ (425,926,029,848)	₩ 5,471,755,130	₩ (420,454,274,718)
Share-based expense (after tax)	-	-	-
Diluted profit (loss) for the year attributable to the ordinary equity holders of the parent	<u>₩ (425,926,029,848)</u>	<u>₩ 5,471,755,130</u>	<u>₩ (420,454,274,718)</u>
	2019		
	Continuing	Discontinued	Total
Profit (loss) for the year attributable to the ordinary equity holders of the parent	₩ (114,923,529,474)	₩ 434,158,845,701	₩ 319,235,316,227
Share-based expense (after tax)	-	-	-
Diluted profit (loss) for the year attributable to the ordinary equity holders of the parent	<u>₩ (114,923,529,474)</u>	<u>₩ 434,158,845,701</u>	<u>₩ 319,235,316,227</u>

Diluted weighted-average number of ordinary shares outstanding for the years ended December 31, 2020 and 2019 is as follows:

	2020	2019
Weighted-average number of ordinary shares outstanding	13,522,969	14,576,797
Exercise of stock options	-	-
Diluted weighted-average number of ordinary shares outstanding	<u>13,522,969</u>	<u>14,576,797</u>

As there are no potential ordinary shares for old-type preferred share, diluted earnings (losses) per share for old-type preferred share are equal to basic earnings per share for old-type preferred share.

**32.3 Conditions for preferred shares dividends**

	Par value	Number of shares issued
Old-type preferred shares (*1)	₩ 5,000	3,996,462
New-type preferred shares (*2)	5,000	893,038

(\*1) Cash dividends available to ordinary shares+1%

(\*2) The Company should distribute 2% of par value of preferred shares annually. In case the Group distributes more than 2% of par value for ordinary shares, preferred shares are participated in dividends for the exceeded dividends.

### **33. Contingencies and commitments**

#### **33.1 Notes, bills and checks offered in security**

As of December 31, 2020, the Group provided 5 blank notes and 33 blank checks as collateral against financial institutions for the Group's debt, guarantees to fulfill a contract, payment guarantees of the Group and funding arrangement.

#### **33.2 Financial covenant**

##### **33.2.1 DI**

As of December 31, 2020, DI issued 57th foreign currency-denominated bonds for USD 300,000 thousand and 67th foreign currency-denominated bonds for USD 300,000 thousand. In addition, the issued 57th and 67th foreign currency-denominated bond has an early redemption clause for when and if DI's guarantor, KDB, becomes privatized. In addition, 11,362,886 shares and 13,884,989 shares of Doosan Bobcat Co., Ltd. held by DI are provided as collateral for above bonds, respectively. If they do not meet the base price, additional shares or deposits equivalent to the difference should be provided as collateral.

DI has provided 8,595,047 shares of Doosan Bobcat Co., Ltd. as collateral for borrowings of ₩160,000 million KDB and 4 other financial institution. The share or deposit should be provided additionally as collateral when the contracted mortgage ceiling ratio is not met in relation to the above borrowings. In addition, if the long-term credit rating given by two or more of the three domestic credit rating agencies (Nice Investors Service Co., Ltd. , Korea Investors Service, Inc. and Korea Ratings Corporation) of DI is below BB0, it includes arrangements that constitute reasons for the loss of interest on the due date. In addition, as of December 31, 2020, when DI receives a long-term credit rating of below BB + from one or more among three domestic credit rating agencies (Nice Investors Service Co., Ltd. , Korea Investors Service, Inc. and Korea Ratings Corporation) about 61st bonds of ₩50,000 million issued by DI, it includes a contract that constitutes the reason for the immediate repayments.

3,650,000 shares of Doosan Bobcat Inc., a subsidiary of DI, are provided as collateral for DI's borrowings of ₩100,000 million from Standard Chartered Bank Korea Ltd. If contractual ratio of collateral limit amount of the borrowings is not fulfilled, DI should provide additional collaterals (shares or deposits) or make early redemption of part of the borrowings.

For ₩60,000 million of borrowings agreement between Mizuho Bank and DI as of December 31, 2020, the agreement includes an acceleration clause, which allows Mizuho Bank, the lender, to require DI, the borrower, to repay all of the outstanding borrowings if the credit rating granted by certified credit rating agency is below BB+.

As of December 31, 2020, DI entered into investment agreements from 4 other funds including ZIGG CAPITAL I, L.P and the amount of agreements are USD 3,885 thousand.

##### **33.2.2 DEC**

DEC entered into construction contracts with INTDC Co., Ltd. and Daewon Plus Constructions Co., Ltd. to develop Ilsan Zenith project and Haeundae Zenith project, respectively. DEC has provided guarantees to customers, who purchase the Ilsan Zenith and Haeundae Zenith apartments for the consideration paid to purchase the apartments during the repurchase guarantee years (2~3 years after the date of sale), should customers apply for such guarantees (see Note 33-(7)). As of December 31, 2020, the Group's consolidated financial statements do not reflect the effect from such guarantees, as the Group cannot reasonably predict the number of purchasers applying for the guarantee and the related guaranteed amount.

### **33.2.3 Doosan Mecatec Co., Ltd.**

As of December 31, 2020, Doosan Heavy Industries Vietnam Haiphong Co., Ltd., a subsidiary of Doosan Mecatec Co., Ltd., didn't recognized provisions because it could not estimate payment obligations and the resources to be leaked from the costs incurred at the end of the land permit for the lease of factory land with Haiphong Department of Natural and Resources.

Doosan Mecatec Co., Ltd., a subsidiary, sold its real estate in Changwon, Gyeongnam (Changwon Plant 1) to Korea Asset Management Corporation and has been using it through a lease agreement for 5 years from December 2020. Doosan Mecatec Co., Ltd. may exercise the priority purchase right at the market price from one year after the date of the lease contract to 3 months before the expiry of the contract period. If the priority purchase right is not exercised within the exercise period, Korea Asset Management Corporation may request a repurchase. The Group judged that both risks and rewards could not be eliminated and the transaction was marked as a financial transaction.

### **33.2.4 DHC**

As of December 31, 2020, DHC has entered into a contract to assume a liability (limit: ₩223,000 million) if it fails to complete construction of apartments in the Baekbong district of Namyangju, the Anyang Myunghak Knowledge Industry Center, Hanam Misa Knowledge Industry Center, 2nd apartment units in Yangsan and the complex of Ungcheon-dong, Yeosu projects.

As of December 31, 2020, the subsidiary DHC 's borrowings (₩31,429 million) from SC Bank require that the credit ratings of the corporate bonds issued by the DHC, evaluated by two or more credit rating agencies to be maintained at BBB or higher respectively. In addition, borrowings (₩64,736 million) from Mashreq Bank require that credit rating evaluated by Korea credit rating agency to be maintained at BBB or higher during the borrowing agreement period, and if major financial indicators (the debt to equity ratio below 3 and interest coverage ratio above 2.2) cannot be maintained, additional investments are required within a certain period. Non-fulfillment of these debt covenants would trigger accelerated repayment of these borrowings, but related financial institutions are suspending the application of the related clauses in consideration of changes in circumstances such as changes in the DHC's business environment. Asset-backed loans of ₩127,200 million for KDPP 5th Co., Ltd. require that a domestic effective credit rating to be maintained BB+ or higher, and failure to comply is a reason for early payment.

DHC, the investor of Samcheok Blue Power Co., Ltd. (formerly, Force Power Co., Ltd.) which is responsible for the EPC construction project of Samcheok #1, 2 TPP, and is obliged to make an additional investment of ₩77,740 million in September 2023 in accordance with the investor agreement. To fulfill this obligation, DHC agreed to deposit a certain percentage of the construction collection amount into Samcheok Blue Power Co., Ltd.'s account from November 2020 to June 2022.

DHC is providing payment guarantee to the client in connection with the implementation of the Sharqiyah EPC project. The credit rating of the DHC evaluated by the Korea Credit Rating Agency must be maintained at the BBB or higher, and if this is not maintained, it is obligated to provide a valid guarantee under the same conditions within 10 days from the date of the decline in the credit rating. However, as of December 31, 2020, the application of such provision has been suspended due to various circumstances such as changes in the DHC's business environment.

### **33.2.5 Doosan Bears Inc.**

Doosan Bears Inc., a subsidiary, sold its real estate (Icheon Bears Park) in Icheon, Gyeonggi Province to Korea Asset Management Corporation and has been using it through a lease agreement for 5 years from November 2020. Doosan Bears Inc. may exercise the priority purchase right at the market price from one year after the date of the lease contract to 3 months before the expiry of the contract period. If the priority purchase right is not exercised within the exercise period, Korea Asset Management Corporation may request a repurchase. The Group judged that both risks and rewards could not be eliminated and the transaction was marked as a financial transaction.

### 33.3 Transferred trade receivables

Outstanding trade receivables sold with recourse by the Group is ₩8,106 million as of December 31, 2020. As the Group retains some level of risks and rewards relating to trade receivables, the Group has recognized its carrying amount and cash receipt from transfer as short-term borrowings in the consolidated statement of financial position (see Note 15 and 34).

In addition, the carrying amount of the receivables recognized in the statement of financial position as of December 31, 2020, is ₩25,630 million, as it does not meet the requirement to remove financial instruments in relation to the liquidity obligation of the Company (see Note 15).

### 33.4 Litigation in progress

Details of major lawsuits are as follows (Korean won in millions):

	Claim	Claimed amount
Doosan Corporation	Claims for damages and others	₩ 3,358
DHC and its subsidiaries	Claims for LNG tank cartel and others	85,318
DI and its subsidiaries	Claims for damages and others	50,401
DEC and its subsidiaries	Claims for damages and others	94,714
		₩ 233,791

The outcome of lawsuits cannot be estimated as of December 31, 2020.

In 2011, external investors bought 20% shares of Doosan Infracore China Co., Ltd., subsidiary of DI at ₩380 billion, and they have the right to request to jointly sell the shares held by the other party to a third party according to shareholder's agreement with DI. In principle, DI should jointly sell its shares upon request by the outside investors, but it also has the right to purchase shares of outside investors at the price they are willing to sell.

In November 2015, the external investor claimed for payment of the share purchase price. On February 21, 2018 the Seoul High Court admitted that DI breached its obligation to cooperate with the external investor's sale of its shares and ordered DI to pay the claim amounts of ₩10 billion, out of ₩709.3 billion claimed by external investors. In January 14, 2021, the Supreme Court accepted the claim of DI that pointed out that there was a mistake in the judgement of court of second instance and the case was remanded to the Seoul High Court (Case No. 2018-Da-223054). As DI prevailed in the Supreme Court, the pledge that provided 8,288,196 shares in Doosan Bobcat Inc. as collateral was canceled.

### 33.5 Technical contract

The Group has technical license agreements with Ceres Power Limited. and others for the year ended December 31, 2020 and the Group paid ₩9,908 million and ₩1,138 million for the years ended December 31, 2020 and 2019, respectively, as license fee.

### 33.6 Credit lines for borrowings

The Group has entered into bank overdraft agreements amounting to ₩11,302,495 million with various financial institutions as of December 31, 2020.

### 33.7 Guarantees of payment

Guarantees of payment provided by the Group as of December 31, 2020 are as follows (Korean won in millions):

Provided by	Provided to	December 31, 2020
Doosan Corporation	Volta Energy Solutions Europe Kft. (formerly, Doosan Corporation Europe Kft.) and others	₩ 101,835
DHC	Namyangju Baekbong Apartment house's customers	271,945
DI	End customer	323,374
DEC	Ilsan Zenith's customers and others	604,480
DFC	Employee stockholders association	17,673
		<u>₩ 1,319,307</u>

In addition to the above, according to the spin-off during the current year, in accordance with Article 530-9, Paragraph 1 of *the Commercial Act*, the succeeding company after division (the Group) and the newly incorporated company (DFC and Solus Advanced Materials Co., Ltd. (formerly, Doosan Solus Co., Ltd.)) will be repaid in solidarity with respect to the debts of the Group before the division. In this regard, borrowings and bonds subject to solidarity guarantee provided by the Group as of December 31, 2020 are as follows (Korean won in millions):

Provided to	Borrowings and Bonds
DFC	₩ 99,000
Solus Advanced Materials Co., Ltd. (formerly, Doosan Solus Co., Ltd.)	40,000
	<u>₩ 139,000</u>

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**33.7 Guarantees of payment (cont'd)**

Guarantees of payment provided by third parties to the Group as of December 31, 2020 are as follows (Korean won in millions):

Provided to	Provided by	December 31, 2020
Doosan Corporation	Korea Defense Industry Association(*1)	₩ 74,986
	Seoul Guarantee Insurance(*1)	45,713
	Machinery Financial Cooperative(*1)	9,159
	Korea Software Financial Cooperative (*1,2)	1,601
	KDB	12,459
	Woori Bank and others	18,692
Doosan Robotics Inc.	Seoul Guarantee Insurance	116
Doosan Mobility Innovation Inc	Seoul Guarantee Insurance	9
Doosan Logistics Solutions Co.,Ltd.	Seoul Guarantee Insurance	2,455
Doosan Bears Inc.	Seoul Guarantee Insurance	5,145
Oricom	Seoul Guarantee Insurance	1,580
Hancomm Inc.	Seoul Guarantee Insurance	4,320
Doosan Energy Solutions America, Inc., DFC	KDB	12,459
	Machinery Financial Cooperative	256,930
DHC and its subsidiaries	Seoul Guarantee Insurance	99,150
	Korea Exim Bank	283,643
	Machinery Financial Cooperative	2,316,119
	Seoul Guarantee Insurance	389,590
	Construction Guarantee Cooperative	1,219,155
	Hana Bank	76,611
	Engineering Guarantee Insurance	253,321
	Korea Federation of Small and Medium Business	39,683
	Woori bank	149,490
	Korea Trade Insurance Corporation	115,663
DI and its subsidiaries	KDB	4,157
	Others	1,861,301
	KDB(*3)	652,801
	Seoul Guarantee Insurance	6,383
	Machinery Financial Cooperative(*4)	3,997
DEC and its subsidiaries	Woori Bank	459
	Construction Guarantee Cooperative	1,604,664
	Korea Housing Guarantee	3,107,770
	Machinery Financial Cooperative	34,826
	Seoul Guarantee Insurance	10,808
Doosan Cuvex Co., Ltd.	Others	227,670
	Korea asset management corporation	20,000
		₩ 12,922,885

(\*1) Some of the contracts subject to the performance guarantee were transferred to newly incorporated company DFC and Solus Advanced Materials Co., Ltd. (formerly, Doosan Solus Co., Ltd.) according to the spin-off during the 2019 year.

(\*2) In connection with this, as of December 31, 2020, equity share of ₩84 million is provided as collateral.

(\*3) As a subsidiary, DI provides payment guarantees for 57th foreign bonds of USD 300,000 thousand and 67th foreign bonds of USD 300,000 thousand from KDB.

(\*4) In connection with this, as of December 31, 2020, the equity shares of ₩200 million of DI, a subsidiary, is provided as collateral.

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**33.7 Guarantees of payment (cont'd)**

Guarantees of payment to DEC for PF of developer as of December 31, 2020 are as follows (Korean won in millions):

Business name	Bond institution	The term of guarantee	Limit of guarantee	The balance	Description
Loans:					
Pohang New Port	Shinhan bank and others	2010.03.26 ~2025.12.31	₩ 4,062	₩ 4,062	Joint guarantee
Short-term bonds:					
Cheonan Cheongdang-dong	BNK investment securities	2020.12.18 ~2021.03.18	80,000	10,000	Joint guarantee
Cheonan Cheongdang-dong	BNK investment securities	2020.12.28 ~2021.03.18	80,000	70,000	Joint guarantee
Cheonan Cheongdang-dong	BNK investment securities	2020.12.28 ~2021.03.26	120,000	100,000	Joint guarantee
Osong complex	Shinyoung securities	2020.12.28 ~2021.03.26	50,000	50,000	Joint guarantee
Yongin 3 ga	BNK investment securities	2020.12.15 ~2021.03.15	90,000	15,000	Joint guarantee
Yongin 3 ga	BNK investment securities	2020.12.18 ~2021.03.15	90,000	15,000	Joint guarantee
Yongin 3 ga	BNK investment securities	2020.12.24 ~2021.03.24	80,000	80,000	
			420,000	340,000	
			₩ 424,062	₩ 344,062	

**33.8 Covenant related to consolidated structured entities**

The carrying amount of assets and liabilities related to the consolidated structured entities' interests in the Group, details of the financial support provided and the maximum exposure amount of the Group to structured entity's losses as of December 31, 2020 are as follows (Korean won in millions):

	Financial support for structured entities	Book value of liabilities regarding structured entities' interests	The maximum exposure amount of the Group to structured entities' losses
DEC:			
Newstart DM 7th Co., Ltd. (*1)		₩ 25,000	₩ 25,000
DMbest 3rd Co.,Ltd. (*2)		12,000	12,000
Newstart DM 8th Co., Ltd. (*3)		10,000	10,000
Greatgm 4th Co. Ltd. (*4)		10,000	10,000
DSmunuro 1st Co., Ltd. (*5)		3,250	3,250
Buildup 1st Co., Ltd. (*6)		12,000	12,000
J on Shindongbaek Co., Ltd. (*7)		30,000	30,000
Doosan E&C 4th Co., Ltd. (*8).	The duty to replenishment of principal and interest of borrowings and others	75,000	75,000
DHC:			
KDPP 5th Co., Ltd. (*9)		127,200	165,360
U BEST 5th Co., Ltd. (*10)		190,000	190,000
Doosan corporation Inc:			
D-Pay 2nd Co., Ltd. (*11)		150,000	180,000
New Star Motive 1st Co., Ltd. (*12)		113,000	135,600

### **33.8 Covenant related to consolidated structured entities (cont'd)**

Details of securitization assets and method are as follows:

#### Securitization assets and method

- (\*1) Newstart DM 7th Co., Ltd. was established for the purpose of securitizing future construction receivables from four government-ordered construction project including Hamyang~Changnyeong Highway No.14(zone 3) project of DEC. It receives funds from issuing ABS bonds to financial institutions. Based on the book value presented in its financial statements, underlying assets amounted to ₩25,000 million as of December 31, 2020.
- (\*2) DMbest 3rd Co., Ltd. was established for the purpose of securitizing future construction receivables from two government-ordered construction project including Seoul Metropolitan 2nd ring Expressway Hwado~Yangpyeong zone 2 project of DEC. It receives funds from issuing ABS bonds to financial institutions. Based on the book value presented in its financial statements, underlying assets amounted to ₩12,000 million as of December 31, 2020.
- (\*3) Newstart DM 8th Co., Ltd. was established for the purpose of securitizing future construction receivables from Gyeongju (Sanggu~Hyohyun) national road alternative bypass road and other 2 government-ordered construction project. It receives funds from issuing ABS bonds to financial institutions. Based on the book value presented in its financial statements, underlying assets amounted to ₩10,000 million as of December 31, 2020.
- (\*4) Greatgm 4th Co., Ltd. was established for the purpose of securitizing future construction receivables from Anyang Samyoung apartment district redevelopment project (Anyang Art Park Doosan We've) and other 1 government-ordered construction projects of DEC. It receives funds from issuing ABS bonds to financial institutions. Based on the book value presented in its financial statements, underlying amount to ₩10,000 million as of December 31, 2020.
- (\*5) DSmunuro 1st Co., Ltd. was established for the purpose of securitizing future construction receivables from Ulsan Munsu-ro Doosan We've the Zenith construction project of DEC. It receives funds from issuing ABS bonds to financial institutions. Based on the book value presented in its financial statements, underlying amount to ₩3,250 million as of December 31, 2020.
- (\*6) Buildup 1st Co., Ltd. was established for the purpose of securitizing future construction receivables from Sillim~Bongcheon Tunnel Road Construction (zone 1) and other 3 government-ordered construction projects of DEC. It receives funds from issuing ABS bonds to financial institutions. Based on the book value presented in its financial statements, underlying amount to ₩12,000 million as of December 31, 2020.
- (\*7) J on Shindongbaek Co., Ltd. was established for the purpose of securitizing future construction receivables from Namyangju-Hwado new construction Project (Namyangju Doosan We've Tresium) of DEC. It receives funds from issuing ABBs to financial institutions. Based on the book value presented in its financial statements, underlying amount to ₩30,000 million as of December 31, 2020.
- (\*8) Doosan E&C 4th Co., Ltd. was established for the purpose of securitizing future construction receivables from Saemangeum-Jeonju 8 zone and other 3 government-ordered construction projects of DEC and of borrowing by providing DEC's Changwon 2nd plant as senior collateral. The Group issued ABCPs and ABLs to financial institution for funding and the book value of underlying assets are amounting to ₩75,000 million based on its financial statement as of December 31, 2020. DEC has provided the certain portion of properties for obligation for financial supporting for Doosan E&C 4th Co., Ltd. (See Notes 34-(2)).
- (\*9) KDPP 5th Co., Ltd. was established for the purpose of securitizing future construction receivables belongs to DHC, a subsidiary of the Group. It is mainly financed by issuing ABSTBs and others from financial institutions. Based on the book value presented in its financial statements, underlying amount to ₩127,200 million as of December 31, 2020.
- (\*10) U BEST 5th Co., Ltd. was established for the purpose of securitizing newly issued bonds of the Company. It is mainly financed by issuing ABCPs from financial institutions. As of December 31, 2020, the amount of underlying assets is ₩190,000 million based on the book amount of the securitized company's financial statements.
- (\*11) D-Pay 2nd Co., Ltd. was established for the purpose of securitizing future accounts receivable of Electro-Materials BG of Doosan corporation. It is mainly financed by issuing ABLs from financial institutions. As of December 31, 2020, the amount of underlying assets is ₩150,000 million based on the book amount of the securitized company's financial statements.
- (\*12) New Star Motive 1st Co., Ltd was established for the purpose of securitizing future accounts receivable of Mottrol Co., Ltd. It is mainly financed by issuing ABLs from financial institutions. As of December 31, 2020, the amount of underlying assets is ₩113,000 million based on the book amount of the securitized company's financial statements.

### **33.9 Joint liability for contract execution**

As of December 31, 2020, the Group provides joint and several guarantees amounting to ₩419,704 million for the performance of construction contracts to other construction companies. In addition, the Group provides joint and several guarantees for construction performance to Korea Housing & Finance Corporation related to the guarantee for housing sales, which was provided by Korea Housing Finance Corporation to the developers and provides conditional debt collection agreements (total limit: ₩1,214,100 million), if Gwangmyeong Medical Complex Construction and two projects are not fulfilled. And, investors associated with SOC business have an agreement of providing for an insufficient fund when the agreement is terminated or insufficient to repay the loan principal and interest by buy price or payment arising from purchase requirement from authorities.

### **34. Pledged assets**

The Group pledged certain assets as collateral for its long-term and short-term borrowings as of December 31, 2020 as follows.

As of December 31, 2020, the Group is committed to liability for ₩375,000 million of the PF loan contract signed by its subsidiary, DBC Co., Ltd, to build the Doosan Bundang Center and provides 1,723,560 shares of DBC Co., Ltd's stock held by the Group (₩86,526 million in collateral) and rights to claim for construction insurance (₩252,300 million in collateral) as collaterals. And the collateral was terminated in January 8, 2021.

As of December 31, 2020, New star Motive 1st Co., Ltd., a subsidiary of the Group, has an outstanding loan amount of ₩113,000 million under loan agreements with Woori Bank and four other banks. In relation to these loan agreements, the Group's inventories located in Changwon and Incheon plant has been pledged as collateral.

As of December 31, 2020, DHC, a subsidiary of the Group, signed a share exchange claim agreement with Korea Exim Bank regarding hybrid bonds issued by Doosan Power Systems S.A, a subsidiary of DHC. Accordingly, DHC is obliged to settle the cash upon request from Korea Exim Bank in case when the bank holds hybrid bonds as the investors exercise put option. In this regard, DHC provides the Korea Exim Bank 75,509,366 shares (₩1,483,471 million in collateral) of DI as collateral.

As of December 31, 2020, DHC, a subsidiary, also has confirmed its responsibility in connection with the construction project for the Samcheok Thermal Power Plant Unit 1 and 2 and provides 1,193,066 shares (₩43,568 million in collateral) of Pospower Co., Ltd. as collateral.

In addition, as of December 31, 2020, DHC, a subsidiary of the Group, has provided part of its land, buildings and machinery of ₩420,000 million located in Changwon factory and all of its shares of Doosan Power Systems S.A. of GBP 293 million as collateral, in relation to the export guarantee insurance limit contract for up to ₩347,000 million, which is entered into with Korea Trade Insurance Corporation.

#### **34. Pledged assets (cont'd)**

Clark Equipment Co., a subsidiary of DI, borrowed USD 1,345,000 thousand and entered into a borrowing agreement with the limit of USD 150,000 thousand on May 18, 2017 and issued a bond of USD 300,000 thousand as of May 29, 2020, and entered into a borrowing agreement with the limit of USD 20,000 thousand on December 15, 2020. Doosan Bobcat Inc. as collaterals, provided all shares in Clack Equipment Co., Doosan Bobcat EMEA s.r.o., Doosan Bobcat Global Collaboration Center, Inc. and Doosan Bobcat Singapore Pte. Ltd. and provided major property, plant and equipment and intangible assets of Clack Equipment Co., and its subsidiaries. The carrying amount of related borrowings and bonds as of December 31, 2020 are USD 943,563 thousand and total amount in collateral USD 1,385,994 thousand.

As of December 31, 2020, DHC, a subsidiary of the Group, entered into an emergency operation fund of ₩3,000,000 million with KDB and Korea Exim Bank. In relation to the emergency operation fund agreement, the Group has provided its assets as collateral to KDB and Korea Exim Bank. As of December 31, 2020, the carrying amount of the borrowings is ₩1,546,990 million. As of December 31, 2020, the total assets that the Group has provided as collateral include its shares of DHC, investments in subsidiaries and associates, equity instruments designated at fair value through OCI, property, plant and equipment, short-term financial instruments, treasury stocks, and assets held by DI, including its shares of DI, investments in subsidiaries, equity instruments at fair value through profit or loss, and property, plant and equipment. The total carrying amount of assets provided as collateral by the Company and DHC is ₩5,875,186 million as of December 31, 2020. In addition, as of January 6, 2021, the class 1 beneficiary certificates of Mastern Professional Investment Type Private Security Investment Trust No.98 (Carrying amount: ₩50,000 million) were additionally provided as collateral for the above borrowing agreements.

In addition, Jeongwon Park and other related parties have provided ordinary shares and preferred shares of the Company and preferred shares of Solus Advanced Materials Co., Ltd. as collateral for the above borrowing agreements. If in case the borrower fails to repay or is requested by the lender for repayment due to accelerated clause, KDB and the Korea Exim bank, the lenders in the borrowing agreements, may exercise its collateral rights to dispose, transfer, and delegate voting right.

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**34. Pledged assets (cont'd)**

The Group pledged certain assets as collateral for its financial liabilities as of December 31, 2020 as follows (Korean won in millions):

Provided by	Pledged assets	Institution	Financial liabilities	Pledged amount
Doosan Corporation	Short-term financial instruments, property, plant and equipment, investment properties and others(*1)	KDB and others	₩ 155,980	₩ 434,767
Doosan Electro-Materials (Changshu) Co., Ltd.	Property, plant and equipment	China Citic Bank	15,745	30,053
Doosan Industrial Vehicle China Co., Ltd. (formerly, Doosan Industrial Vehicle Yantai Co., Ltd.)	Property, plant and equipment	Woori Bank	4,174	7,039
DHC and its subsidiaries	Short-term financial instruments	Hana Bank and others	38,080	41,888
	Property, plant and equipment	KDB and others	1,953,997	4,335,725
	Cash and cash equivalents	KDB and others	40,548	25,816
	Investments in subsidiaries and equity share	Construction Guarantee Cooperative and others	338,499	483,452
	Inventories	Korea Exim Bank	15,000	19,500
DI and its subsidiaries	Property, plant and equipment(*2)	KDB and others	310,453	663,802
	Inventories	Korea Exim Bank and others	150,000	195,000
DEC and its subsidiaries	Short-term financial instruments	IBK	-	4,427
	Property, plant and equipment	KDB and Others	75,000	130,000
	Beneficiary certificates	Woori Bank	-	113,796
	Equity share	Construction Guarantee Cooperative	27,039	38,250
Doosan Cuvex Co., Ltd	Beneficiary certificates(*3)	Korea Asset Management Corporation and others	45,000	63,600
			<u>₩ 3,169,515</u>	<u>₩ 6,587,115</u>

(\*1) Property, plant and equipment held by Mottrol Co., Ltd., a subsidiary, is provided as collateral for financial liabilities.

(\*2) Benefit entitlement on property, plant and equipment and inventories has been provided as collateral to KDB and others.

(\*3) This is a real estate security beneficiary certificates for property, plant and equipment.

**34. Pledged assets (cont'd)**

As of December 31, 2020, subsidiary investment securities such as DFC and others, equity instruments designated at fair value through OCI and treasury stocks are provided as collateral for ₩40,261 million borrowed from Korea Investment & Securities Co., Ltd. and Shinyoung Securities Co., Ltd. The total amount of collateralized assets is ₩557,328 million. In addition, if the Group does not provide additional collateral to meet the contracted collateral maintenance ratio, Korea Investment & Securities Co., Ltd. and Shinyoung Securities Co., Ltd. may dispose of the collateral.

As of December 31, 2020, its subsidiary, Doosan Industrial Vehicle America Corp., provides trade receivables and inventories as collateral for a loan agreement worth USD 25,000 thousand signed with Wells Fargo Bank. As of December 31, 2020, there is no such loan balance.

As of December 31, 2020, for a loan of ₩8,106 million arising from a trade receivable transfer transaction that does not meet the derecognition requirements for financial instruments, the trade receivable is provided as collateral for the loan. In addition, collateral is established for ₩25,630 million, including trade receivables recognized in the consolidated financial statements, in relation to Parent's liquidated debt (see Notes 15 and 33).

Details of collateral provided by the Group for third parties are as follows (Korean won in millions):

Provided by	Pledged assets	Book value	Institution	Provided to
DHC	Long-term investment securities and others	₩ 8,314	Kookmin Bank and others	Incheon-Gimpo Expressway Co., Ltd. and others
DEC	Long-term investment securities	56,401	KDB and others	Metropolitan Western Expressway and others
	Investments in associates and joint ventures	6,826	KDB and others	New Seoul Railroad Co., Ltd. and others
		<u>₩ 71,541</u>		

In addition, the Group established right of pledge (maximum pledge amount: ₩45,500 million) on land and buildings to guarantee loan agreement between Happy Tomorrow Apollo 3rd. Co., Ltd. and KDB Capital Corporation as of December 31, 2020. As of December 31, 2020, the amount of the borrowings is ₩35,000 million.

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**35. Related party transactions**

The details related to the disclosure of related parties as of December 31, 2020 and 2019 are as follows:

	December 31, 2020	December 31, 2019	Remarks
Associates	The HS-City Expressway	The HS-City Expressway	-
	Samcheok Blue Power Co.,Ltd. (formerly, Pospower Co., Ltd.)	Samcheok Blue Power Co., Ltd. (formerly, Pospower Co., Ltd.)	(*1)
	Daejung Offshore Wind Power Plant Co., Ltd.	Daejung Offshore Wind Power Plant Co., Ltd.	-
	Hychangwon Co., Ltd.	-	-
	Potenit Co., Ltd	Potenit Co., Ltd	-
	New Bundang Line Co., Ltd.	New Bundang Line Co., Ltd.	-
	Gyeonggi Railway Co., Ltd.	Gyeonggi Railway Co., Ltd.	-
	Neo Trans Co., Ltd.	Neo Trans Co., Ltd.	-
	New Seoul Railroad Co., Ltd.	New Seoul Railroad Co., Ltd.	-
	KIAMCO Gyeonggi Railway Investment Private Equity Investment Trust	KIAMCO Gyeonggi Railway Investment Private Equity Investment Trust	-
	Incheon Fucell Co.,Ltd.	Incheon Fucell Co.,Ltd.	-
	-	Geaenzymes	-
	Protera SAS	-	-
	-	NewWave #5 Start-up Investment	-
	-	2010 KIF-Neoplux IT Venture Fund	-
	-	KoFC-Neoplux R&D-Biz Creation 2013-1 Venture Capital Fund	-
	-	Future-Creation Neoplux Venture Capital Fund	-
	-	Neoplux Technology Valuation Investment Fund	-
	-	Neoplux Market Frontier Secondary Fund	-
	-	Gyeonggi-Neoplux Superman Fund	-
	-	Shinhan-Neoplux Energy Newbiz Fund	-
	-	New Wave 6th Investment Union	-
	-	KTC-NP-Growth Champ 2011-2 PEF	-
	-	Neoplux No.3 Private Equity Fund	-
	Prestolite Asia LTD.	Prestolite Asia LTD.	-
	Wise Fashion, Co., Ltd.	Wise Fashion, Co., Ltd.	-
	ReCarbon, Inc.	ReCarbon, Inc.	-
	Stathera IP Holding Inc.	-	-
	PT. SEGARA AKASA	-	-
	Mastern Professional Investment Type Private Security Investment Trust No.98	-	-
	KDDI Korea Corporation	KDDI Korea Corporation	-
	Daesan Green Energy Co. Ltd.	-	-

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**35. Related party transactions (cont'd)**

	December 31, 2020	December 31, 2019	Remarks
Joint ventures	Sichuan Kelun-Doosan	Sichuan Kelun-Doosan	-
	Biotechnology Company Limited	Biotechnology Company Limited	-
	Doosan Babcock BlackCat W.L.L.	Doosan Babcock BlackCat W.L.L.	-
	-	Haman Industrial Complex Co., Ltd.	-
	Doosan PSI LLC	Doosan PSI LLC	-
	Doosan Infracore Liaoning Machinery Sales Co., Ltd	Doosan Infracore Liaoning Machinery Sales Co., Ltd	-
	Tianjin Lovol Doosan Engine Co., Ltd.	Tianjin Lovol Doosan Engine Co., Ltd.	-
Other related parties	-	DFC	(*2)
	-	Solus Advanced Materials Co., Ltd. (formerly, Doosan Solus Co., Ltd.)	(*1, 3)
	-	Volta Energy Solution S.a.r.l (formerly, Doosan Electro-Materials Luxembourg Sarl) and its subsidiaries	(*1, 3)
	-	Volta Energy solutions Europe Kft. (formerly, Doosan corporation Europe Kft.) and its subsidiaries	(*1, 3)
	Doosan Yonkang Foundation	Doosan Yonkang Foundation	(*3)
	Chung-Ang University	Chung-Ang University	(*3)
	Doosan Credit Union	Doosan Credit Union	(*3)
	Dongdaemun Future Foundation and others	Dongdaemun Future Foundation and others	(*3)

(\*1) During the current year, the name of the related party was changed.

(\*2) During the current year, the Group acquired control over the investee and has included in the scope of consolidation.

(\*3) It is not included in the scope of related parties of KIFRS 1024 but includes entities that belong to the same large-scale enterprise group under the *Monopoly Regulation and Fair Trade Act*.

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**35. Related party transactions (cont'd)**

Significant transactions for the years ended December 31, 2020 and 2019, between the Group and related parties are as follows (Korean won in millions):

Related parties	2020					
	Sales	Other income	Others (disposal of assets and other)	Purchases	Other expenses	Others (acquisition of assets and other)
Associates:						
The HS-City Expressway	₩ 32	₩ -	₩ -	₩ -	₩ -	₩ -
Samcheok Blue Power Co.,Ltd. (formerly, Pospower Co., Ltd.)	363,955	-	-	-	-	-
Neo Trans Co., Ltd.	8,549	-	-	-	204	-
New Seoul Railroad Co., Ltd.	53,998	-	-	-	-	-
Hychangwon Co., Ltd.	21	238	-	-	-	-
KoFC-Neoplux R&D-Biz Creation 2013-1 Venture Capital Fund	280	29	-	-	-	-
Future-Creation Neoplux Venture Capital Fund	420	46	-	-	-	-
Neoplux Technology Valuation Investment Fund	636	-	-	-	-	-
Neoplux Market Frontier Secondary Fund	1,214	-	-	-	-	-
Gyeonggi-Neoplux Superman Fund	570	-	-	-	-	-
Shinhan-Neoplux Energy Newbiz Fund	945	-	-	-	-	-
New Wave 6th Investment Union	864	-	-	-	-	-
KTC-NP-Growth Champ 2011-2 PEF	86	23	-	-	-	-
Neoplux No.3 Private Equity Fund	2,198	-	-	-	-	-
Daesan Green Energy Co. Ltd	1,208	-	-	-	4	-
Potenit Co., Ltd	5	-	-	-	-	-
Incheon Fucell Co.,Ltd.	142,135	-	-	-	-	-
Mastern Professional Investment Type Private Security Investment Trust No.98	-	-	800,000	-	4,650	248,417
	577,116	336	800,000	-	4,858	248,417
Joint ventures:						
Tianjin Lovol Doosan Engine Co. Ltd.	23	649	-	514	-	77
Doosan Infracore Liaoning Machinery Sales Co., Ltd.	26,256	-	-	-	-	-
	26,279	649	-	514	-	77
Other related parties:						
DFC	1,177	48	-	40,427	320	-
Solus Advanced Materials Co., Ltd. and its subsidiaries	2,908	2,866	-	14,335	-	-
Doosan Yonkang Foundation	1,585	5	-	2,207	810	2,316
Chung-Ang University	86	-	-	994	9,770	-
Doosan Credit Union	168	-	-	-	-	-
Dongdaemun Future Foundation	98	-	-	-	6	-
Others	-	140	-	-	-	-
	6,022	3,059	-	57,963	10,906	2,316
	₩ 609,417	₩ 4,044	₩ 800,000	₩ 58,477	₩ 15,764	₩ 250,810

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**35. Related party transactions (cont'd)**

Related parties	2019					
	Sales	Other income	Others (disposal of assets and other)	Purchases	Other expenses	Others (acquisition of assets and other)
Associates:						
The HS-City Expressway	₩ 354	₩ -	₩ -	₩ -	₩ -	₩ -
Samcheok Blue Power Co.,Ltd. (formerly, Pospower Co., Ltd.)	124,523	-	-	-	-	-
Neo Trans Co., Ltd.	8,601	-	-	-	-	-
New Seoul Railroad Co., Ltd.	43,530	-	-	-	-	-
KoFC-Neoplux R&D-Biz Creation 2013-1 Venture Capital Fund	402	1	-	-	-	-
Future-Creation Neoplux Venture Capital Fund	596	2	-	-	-	-
Neoplux Technology Valuation Investment Fund	926	-	-	-	-	-
Neoplux Market Frontier Secondary Fund	1,469	-	-	-	-	-
Gyeonggi-Neoplux Superman Fund	755	-	-	-	-	-
Shinhan-Neoplux Energy Newbiz Fund	1,260	-	-	-	-	-
New Wave 6th Investment Union	1,083	-	-	-	-	-
KTC-NP-Growth Champ 2011-2 PEF	527	9	-	-	-	-
Neoplux No.3 Private Equity Fund	2,802	-	-	-	-	-
Neoplux No.1 Private Equity Fund	3,364	-	-	-	-	-
Daesan Green Energy Co. Ltd	105,987	-	-	-	-	-
Potenit Co., Ltd	59	-	-	-	158	-
Incheon Fucell Co.,Ltd.	175	-	-	-	-	-
	<u>296,413</u>	<u>12</u>	<u>-</u>	<u>-</u>	<u>158</u>	<u>-</u>
Joint ventures:						
Doosan Infracore Liaoning Machinery Sales Co., Ltd.	14,149	-	-	-	-	-
	<u>14,149</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
Other related parties:						
DFC	12,799	14	-	-	155	-
Solus Advanced Materials Co., Ltd. and its subsidiaries	5,612	750	-	14,659	-	-
Doosan Yonkang Foundation	1,506	44	-	3,515	1,086	350
Chung-Ang University	105	-	-	1,669	10,787	-
Doosan Credit Union	180	-	-	-	-	-
Dongdaemun Future Foundation	343	-	-	-	-	-
Others	-	165	-	-	-	-
	<u>20,545</u>	<u>973</u>	<u>-</u>	<u>19,843</u>	<u>12,028</u>	<u>350</u>
	<u>₩ 331,107</u>	<u>₩ 985</u>	<u>₩ -</u>	<u>₩ 19,843</u>	<u>₩ 12,186</u>	<u>₩ 350</u>

The transaction details above include carrying amount classified as the profit or loss from discontinued operations on consolidated statements of profit or loss.

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**35. Related party transactions (cont'd)**

Significant balances related to the transactions between the Group and related parties as of December 31, 2020 and 2019 are as follows (Korean won in millions):

Related parties	December 31, 2020					
	Trade receivables	Other receivables	Loans	Trade payables	Other payables	Lease liabilities
Associates:						
New Bundang Line Co., Ltd.	₩ 11,023	₩ -	₩ 32,574	₩ -	₩ -	₩ -
Gyeonggi Railway Co., Ltd.	-	-	40,757	-	-	-
Neo Trans Co., Ltd.	946	-	-	-	202	-
Incheon Fucell Co., Ltd.	963	-	-	-	-	-
Potenit Co., Ltd.	47	-	-	-	-	-
Mastern Professional Investment Type Private Security Investment Trust No.98	-	32,200	-	-	2,952	253,809
	12,979	32,200	73,331	-	3,154	253,809
Joint ventures:						
Tianjin Lovol Doosan Engine Co., Ltd.	-	-	-	67	-	-
Doosan Infracore Liaoning Machinery Sales Co., Ltd.	3,529	-	-	-	-	-
	3,529	-	-	67	-	-
Other related parties:						
Chung-Ang University	28	-	-	35	564	-
Doosan Credit Union	14	-	-	-	85	-
Doosan Yonkang Foundation	108	1,545	-	-	404	1,849
Dongdaemun Future Foundation and others	6	-	-	-	-	-
	156	1,545	-	35	1,053	1,849
	₩ 16,664	₩ 33,745	₩ 73,331	₩ 102	₩ 4,207	₩ 255,658

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**35. Related party transactions (cont'd)**

Related parties	December 31, 2019					
	Trade receivables	Other receivables	Loans	Trade payables	Other payables	Lease liabilities
Associates:						
New Bundang Line Co., Ltd.	₩ 11,023	₩ -	₩ 32,574	₩ -	₩ -	₩ -
Gyeonggi Railway	792	-	36,521	-	-	-
Neo Trans Co., Ltd.	937	-	-	-	152	-
New Seoul Railroad Co., Ltd.	-	9	-	-	-	-
KoFC-Neoplux R&D-Biz Creation 2013-1 Venture Capital Fund	410	2,501	-	-	-	-
Future-Creation Neoplux Venture Capital Fund	1,012	3,602	-	-	-	-
Neoplux Technology Valuation Investment Fund	961	-	-	-	-	-
Neoplux Market Frontier Secondary Fund	1,469	-	-	-	-	-
KTC-NP Growth Champ 2011-2 Private Equity Fund	98	4,509	-	-	-	-
Neoplux No.3 Private Equity Fund	2,061	-	-	-	-	-
Incheon Fucell Co.,Ltd.	17	-	-	-	-	-
	<u>18,780</u>	<u>10,621</u>	<u>69,095</u>	<u>-</u>	<u>152</u>	<u>-</u>
Joint ventures:						
Haman Industrial Complex Doosan Infracore Liaoning Machinery Sales Co., Ltd	1,347	-	-	-	-	-
	<u>1,433</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
	2,780	-	-	-	-	-
Other related parties:						
Chung-Ang University	158	3	-	30	550	-
Doosan Yonkang Foundation	136	1,515	-	-	381	2,945
DFC	3,952	-	-	13,398	700	-
Solus Advanced Materials Co., Ltd. and its subsidiaries	14,219	3,671	-	7,603	5,212	-
Dongdaemun Future Foundation and others	29	-	-	-	83	-
	<u>18,494</u>	<u>5,189</u>	<u>-</u>	<u>21,031</u>	<u>6,926</u>	<u>2,945</u>
	<u>₩ 40,054</u>	<u>₩ 15,810</u>	<u>₩ 69,095</u>	<u>₩ 21,031</u>	<u>₩ 7,078</u>	<u>₩ 2,945</u>

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**35. Related party transactions (cont'd)**

The transaction details above include carrying amount classified as profit or loss from discontinued operations on consolidated statements of profit or loss.

Fund and equity transactions for the years ended December 31, 2020 and 2019, between the Group and related parties are as follows (Korean won in millions):

Related parties	2020							
	Loan		Lease liabilities		Contribution		Dividend	
	Loans	Repayment	Increase	Decrease	Received	Provided	Income	Paid
Associates:								
Daejung Offshore Wind Power Plant Co., Ltd.	₩ -	₩ -	₩ -	₩ -	₩ -	₩ 369	₩ -	₩ -
Hychangwon Co., Ltd.	-	-	-	-	-	3,000	-	-
Gyeonggi Railway	4,236	-	-	-	-	-	-	-
KIAMCO Gyeonggi Railway Investment Private Equity Investment Trust	-	-	-	-	-	95	-	-
Incheon Fuel cell Co., Ltd.	20,500	20,500	-	-	-	-	-	-
Mastern Professional Investment Type Private Security Investment Trust No.98	-	-	258,309	8,315	-	70,000	-	-
Geaenzymes	-	-	-	-	-	(591)	-	-
Protera SAS	-	-	-	-	-	591	-	-
NewWave #5 Start-up Investment	-	-	-	-	-	(6)	79	-
2010 KIF-Neoplux IT Venture Fund	-	-	-	-	-	(17)	-	-
KoFC-Neoplux R&D-Biz Creation 2013-1 Venture Capital Fund	-	-	-	-	-	(1,435)	-	-
Future-Creation Neoplux Venture Capital Fund	-	-	-	-	-	(456)	-	-
Neoplux Technology Valuation Investment Fund	-	-	-	-	-	(1,064)	-	-
Neoplux Market Frontier Secondary Fund	-	-	-	-	-	584	-	-
Gyeonggi-Neoplux Superman Fund	-	-	-	-	-	918	-	-
Shinhan-Neoplux Energy Newbiz Fund	-	-	-	-	-	1,090	-	-
New Wave 6th Investment Union	-	-	-	-	-	2,000	-	-
KTC-NP Growth Champ 2011-2 Private Equity Fund	-	-	-	-	-	-	16	-
Neoplux No.3 Private Equity Fund	-	-	-	-	-	2,820	2	-
Stathera IP Holding Inc.	-	-	-	-	-	2,875	-	-
PT. SEGARA AKASA	-	-	-	-	-	71	-	-
KDDI Korea Corporation	-	-	-	-	-	-	20	-
Others	-	-	-	-	-	7,670	-	-
Joint ventures:								
Sichuan Kelun-Doosan Biotechnology Co., Ltd.	-	-	-	-	-	-	1,911	-
Tianjin Lovol Doosan Engine Co., Ltd.	-	-	-	-	-	2,523	-	-
Others	-	-	-	-	-	(2,223)	-	-
Other related parties:								
Solus Advanced Materials Co., Ltd.	-	-	-	-	-	(277,717)	-	-
Doosan Yonkang Foundation	-	-	2,246	1,862	-	-	-	2,049
Dongdaemun Future Foundation	-	-	-	-	-	-	-	111
	<u>₩ 24,736</u>	<u>₩ 20,500</u>	<u>₩ 260,555</u>	<u>₩ 10,177</u>	<u>₩ -</u>	<u>₩ (188,903)</u>	<u>₩ 2,028</u>	<u>₩ 2,160</u>

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**35. Related party transactions (cont'd)**

Related parties	2019							
	Loan		Lease liabilities		Contribution		Dividend	
	Loans	Repayment	Increase	Decrease	Received	Provided	Income	Paid
Associates:								
Gyeonggi Railway	₩ 6,159	₩ -	₩ -	₩ -	₩ -	₩ -	₩ -	₩ -
Dongbuk LRT	-	-	-	-	-	(1,665)	-	-
KoFC-Neoplux Pioneer Champ 2010-7 Venture Capital Fund	-	-	-	-	-	(1,571)	(62)	-
KoFC-Neoplux R&D-Biz Creation 2013-1 Venture Capital Fund	-	-	-	-	-	(1,547)	855	-
2010 KIF-Neoplux IT Venture Fund	-	-	-	-	-	(631)	-	-
Neoplux Technology Valuation Investment Fund	-	-	-	-	-	(748)	-	-
Neoplux Market Frontier Secondary Fund	-	-	-	-	-	1,711	659	-
NewWave #5 Start-up Investment	-	-	-	-	-	(402)	435	-
Gyeonggi-Neoplux Superman Fund	-	-	-	-	-	1,836	-	-
Shinhan-Neoplux Energy Newbiz Fund	-	-	-	-	-	1,500	-	-
New Wave 6th Investment Union	-	-	-	-	-	2,000	-	-
Neoplux No.3 Private Equity Fund	-	-	-	-	-	2,140	-	-
KTC-NP Growth Champ 2011-2 Private Equity Fund	-	-	-	-	-	(1,844)	7	-
KDDI Korea Corporation	-	-	-	-	-	-	149	-
ReCarbon, Inc.	-	-	-	-	-	8,473	-	-
Wise Fashion, Co., Ltd..	-	-	-	-	-	3,000	-	-
Joint ventures:								
Tianjin Lovol Doosan Engine Co. Ltd.	-	-	-	-	-	12,913	-	-
Sichuan Kelun-Doosan Biotechnology Co., Ltd.	-	-	-	-	-	-	603	-
Other related parties:								
Doosan Yonkang Foundation	-	-	4,524	1,738	-	-	-	8,952
Dongdaemun Future Foundation	-	-	-	-	-	-	-	489
	₩ 6,159	₩ -	₩ 4,524	₩ 1,738	₩ -	₩ 25,165	₩ 2,646	₩ 9,441

The transaction details above include carrying amount classified as profit or loss from discontinued operations on consolidated statements of profit or loss.

The Group provides guarantees of payment and others for related parties as of December 31, 2020 (see Notes 33 and 34).

Compensation to key management personnel of the Group for the years ended December 31, 2020 and 2019 is as follows (Korean won in millions):

	2020	2019
Employee benefits	₩ 70,745	₩ 81,634
Retirement benefits	4,767	6,013
	₩ 75,512	₩ 87,647

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**36. Cash flow statement**

The adjustments and changes in cash generated from operating activities in the consolidated statements of cash flows for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020	2019
Adjustments for:		
(Reversal of) bad debt expenses	₩ 44,866	₩ (6,628)
Loss from valuation of inventories	8,309	18,306
Depreciation	489,935	500,490
Amortization	195,274	190,479
Retirement benefits	136,315	122,848
Interest income	(51,571)	(61,289)
Dividend income	(1,319)	(1,296)
Gain on foreign currency translation	(156,764)	(95,774)
Gain on valuation of derivatives	(121,274)	(85,279)
Gain on valuation of firm commitment	(10,454)	(67,883)
Financial guarantee income	(1,410)	(193)
Interest expense	553,590	613,219
Loss on foreign currency translation	183,783	133,014
Loss on valuation of derivatives	28,386	114,984
Loss on valuation of firm commitment	70,281	23,778
Loss on repayment of bonds	54,924	7,482
Financial guarantee expenses	6,579	10,522
Increase in provision	427,925	248,162
Gain on disposal of short-term investment securities	(540)	(558)
Gain on disposal of long-term investment securities	(1,467)	(3,115)
Gain on valuation of long-term and short-term financial assets	(7,422)	(8,242)
Gain on disposal of property, plant and equipment	(8,337)	(3,089)
Gain on disposal of intangible assets	(929)	(90)
Gain on disposal of investment properties	(41,829)	-
Loss on disposal of trade receivables	19,585	24,279
Gain on valuation of investment properties	(6,791)	(9,318)
Reversal of impairment loss on property, plant and equipment	(26)	(2,237)
Reversal of impairment loss on intangible assets	(8,958)	(2,054)
Loss on transfer of business	-	234
Loss on disposal of long-term investment securities	3,043	194
Loss on disposal of property, plant and equipment	6,993	34,461
Loss on disposal of intangible assets	273	203
Loss on disposal of investment properties	14,190	1,188
Loss on valuation of investment properties	10,370	4,235
Loss on land revaluation	272	451
Impairment loss on property, plant and equipment	36,383	48,752
Impairment loss on intangible assets	168,038	30,022
Impairment loss on associate investment securities	95	4,156
Loss on disposal of investments in subsidiaries	10,792	-
Other bad debt expenses	178,799	158,372
Share of loss of associates and joint ventures accounted for using the equity method	15,026	8,589
Income tax expenses	122,331	245,541
Loss (Gain) on discontinued operation	287	(595,251)
Other expenses	62,453	21,971
	<u>₩ 2,430,006</u>	<u>₩ 1,623,636</u>

**36. Cash flow statement (cont'd)**

	2020		2019
Changes in operating assets and liabilities:			
Trade receivables	₩ 13,209	₩	(15,227)
Other receivables	34,563		12,036
Due from customers for contract work	84,456		28,129
Derivative assets (liabilities)	(45,405)		35,238
Inventories	365,541		(296,227)
Other current assets	119		(1,116)
Long-term other receivables	(23,689)		(371)
Other non-current assets	(199,242)		86,319
Trade payables	(639,600)		(515,038)
Other payables	(191,236)		246,388
Due to customers for contract work	191,674		193,229
Provisions	(171,050)		(99,129)
Other current liabilities	(2,020)		(28,769)
Long-term other payables	24,241		4,340
Other non-current liabilities	(20,193)		(3,175)
Retirement benefits paid	(64,796)		(35,251)
Increase in plan assets	(74,360)		(156,148)
Changes in other assets and liabilities related to operating activities	(1,120)		4,012
	₩ (718,908)	₩	(540,760)

Significant non-cash transactions for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020		2019
Reclassification of construction in progress to property, plant and equipment and others	₩ 130,988	₩	209,446
Reclassification of assets and liabilities held for sale (see Note 39)	807,053		35,321
Decrease of assets and liabilities due to division (see Note 37)	-		99,598

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**36. Cash flow statement (cont'd)**

Details of changes in liabilities arising from financing activities for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

		2020						
	January 1	Cash flows from financing activities	Changes in scope of consolidation	Reclassification of assets as held for sale (see Note 39)	Fluctuation of foreign exchange rate	Reclassification of current portion	Others	December 31
Short-term borrowings	₩ 4,614,068	₩ 1,973,842	₩ (9,000)	₩ (27,010)	₩ (110,259)	₩ -	₩ (145,803)	₩ 6,295,838
Asset-backed loans	381,574	(283,500)	-	-	-	-	(38,523)	59,551
Current portion of long-term asset-backed loans	227,845	(236,800)	-	-	-	339,981	996	332,022
Current portion of long-term borrowings	1,109,271	(968,697)	-	-	(355)	1,123,606	(174)	1,263,651
Current portion of bonds	2,423,498	(2,500,174)	98,886	-	(1,801)	743,971	70,655	835,035
Current portion of lease liabilities	86,441	(72,278)	(240)	(247)	1,014	82,099	2,049	98,838
Long-term borrowings	2,258,814	138,020	-	-	(58,657)	(1,123,606)	(19,113)	1,195,458
Bonds	1,133,833	1,791,295	-	-	(52,650)	(743,971)	5,286	2,133,793
Long-term asset-backed loans	292,290	261,003	-	-	-	(339,981)	2,005	215,317
Lease liabilities	215,914	(34,978)	583	(113)	(6,226)	(82,099)	351,065	444,146
	<u>₩ 12,743,548</u>	<u>₩ 67,733</u>	<u>₩ 90,229</u>	<u>₩ (27,370)</u>	<u>₩ (228,934)</u>	<u>₩ -</u>	<u>₩ 228,443</u>	<u>₩ 12,873,649</u>
		2019						
	January 1	Cash flows from financing activities	Change due to spin-off (see Note 37)	Fluctuation of foreign exchange rate	Reclassification of current portion	Others (*1)	December 31	
Short-term borrowings	₩ 3,187,563	₩ 1,434,540	₩ (26,076)	₩ 18,041	₩ -	₩ -	₩ 4,614,068	
Asset-backed loans	491,372	(109,900)	-	-	-	102	381,574	
Current portion of long-term asset-backed loans	168,033	(259,444)	-	-	313,131	6,125	227,845	
Current portion of long-term borrowings	868,681	(919,527)	(30,000)	30,804	1,161,917	(2,603)	1,109,272	
Current portion of bonds	1,409,157	(1,440,777)	-	25,405	2,423,498	6,215	2,423,498	
Current portion of lease liabilities	-	(107,696)	-	1,810	121,378	70,949	86,441	
Long-term borrowings	3,667,600	(235,692)	(115,598)	93,936	(1,161,917)	10,484	2,258,813	
Bonds	2,502,808	1,096,020	(98,732)	6,853	(2,423,498)	50,382	1,133,833	
Long-term asset-backed loans	248,788	353,254	-	-	(313,131)	3,379	292,290	
Lease liabilities (*1)	-	-	(3,071)	3,491	(121,378)	336,872	215,914	
Finance lease liabilities (*1)	12,447	-	-	-	-	(12,447)	-	
	<u>₩ 12,556,449</u>	<u>₩ (189,222)</u>	<u>₩ (273,477)</u>	<u>₩ 180,340</u>	<u>₩ -</u>	<u>₩ 469,458</u>	<u>₩ 12,743,548</u>	

(\*1) The effects of accounting policy changes and reclassification of accounts upon the initial introduction of KIFRS 1116 Leases are included.

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**37. Division**

The Group decided to sell the Mottrol segment in accordance with the Board's resolution of September 4, 2020 and the key decision is as follows:

	<u>Contents</u>
Subject held for sale	All of the shares issued by the newly incorporated company held by the Company through the split-off of Mottrol segment
Buyer	Sosius-Well to Sea Investment Co., Ltd. ("Sosius-Well to Sea consortium")

As of September 4, 2020, the Group contracted with Sosius-Well to Sea consortium for the sale of the shares. In accordance with the resolution of the shareholders' meeting dated October 20, 2020, the Group completed the division of the company on December 1, 2020, by dividing the Mottrol segment into Mottrol Co., Ltd.

The details of the split-off are as follows:

	<u>Divided company</u>	<u>Newly incorporated company</u>
Company name	Doosan Corporation	Mottrol Co., Ltd.
Main business	Other businesses except for the divided segment	Manufacturing and sale of hydraulic components, etc. and defense industry

The assets and liabilities of the Mottrol segment transferred to the newly incorporated entity were classified as assets and liabilities held for sale in the consolidated financial statements as of December 31, 2020 (see Note 39).

According to the split-off, the divided company acquired all of the shares issued by the newly incorporated company. In addition, the sale of the shares was completed as of January 4, 2021 (Sales price: ₩450,230 million).

Under Article 530-9 paragraph 2 of the *Commercial Act*, neither the divided company nor the newly incorporated company is jointly and severally liable to pay the debt arisen before the split-off. The newly incorporated company will only bear the liabilities that it is to assume under a division plan, among the liabilities of the divided company. The divided company survives the division shall only be responsible for the liabilities not born by the newly incorporated company.

The performance of the Mottrol segment carried forward to the newly incorporated company is indicated as a discontinued operation, and the comparative statements of profit or loss for the previous year has been restated (see Note 38).

In accordance with the resolution of the shareholders' meeting dated August 13, 2019, the Company completed the division of the company by dividing the fuel cell segment into DFC and the electro-material segment to establish Doosan Solus Co., Ltd.

The details of the split ratio are as follows:

	<u>Divided company</u>	<u>Newly incorporated company</u>	
Company name	Doosan Corporation	Doosan Solus Co., Ltd.	Doosan Fuel Cell Co., Ltd.
Split ratio	0.9060062	0.0333998	0.0605940

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**37. Division (cont'd)**

The details of the assets and liabilities of the fuel cell and material segments carried over to newly incorporated company are as follows (Korean won in millions):

Assets	Book amount	Liabilities	Book amount
Cash and cash equivalents	₩ 166,603	Trade payables and other debts	₩ 63,114
Long-term and short-term investment securities	87,329	Short-term borrowings	26,076
Inventory	212,305	Current portion of long-term borrowings	30,000
Investment in associates and joint ventures	2,570	Bonds	98,732
Property, plant and equipment	180,900	Long-term borrowings	115,598
Intangible assets	35,859	Lease liabilities	3,071
Investment property	5,136	Net defined benefit liability	6,327
Deferred income tax assets	10,532	Other liabilities	141,416
Other assets	49,301		
	₩ 750,535		₩ 484,334

On the other hand, in accordance with KIFRS 2117 *Distribution of Non-Cash Assets to Owners*, if all owners with the same class of equity instruments are treated equally in distributing non-cash assets as dividends to its owners acting in their owners, and are not ultimately controlled by the same party or parties before and after the distribution, the Company shall declare the distribution and shall recognize a dividend payables (when approved by the shareholders' meeting).

The Group measured the dividend payable at the date of settlement at ₩865,554 million, the fair value of the above assets and liabilities, and recognized the difference from the carrying amount, as profit from the disposal of discontinuing operations in the current income statement (see Note 38).

The discount and permanent growth rates used to measure the fair value of the assets and liabilities above are as follows:

	Doosan Solus Co., Ltd.	Doosan Fuel Cell Co., Ltd.
Discount rate	9.51%~13.40%	10.97%
Permanent growth rate	0.00%	0.00%

In accordance with the spin-off, treasury stock held by the Company prior to the spin-off were removed from the other capital items in the Company's financial statement to the extent that it corresponds to interests in newly incorporated company and long-term investment securities were recognized. The long-term investment securities were classified as a financial asset at fair value through and measured at the fair value of ₩145,260 million at the date of spin-off (see Note 6). In addition, ₩126,126 million, which is the difference from the carrying amount of ₩19,134 million, was recognized as other capital surplus in the financial statement.

Under Article 530-9 paragraph 1 of *the Commercial Act*, divided company or newly incorporated company shall be jointly and severally responsible for the repayment of liabilities owed by the divided company before the division.

The performance of the fuel cell and material segment carried forward to the newly incorporated company is indicated as a discontinued operation. And the comparative consolidated income statement for the year ended December 31, 2019 was restated (see Note 38).

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**38. Discontinued operations**

Details of discontinued operations for the years ended December 31, 2020 and 2019 are as follows:

		2020			
Discontinued operations	Duty-free segment	Neoplux segment		Mottrol segment	
Main business	Sales of duty-free goods	Start-up investment and others		Manufacturing and sales of hydraulic components, etc. and defense industry	
Method	Transfer of business (*1)	Transfer of business (*2)		Transfer of business (see Note 37)	
		2019			
Discontinued operations	Fuel cell and Materials segment	Duty-free segment	Neoplux segment	Mottrol segment	HRSG segment
Main business	Manufacturing and sales of fuel cell and OLED and others	Sales of duty-free goods	Start-up investment and others	Manufacturing and sales of hydraulic components, etc. and defense industry	Production and installation of power equipment
Method	Spin-off (see Note 37)	Transfer of business (*1)	Transfer of business (*2)	Transfer of business (see Note 37)	Transfer of business (*3)

(\*1) The Company has decided to suspend the duty-free segment in accordance with a resolution at the Board of Directors' meeting on October 29, 2019. On December 30, 2019, the Company entered into a contract with Hyundai Department Store Duty Free Co., Ltd. to sell part of its inventories and property, plant and equipment and intangible assets in its duty-free segment, and the sale was completed on February 13, 2020 with a total sale price of ₩33.7 billion. As of December 31, 2019, the assets of the duty-free segment to be transferred in accordance with the business transfer contract were reclassified as assets held for sale in the consolidated financial statements.

(\*2) In accordance with a resolution at the Board of Directors' meeting on August 20, 2020, the Company decided to sell the entire 24,413,230 shares of Neoplux Co., Ltd., and the sale was completed on September 29, 2020 with a total sale price of ₩71.1 billion.

(\*3) During the previous year, the Group completed the sale of its HRSG segment owned by the Group's subsidiaries, DEC and Doosan Heavy Industries Vietnam Co., Ltd.

Details of profit or loss from discontinued operations for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

		2020			
	Duty-free segment	Neoplux segment	Mottrol segment	Total	
Sales	₩ 4,660	₩ 9,024	₩ 585,326	₩	599,010
Cost of sales	1,832	1,681	471,453		474,966
Selling and administrative expenses	9,783	6,562	56,801		73,146
Operating profit(loss)	(6,955)	781	57,072		50,898
Non-operating profit(loss)	404	(4)	(1,498)		(1,098)
Profit(loss) before income tax expenses	(6,551)	777	55,574		49,800
Income tax expenses(benefits)	(1,585)	3,863	46,772		49,050
	(4,966)	(3,086)	8,802		750
Profit(loss) from disposal of discontinued operations and impairment loss before income tax expenses	(287)	8,228	-		7,941
Tax expenses(benefits) related to disposal of discontinued operations and Impairment loss	(70)	1,991	-		1,921
Profit(loss) from disposal of discontinued operations and Impairment loss	(217)	6,237	-		6,020
Profit(loss) from discontinued operations	₩ (5,183)	₩ 3,151	₩ 8,802	₩	6,770
Profit/loss attributable to:					
Equity holders of the parent	₩ (5,183)	₩ 3,240	₩ 8,802	₩	6,859
Non-controlling interests	-	(89)	-		(89)

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**38. Discontinued operations (cont'd)**

	2019					
	Fuel cell and Materials segment	Duty-free segment	Neoplux segment	Mottrol segment	HRSG segment	Total
Sales	₩ 305,994	₩ 451,359	₩ 15,204	₩ 478,967	₩ 258	₩ 1,251,782
Cost of sales	240,617	282,561	12,318	397,142	120	932,758
Selling and administrative expenses	42,700	218,534	9,275	42,125	16,609	329,243
Operating profit(loss)	22,677	(49,736)	(6,389)	39,700	(16,471)	(10,219)
Non-operating profit(loss)	(12,745)	(10,436)	(23)	306	(3,689)	(26,587)
Profit(loss) before income tax expenses	9,932	(60,172)	(6,412)	40,006	(20,160)	(36,806)
Income tax expenses(benefits)	6,973	(14,561)	(1,077)	9,050	-	385
	2,959	(45,611)	(5,335)	30,956	(20,160)	(37,191)
Profit(loss) from disposal of discontinued operations and impairment loss before income tax expenses	596,251	(20,201)	-	-	-	576,050
Tax expenses(benefits) related to disposal of discontinued operations and Impairment loss	13,311	(4,889)	-	-	-	8,422
Profit(loss) from disposal of discontinued operations and Impairment loss	582,940	(15,312)	-	-	-	567,628
Profit(loss) from discontinued operations	₩ 585,899	₩ (60,923)	₩ (5,335)	₩ 30,956	₩ (20,160)	₩ 530,437
Profit/loss attributable to:						
Equity holders of the parent	₩ 585,899	₩ (60,923)	₩ (5,180)	₩ 30,956	₩ (6,167)	₩ 544,585
Non-controlling interests	-	-	(155)	-	(13,993)	(14,148)

Cash flows from discontinued operations for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020			
	Duty-free segment	Neoplux segment	Mottrol segment	Total
Net cash flows from operating activities	₩ (5,286)	₩ 1,120	₩ (21,462)	₩ (25,628)
Net cash flows from investing activities	33,664	66,630	1,523	101,817
Net cash flows from financing activities	-	3,158	(24,221)	(21,063)
Effect of exchange rate changes	-	-	897	897
	₩ 28,378	₩ 70,908	₩ (43,263)	₩ 56,023

	2019					
	Fuel cell and Materials segment	Duty-free segment	Neoplux segment	Mottrol segment	HRSG	Total
Net cash flows from operating activities	₩ 64,689	₩ (38,587)	₩ 4,593	₩ 39,057	₩ (32,343)	₩ 37,409
Net cash flows from investing activities (*1)	(71,675)	(4,763)	(2,549)	(14,008)	(2)	(92,997)
Net cash flows from financing activities	67,019	-	(1,981)	(4,147)	32,345	93,236
Effect of exchange rate changes	3,738	-	-	(71)	-	3,667
	₩ 63,771	₩ (43,350)	₩ 63	₩ 20,831	₩ -	₩ 41,315

(\*1) Net cash flows of investing activities include cash flows include cash flow of the disposal of discontinued operations.

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**39. Assets held for sale**

	December 31, 2020			
	Mottrol segment (*2)	DBC (*3)	Others (*4)	Total
Assets held for sale (*1):				
Cash and cash equivalents	₩ 26,929	₩ -	₩ -	₩ 26,929
Trade receivables and other receivables	135,395	-	-	135,395
Inventory	93,351	-	-	93,351
Property, plant and equipment	117,316	516,838	11,495	645,649
Intangible assets	97,080	-	-	97,080
Investment property	150	-	-	150
Other assets	20,030	-	-	20,030
	<u>490,251</u>	<u>516,838</u>	<u>11,495</u>	<u>1,018,584</u>
Liabilities held for sale:				
Trade and other payables	77,931	23,979	-	101,910
Borrowings	27,010	-	-	27,010
Lease liabilities	360	-	-	360
Net defined benefit liabilities	790	-	-	790
Other liabilities	81,461	-	-	81,461
	<u>₩ 187,552</u>	<u>₩ 23,979</u>	<u>₩ -</u>	<u>₩ 211,531</u>

(\*1) No impairment loss was recognized due to the reclassification of asset held for sale for the year ended December 31, 2020.

(\*2) As described in Note 38 to the consolidated financial statements, the Group determined the sale of the Mottrol segment in accordance a resolution at the Board of Directors' meeting on September 4, 2020 and the annual shareholders' meeting on October 20, 2020. Mottrol Co., Ltd. and Doosan Mottrol (Jiangyin) Co., Ltd.'s assets and liabilities were classified as assets and liabilities held for sale. In addition, the deal was closed as of January 4, 2021.

(\*3) DBC Co., Ltd., a subsidiary, established a real estate investment company in accordance with a resolution of the Board of Directors' meeting on October 29, 2020 and signed a contract to sell Bundang Doosan Tower to Bundang Doosan Tower Real Estate Investment Company (tentative name) in accordance with a resolution of the Board of Directors' meeting on January 8, 2021. As of December 31, 2020, the related assets acquired, and liabilities assumed from sale of Bundang Doosan Tower were reclassified as assets and liabilities held for sale in the consolidated financial statements. In addition, the transaction was completed on January 15, 2021.

(\*4) As the sales contract was concluded during the current year, buildings and others owned by Doosan Bobcat China Co., Ltd., a subsidiary, were reclassified as assets held for sale in consolidated financial statements.

As described in Note 38 on the financial statements, as of the end of the current year, the Group classifies some assets of the tax-free segments that are to be sold as held for sale in the consolidated financial statements. The details of assets held for sale as of the end of the current year are as follows (Korean won in millions):

	December 31, 2019		
	Book value before impairment	Impairment loss (*1)	Fair value less costs to sell
Advanced payments	₩ 7,265	₩ (4,400)	₩ 2,865
Inventory	26,793	(5,932)	20,861
Property, plant and equipment	11,671	(2,750)	8,921
Intangible Assets	9,793	(7,119)	2,674
	<u>₩ 55,522</u>	<u>₩ (20,201)</u>	<u>₩ 35,321</u>

(\*1) It is classified as profit or loss from discontinued operations in the consolidated statements of profit or loss.

#### 40. Business Combination of DFC

As of December 31, 2020 and 2019, the Company has 10,016,672 ordinary shares and 2,039,091 preferred shares of DFC.

In addition, as of November 26, 2020, 12,763,557 shares of DFC, which were held by 13 related parties, including Jeongwon Park, were donated to DHC to improve the financial structure of its subsidiary. And the Group obtained control of DFC.

The Group has elected to measure the non-controlling interests at the proportionate share of the current equity instrument of the amounts recognized for DFC's identifiable net assets as of the acquisition date. As of the acquisition date, the fair values of DFC's identifiable assets and liabilities are as follows (Korean won in millions):

Assets	Book amount	Liabilities	Book amount
Cash and cash equivalents	₩ 64,601	Trade and other payables	₩ 82,834
Long-term and short-term investment securities	9,376	Bonds	98,886
Trade receivables and other receivables	134,938	Lease liabilities	1,180
Inventory	163,480	Other liabilities	131,699
Investments in associates and joint ventures	2,810		
Property, plant and equipment	41,015		
Intangible assets	3,657		
Other assets	49,948		
Assets total	<u>₩ 469,825</u>	Liabilities total	<u>₩ 314,599</u>
① Fair value of net assets (total assets – total liabilities)			155,226
② Non-controlling interests			101,605
③ The acquisition date fair value of the interest in the acquiree of the Group (*1)			1,101,604
Goodwill due to acquisition (②+ ③-①)			<u>₩ 1,047,983</u>

(\*1) The acquisition date fair value of the interest previously held by the Group in the acquiree is ₩501,079 million (see Note 6-(3)).

As of December 31, 2020, DFC's net assets recognized in its consolidated financial statements were determined to be provisional as the fair value assessment was not completed until management approved consolidated financial statements for the current year.

DFC's sales and profit for the year after the acquisition date recorded in the consolidated statements of profit or loss were ₩109,677 million and ₩1,498 million, respectively.

#### 41. Uncertainty of the impact of COVID-19

In order to prevent the spread of COVID-19, a various prevention and control measures, including restrictions on travelling are being implemented worldwide, and as a result, the global economy has been extensively affected. In addition, governments are implementing various support measures to cope with COVID-19.

The Group primarily engages several businesses, such as heavy industry, machinery manufacturing, apartment construction and others. The line items affected by COVID -19 pandemic are mainly the collectability of trade receivables (Notes 4 and 7), impairment of inventories, property, plant and equipment and intangible assets (Notes 8, 12 and 13), and recognition of provisions (Note 18). The Group has prepared the consolidated financial statements by reasonably estimating the impact of COVID -19 on the Group. However, there are significant uncertainties in estimating the timing for endpoint of COVID -19 and the impact of Covid-19 on the Group.

#### **42. Financial structure improvement plan**

DHC and its subsidiaries have faced financial problems arising from accumulated losses incurred since 2014, which is largely due to steadily deteriorating management performance over several years due to economic slowdown in the global developing market and changes in external environment. In order to overcome such management crisis, DHC, the Group's subsidiary, has established a business rationalization plan to improve its profitability, including manpower restructuring and others, and step-by-step process financial structure improvement plan to reduce borrowings through capital expansion and others.

DHC received financial support (approximately ₩3,000,000 million) from KDB and Korea Exim Bank (the "National Policy Banks") in the first half of 2020, in order to raise short-term liquidity. Accordingly, DHC, the Group's subsidiary, and related parties, including Jeongwon Park, provided their major assets as collateral to the National Policy Banks, and entered into agreements with the National Policy Banks to implement DHC's financial structure improvement plan in June 2020. The agreement includes a plan to repay debts to the National Policy Banks by raising more than ₩3,000,000 million in funds through its self-supporting efforts, including the sale of non-core assets. DHC repaid some of the National Policy Banks's debts by raising about ₩1,200,000 million through capital increase in December, 2020, and received 12,763,557 shares of DFC from Jeongwon Park and other related parties in November 2020. DHC's management believes that it will be able to secure sufficient liquidity according to the financial structure improvement in accordance with the agreement with the National Policy Banks.

In addition, the Group's consolidated financial statements have been accounted for under the assumption that assets and liabilities can be recovered or repaid through the normal course of business activities. However, considering the financing plan necessary for debt repayments and other demands of DHC and its subsidiaries take the success or failure outcome of the financial and management improvement plan to achieve stable ordinary profits, there is a possibility that the financial position and management performance of DHC and its subsidiaries among the Group's divisions will fluctuate significantly. If such plans are disrupted, the assets and liabilities of DHC and its subsidiaries of the Group's divisions may not be recovered or repaid at book value through the normal operating activities. The financial statements of the Group do not currently reflect the potential adjustments to the amounts and classification of assets and liabilities and related profits and losses that may arise from these uncertainties.

#### **43. Events after the reporting year**

In accordance with the Board of Directors' resolution of February 5, 2021, the DHC, a subsidiary, decided to sell its subsidiaries, DI, of ordinary shares. Details are as follows:

	Details
Company	DI
Disposal object	Business efficiency and governance improvement
Disposal amount	₩850,000 million
Disposal target	All of the ordinary shares and stock warrants to be held by DHC after separating certain assets, liabilities, human resources and contractual relationships that are not directly related to the business operated by DI.