



DOOSAN CORPORATION

Financial Statements

For the Years Ended December 31, 2020 and 2019

With the independent auditor's report

Doosan Corp.

Contents

Independent auditor's report	Page
Separate financial statements	
Separate statements of financial position	1-2
Separate statements of income	3
Separate statements of comprehensive income	4
Separate statements of changes in equity	5
Separate statements of cash flows	6
Notes to the separate financial statements	7-87

Independent auditor's report

The Shareholders and Board of Directors Doosan Corporation

Opinion

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

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

We also have audited, in accordance with Korean Auditing Standards ("KGAAS"), the Group's internal control over financial reporting ("ICFR") as of December 31, 2020, based on criteria established in Conceptual Framework for designing and operating ICFR in accordance with KGAAS established by the Operating Committee of ICFR (the "ICFR Committee"), and our report dated March 22, 2021, expressed "an unqualified opinion thereon".

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 separate financial statements section of our report. We are independent of the Company in accordance with the ethical requirements that are relevant to our audit of the separate financial statements in the Republic of Korea, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Key audit matters

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

(1) Impairment test of investments in subsidiaries

As described in Note 11 to the separate financial statements, the Company conducted an impairment test on investments in Doosan Heavy Industries & Construction Co., Ltd. as of December 31, 2020. And no impairment loss was recognized as a result of the impairment test. The Company estimated recoverable amount of investments in subsidiaries based on fair value less costs of disposal.

As of December 31, 2020, the carrying amount of investments in Doosan Heavy Industries & Construction Co., Ltd. is ₩2,050,512 million, accounting for 37.9% of its total assets. In addition, recoverable amount may vary depending on the inputs that involve management's judgement, which could have a significant effect on the separate financial statements. Therefore, we identified the estimate of recoverable amount of investments in Doosan Heavy Industries & Construction Co., Ltd. as a key audit matter.

The main audit procedures we have conducted in this regard are as follows:

- Testing of internal controls related to impairment testing of investment in subsidiary
- Inquiries and review of the valuation model used by management
- Review of the independence and eligibility of external expert management used in the internal valuation
- Compare with external information by utilizing auditors' valuation experts in order to evaluate the adequacy of key assumptions that management used in calculating recoverable amount
- Review of the company that shares similar characteristics in operating activities by utilizing the auditor's valuation experts in order to evaluate the appropriateness of the selected company that shares similar characteristics
- Independent recalculation to verify the accuracy of the recoverable amount

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

Management is responsible for the preparation and fair presentation of the separate 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 separate financial statements that are free from material misstatement, whether due to fraud or error.

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

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

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

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

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

- Identify and assess the risks of material misstatement of the separate financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.

- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the separate financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Company to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the separate financial statements, including the disclosures, and whether the separate financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

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

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

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

The engagement partner on the audit resulting in this independent auditor's report is 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 separate financial statements and may result in modifications to this report.

Doosan Corporation

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

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

Hyun Soo Dong
Chief Executive Officer
Doosan Corporation

Doosan Corporation
Separate statements of financial position
as of December 31, 2020 and 2019
(Korean won)

	Notes	2020	2019
Assets			
Current assets:			
Cash and cash equivalents	4,10,34	₩ 69,610,060,495	₩ 126,344,598,354
Short-term financial instruments	4,5,10,32	111,236,952,164	19,387,223,614
Short-term investment securities	4,6,10	1,496,808,705	3,996,808,705
Trade receivables	4,7,10,33	325,198,703,029	371,133,279,947
Other receivables	4,7,10,33	93,992,454,124	73,034,128,068
Current derivative assets	4,9,10	216,852,287	2,403,713,925
Inventories	8	161,040,007,060	237,129,084,820
Assets held for sale	37	450,230,000,000	35,320,502,217
Other current assets		46,182,775,500	52,445,587,876
Total current assets		<u>1,259,204,613,364</u>	<u>921,194,927,526</u>
Non-current assets:			
Long-term financial instruments	4,5,10	34,123,191,517	2,129,000,000
Long-term investment securities	4,6,10,33	69,931,682,814	226,917,142,437
Investments in subsidiaries, joint ventures and associates	11	3,184,820,535,340	2,145,013,814,736
Property, plant and equipment	12,32	344,759,498,857	711,631,489,993
Intangible assets	13	85,570,219,710	164,272,237,814
Investment properties	14,32	358,755,211,554	562,864,466,064
Long-term other receivables	4,7,10,33	32,071,167,073	4,172,671,697
Deposits	4,10,33	35,442,233,077	13,201,314,202
Non-current derivative assets	4,9,10	8,607,221,215	-
Other non-current assets		543,103,696	978,780,533
Total non-current assets		<u>4,154,624,064,853</u>	<u>3,831,180,917,476</u>
Total assets		<u>₩ 5,413,828,678,217</u>	<u>₩ 4,752,375,845,002</u>

(Continued)

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

	Notes	2020	2019
Liabilities			
Current liabilities:			
Trade payables	4,10,33	₩ 198,561,769,033	₩ 412,622,160,616
Other payables	4,10,33	112,232,939,242	138,793,089,009
Short-term borrowings	4,10,15	709,761,495,000	508,000,000,000
Current portion of bonds	4,10,15	137,828,278,033	169,890,742,389
Current portion of long-term borrowings	4,10,15	102,508,113,664	143,314,700,000
Current portion of long-term asset-backed loans	4,10,15	95,262,501,050	150,000,000,000
Current lease liabilities	4,10,16	30,319,838,833	8,924,983,885
Derivative liabilities	4,9,10	-	393,090,214
Current provisions	18	9,646,143,382	9,430,362,356
Current tax liabilities	29	177,594,164,931	16,233,030,881
Other current liabilities		75,158,739,003	147,978,343,662
Total current liabilities		1,648,873,982,171	1,705,580,503,012
Non-current liabilities:			
Long-term other liabilities	4,10	30,237,316,738	114,608,075,845
Bonds	4,10,15	333,632,438,684	286,998,168,027
Long-term borrowings	4,10,15	-	311,368,243,106
Long-term asset-backed loans	4,10,15	166,214,746,759	-
Non-current lease liabilities	4,10,16	245,578,467,835	8,584,405,797
Net defined benefit liabilities	17	15,882,772,080	27,065,778,347
Non-current provisions	18	-	1,030,032,127
Deferred tax liabilities	29	301,951,866,622	137,429,365,047
Other non-current liabilities		18,150,750,337	15,058,610,146
Total non-current liabilities		1,111,648,359,055	902,142,678,442
Total liabilities		2,760,522,341,226	2,607,723,181,454
Equity			
Share capital	1,19	123,738,105,000	123,738,105,000
Capital surplus	19,20	792,396,115,124	797,120,154,295
Other equity items	21	(1,147,970,247,704)	(1,146,808,916,304)
Accumulated other comprehensive income	22	37,297,569,826	201,356,362,907
Retained earnings	23	2,847,844,794,745	2,169,246,957,650
Total equity		2,653,306,336,991	2,144,652,663,548
Total liabilities and equity		₩ 5,413,828,678,217	₩ 4,752,375,845,002

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

Doosan Corporation
 Separate statements of income
 for the years ended December 31, 2020 and 2019
 (Korean won)

	Notes	2020	2019
Sales			
Merchandise and finished goods	24,33	₩ 1,325,186,604,982	₩ 1,355,430,492,782
Others	24,33	215,216,808,358	212,773,035,265
Dividend	24,33	8,932,522,848	19,832,598,737
		1,549,335,936,188	1,588,036,126,784
Cost of sales			
Merchandise and finished goods	25,33	1,048,548,479,411	1,073,247,281,554
Others	25,33	161,938,155,222	149,689,336,702
Selling and administrative expenses	25,26,33	229,982,809,426	225,134,006,704
		1,440,469,444,059	1,448,070,624,960
Operating profit		108,866,492,129	139,965,501,824
Finance income	4,10,27	62,119,741,201	32,919,098,801
Finance expenses	4,10,27	127,716,413,922	88,643,752,690
Other non-operating income	28	120,855,492,890	15,508,637,477
Other non-operating expenses	28	48,920,622,710	26,698,938,423
Profit before income tax expenses		115,204,689,588	73,050,546,989
Income tax expenses	29	88,220,795,315	11,644,908,465
Profit from continuing operations		26,983,894,273	61,405,638,524
Profit from discontinued operations	36	153,236,020,573	572,397,943,265
Profit for the year		₩ 180,219,914,846	₩ 633,803,581,789
Earnings per share attributable to the equity holders of the Company	30		
Basic earnings per ordinary share from continuing operations		₩ 1,086	₩ 1,713
Basic earnings per ordinary share		₩ 10,117	₩ 33,023
Diluted earnings per ordinary share from continuing operations		₩ 1,086	₩ 1,713
Diluted earnings per ordinary share		₩ 10,117	₩ 33,023
Basic earnings per old-type preferred share from continuing operations		₩ 1,091	₩ 1,715
Basic earnings per old-type preferred share		₩ 10,157	₩ 33,067
Diluted earnings per old-type preferred share from continuing operations		₩ 1,091	₩ 1,715
Diluted earnings per old-type preferred share		₩ 10,157	₩ 33,067

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

Doosan Corporation
 Separate statements of comprehensive income
 for the years ended December 31, 2020 and 2019
 (Korean won)

	Notes	2020	2019
Profit for the year		₩ 180,219,914,846	₩ 633,803,581,789
Other comprehensive income	22		
Items not to be subsequently reclassified to profit or loss			
Remeasurements of net defined benefit liabilities	17	736,611,615	(7,499,246,560)
Land revaluation surplus	12	-	9,236,031,283
Gain (Loss) on valuation of financial assets (designated) at fair value through OCI	6	392,278,800,042	56,492,337,262
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 hedges	9	(1,359,678,739)	919,391,132
Total other comprehensive income		<u>357,631,214,668</u>	<u>59,148,513,117</u>
Total comprehensive income for the year		<u>₩ 537,851,129,514</u>	<u>₩ 692,952,094,906</u>

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

Doosan Corporation

**Separate 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	Total
As of January 1, 2019	₩ 134,845,735,000	₩ 734,169,198,021	₩ (343,557,210,106)	₩ 137,012,789,266	₩ 1,643,037,267,085	₩ 2,305,507,779,266
Total comprehensive income:	-	-	-	-	-	-
Profit for the year	-	-	-	-	633,803,581,789	633,803,581,789
Remeasurements of net defined benefit liabilities	-	-	-	-	(7,499,246,560)	(7,499,246,560)
Land revaluation surplus	-	-	-	7,736,638,619	1,499,392,664	9,236,031,283
Gain on valuation of financial assets (designated)	-	-	-	-	-	-
Gain on valuation of financial assets (designated) at fair value through OCI	-	-	-	56,492,337,262	-	56,492,337,262
Gain on valuation of derivatives designated as cash flow hedges	-	-	-	919,391,132	-	919,391,132
Subtotal	-	-	-	65,148,367,013	627,803,727,893	692,952,094,906
Transactions with shareholders directly reflected in shareholders' equity and others:						
Cancellation of stock options	-	460,905,100	(460,905,100)	-	-	-
Payment of dividends	-	-	-	-	(102,398,830,700)	(102,398,830,700)
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)
Subtotal	(11,107,630,000)	62,950,956,274	(803,251,706,198)	(804,793,372)	(101,594,037,328)	(853,807,210,624)
As of December 31, 2019	₩ 123,738,105,000	₩ 797,120,154,295	₩ (1,146,808,916,304)	₩ 201,356,362,907	₩ 2,169,246,957,650	₩ 2,144,652,663,548
As of January 1, 2020	₩ 123,738,105,000	₩ 797,120,154,295	₩ (1,146,808,916,304)	₩ 201,356,362,907	₩ 2,169,246,957,650	₩ 2,144,652,663,548
Total comprehensive income:	-	-	-	-	-	-
Profit for the year	-	-	-	-	180,219,914,846	180,219,914,846
Remeasurements of net defined benefit liabilities	-	-	-	-	736,611,615	736,611,615
Land revaluation surplus	-	-	-	(108,978,634,166)	108,978,634,166	-
Gain on valuation of financial assets (designated)	-	-	-	-	-	-
Loss on valuation of financial assets (designated) at fair value through OCI	-	-	-	392,278,800,042	-	392,278,800,042
Loss on valuation of derivatives designated as cash flow hedges	-	-	-	(35,384,196,989)	-	(35,384,196,989)
Subtotal	-	-	-	247,915,968,887	289,335,160,627	537,851,129,514
Transactions with shareholders directly reflected in shareholders' equity and others:						
Cancellation of stock options	-	1,161,331,400	(1,161,331,400)	-	-	-
Payment of dividends	-	-	-	-	(23,312,085,500)	(23,312,085,500)
Changes in other capital surplus	-	(5,885,370,571)	-	-	-	(5,885,370,571)
Reclassification from accumulated other comprehensive income to retained earnings	-	-	-	(411,974,761,968)	411,974,761,968	-
Subtotal	-	(4,724,039,171)	(1,161,331,400)	(411,974,761,968)	388,662,676,468	(29,197,456,071)
As of December 31, 2020	₩ 123,738,105,000	₩ 792,396,115,124	₩ (1,147,970,247,704)	₩ 37,297,569,826	₩ 2,847,844,794,745	₩ 2,653,306,336,991

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

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

	Notes	2020	2019
Cash flows from operating activities			
Cash generated from operating activities:	34		
Profit for the year		₩ 180,219,914,846	₩ 633,803,581,789
Adjustments		40,242,876,890	(438,059,584,962)
Changes in operating assets and liabilities		(392,382,294,355)	16,329,210,117
		(171,919,502,619)	212,073,206,944
Interest received		4,600,890,649	4,942,116,603
Interest paid		(76,403,666,777)	(76,254,938,752)
Dividends received		19,663,818,607	21,774,869,373
Income tax paid		(27,673,498,109)	(20,081,870,282)
Net cash flows from operating activities		(251,731,958,249)	142,453,383,886
Cash flows from investing activities			
Cash inflows from investing activities:			
Decrease in short-term loans		19,793,546,000	1,983,898,038
Disposal of short-term financial instruments		224,100,000,000	-
Disposal of short-term investment securities		100,753,164,664	740,000,000
Disposal of long-term financial instruments		24,234,000,000	-
Disposal of long-term investment securities		237,176,902,448	-
Disposal of investment in subsidiaries and associates		78,486,457,521	-
Disposal of property, plant and equipment		119,791,153,666	50,682,311,015
Disposal of intangible assets		1,648,344,801	-
Disposal of investment properties		660,064,516,802	44,858,104,500
Decrease in long-term loans		3,020,999,313	1,371,168,634
Increase in government grants		96,437,593	448,386,875
Disposal of assets held for sale		33,287,077,974	-
		1,502,452,600,782	100,083,869,062
Cash outflows from investing activities:			
Increase in short-term loans		68,157,488,000	4,601,000,000
Acquisition of short-term financial instruments		315,790,372,641	10,250,000,000
Acquisition of short-term investment securities		97,891,277,951	-
Acquisition of long-term financial instruments		56,226,155,939	800,000,000
Acquisition of long-term investment securities		43,895,943,307	4,047,644,191
Acquisition of investments in subsidiaries and associates		576,426,779,208	286,542,919,920
Acquisition of property, plant and equipment		48,615,467,804	80,215,544,641
Acquisition of intangible assets		21,318,904,128	19,586,556,465
Acquisition of Investment properties		6,577,473,909	4,191,292,185
Increase in long-term loans		564,565,000	1,566,580,790
		(1,235,464,427,887)	(411,801,538,192)
Net cash flows used in investing activities		266,988,172,895	(311,717,669,130)
Cash flows from financing activities			
Cash inflows from financing activities:			
Increase in short-term borrowings		2,001,795,117,703	2,001,337,465,166
Issuance of bonds		333,375,916,800	137,335,408,400
Increase in long-term borrowings		-	70,000,000,000
Increase in long-term asset-backed loans		261,003,292,427	149,092,293,100
		2,596,174,326,930	2,357,765,166,666
Cash outflows from financing activities:			
Repayment of short-term borrowings		1,800,033,622,703	1,587,982,627,488
Repayment of bonds		320,541,645,153	330,149,155,833
Repayment of long-term borrowings		351,750,166,127	82,858,150,000
Repayment of lease liabilities		150,000,000,000	-
Repayment of long-term asset-backed loans		17,972,958,591	11,834,653,556
Payment of dividends		23,312,085,500	102,398,830,700
Acquisition of treasury stocks		-	592,076,206
		(2,663,610,478,074)	(2,115,815,493,783)
Net cash flows used in financing activities		(67,436,151,144)	241,949,672,883
Effect of exchange rate changes on cash and cash equivalents		(4,515,567,001)	(1,465,120,090)
Decrease in cash and cash equivalents due to spin-off		(39,034,360)	(59,047,167,550)
Net increase(decrease) in cash and cash equivalents		(56,734,537,859)	12,173,099,999
Cash and cash equivalents, beginning of the year		126,344,598,354	114,171,498,355
Cash and cash equivalents, end of the year		₩ 69,610,060,495	₩ 126,344,598,354

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

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

1. General

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.

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

The Company'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
	<u>16,523,835</u>	<u>100.00</u>

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.

2. Summary of significant accounting policies

2.1 Basis of preparation

The Company prepares statutory financial statements in Korean in accordance with KIFRS enacted by *the Act on External Audit of Stock Companies*. The Company's financial statements are separate financial statements prepared in accordance with KIFRS 1027 *Separate Financial Statements*, in which the controlling company, investors of associates or participants of joint control company have stated investment assets as accounting based on direct equity investment, not based on the reported performance and net assets of the investee. The accompanying separate financial statements have been translated into English from Korean financial statements. In the event of any differences in interpreting the financial statements or the independent auditor's report thereon, Korean version, which is used for regulatory reporting purposes, shall prevail.

Significant accounting policies applied in the preparation of the separate financial statements are described below. Significant accounting policies applied in the preparation of the separate financial statements for the year ended December 31, 2020 are the same as those adopted in the preparation of the separate 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 separate 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.

2.2 Changes of accounting policies and disclosure

2.2.1 New and amended standards and interpretations

The company 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 Company, but may impact future periods should the Company 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 Company 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 Company.

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 Company.

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 Company.

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

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 Company 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 Company.

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 Company 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

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

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.

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

KIFRS 1109 *Financial Instruments – Fees in the ‘10 percent’ 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 Company 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 Company.

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 Company.

2.3 Investments in subsidiaries, joint ventures and associates

The Company has elected to use book value under previous generally accepted accounting principles as deemed cost for subsidiaries, joint ventures and associates at the date of transition to KIFRS. After the date of transition, subsidiaries, joint ventures and associates are measured at cost.

The Company determines whether an impairment loss is recognized in respect of investments in associates, joint ventures and associates in accordance with KIFRS 1036 *Financial Instruments: Recognition and Measurement*. If there is an indication of impairment, the total carrying amount of the subsidiaries, joint ventures and associates (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 the associates, joint ventures and associates. The reversal of impairment loss is recognized in accordance with KIFRS 1036 as the recoverable amount of the investment assets increases subsequently.

2.4 Operating segments

The Company's operating segments are disclosed in a manner consistent with the business segment reporting provided to the chief operating decision-maker, and the information is disclosed in Note 25 in accordance with KIFRS 1108 *Operating Segments*.

2.5 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.

2.6 Assets held for sale and Discontinued operation

2.6.1 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.

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.

2.6.2 Assets scheduled for distribution to owners (or disposal groups)

The Company 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 Company 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.

2.6.3 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 Company 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 36.

2.7 Revenue from contracts with customers

2.7.1 Identifying performance obligations

The Company's major businesses include manufacturing of copperplate, forklift truck and fuel cell and service such as IT system development/operating.

2.7.2 Variable consideration

If the consideration in a contract includes a variable amount, the Company estimates the amount of consideration to which it will be entitled in exchange for transferring the goods to the customer. The variable consideration is estimated at contract inception and constrained until it is highly probable that a significant revenue reversal in the amount of cumulative revenue recognized will not occur when the associated uncertainty with the variable consideration is subsequently resolved.

2.7.3 Allocation of the transaction price

The Company allocates the transaction price on the basis of the stand-alone selling price to the various performance obligations identified in a single contract. The Company 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.

2.8 Lease

The Company 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.

The Company as a lessee

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

2.8.1 Right-of-use assets

The Company 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 Company applies cost model on subsequent measurement. To apply cost model, the Company 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 Company at the end of the lease term or if the Company 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 2.18.

2.8.2 Lease liabilities

On lease commencement date, the Company 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 Company 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 Company 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 increases 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.

2.8.3 Short-term lease and lease of low-value assets

The Company 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 Company 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 Company as lessor

The Company 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 statements of income depending on the nature of the business.

2.9 Foreign currencies

The separate financial statements of the Company are presented in the currency of the primary economic environment in which the entity operates (its functional currency). For the purpose of the separate financial statements, the results and financial position of the Company are expressed in Korean won, which is the functional currency of the entity and the presentation currency for the separate 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 2.23 below for hedging accounting policies)
- Exchange differences on monetary items forming part of the net investment in the foreign operation.

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 Company 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 Company determines the transaction date for each payment or receipt of advance consideration.

2.10 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.

2.11 Retirement benefit costs and termination benefits

The Company 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 separate statement of financial position 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 Company 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 separate statement of financial position represents the actual deficit or surplus in the Company'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.

2.12 Share-based payment transactions of the Company

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 Company's estimate of equity instruments that will eventually vest. At the end of each reporting period, the Company 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.

2.13 Taxation

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

2.13.1 Current tax

The tax currently payable is based on taxable profit for the year. Taxable profit differs from profit as reported in the separate 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 Company's liability for current tax is calculated using tax rates that have been enacted or substantively enacted by the end of the reporting period.

2.13.2 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 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 Company expects, at the end of the reporting period, to recover or settle the carrying amount of its assets and liabilities.

2.13.3 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.

2.14 Government grants

Government grants are not recognized until there is reasonable assurance that the Company 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 separate statement of financial position 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 Company 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 Company with no future-related costs are recognized in profit or loss in the period in which they become receivable.

2.15 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 Company and the cost of an asset can be measured reliably. Routine maintenance and repairs are expensed as incurred.

The Company 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	5–50
Structures	2–30
Machinery	2–15
Other property, plant and equipment	2–10

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 Company 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.

2.16 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 Company 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.

2.17 Intangible assets

2.17.1 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.

2.17.2 Internally generated intangible assets

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 Company 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.

2.17.3 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.

2.17.4 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.

2.17.5 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	5–10
Industrial rights	5–10
Other intangible assets	4–15

2.18 Impairment of Property, plant and equipment and intangible assets other than goodwill

At the end of each reporting period, the Company reviews the carrying amounts of its Property, plant and equipment 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 Company 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 prior years. A reversal of an impairment loss is recognized immediately in profit or loss.

2.19 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.

2.20 Provisions

Provisions are recognized when the Company has a present obligation (legal or constructive) as a result of a past event, it is probable that the Company 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.

2.21 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.

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

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

Financial assets at amortized cost (debt instruments)

The Company 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.

2.21.1 Financial assets (cont'd)

Financial assets at fair value through OCI (debt instruments)

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

- The financial asset is held within a business model with the objective of both holding to collect contractual cash flows and selling, 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 income 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 Company can elect to classify irrevocably its equity investments as equity instruments designated at fair value through OCI when they meet the definition of equity under KIFRS 1032 *Financial Instruments: Presentation* and are not held for trading.

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

The Company 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.

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.

2.21.1 Financial assets (cont'd)

[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 Company's separate statements of financial position) when:

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

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

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 Company could be required to repay.

[Impairment of financial assets]

The Company 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 Company expects to receive, discounted at an approximation of the original effective interest rate. The expected cash flows will include cash flows from the sale of collateral held or other credit enhancements that are integral to the contractual terms.

ECLs are 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).

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

2.21.2 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 Company that are not designated as hedging instruments in hedge relationships as defined by KIFRS 1109. Separated embedded derivatives are also classified as held for trading unless they are designated as effective hedging instruments.

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

2.21.3 Offsetting of financial instruments

Financial assets and financial liabilities are offset and the net amount is reported in the separate statements of financial position 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.

2.21.4 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 of 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

2.22 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 Company are recognized at the proceeds received, net of direct issue costs.

Repurchase of the Company'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 Company's own equity instruments.

2.23 Derivative financial instruments and hedge accounting

The Company 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 Company formally designates and documents the hedge relationship to which the Company wishes to apply hedge accounting and the risk management objective and strategy for undertaking the hedge.

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

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

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

2.23 Derivative financial instruments and hedge accounting (cont'd)

Fair value hedges

The change in the fair value of a hedging derivative is recognized in the statements of income. However, any changes in the fair value of a hedging derivative of equity instrument that the Company 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 income.

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 income. The cash flow hedge reserve is adjusted to the lower of the cumulative gain or loss on the hedging instrument and the cumulative change in fair value of the hedged item.

The Company uses forward currency contracts as hedges of its exposure to foreign currency risk in forecast transactions and firm commitments, as well as forward commodity contracts for its exposure to volatility in the commodity prices. The ineffective portion relating to 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.

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 statements of income. On disposal of the foreign operation, the cumulative value of any such gains or losses recorded in equity is transferred to the statements of income.

2.24 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 Company 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 separate 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.

2.25 Approval of separate financial statements

The separate financial statements of the Company 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 Company's accounting policies, 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 goodwill

Determining whether goodwill is impaired requires an estimation of the value in use of the CGUs to which goodwill 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 Company'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 Company's best estimates of the variables, such as discount rates, rates of expected future salary increases and mortality rates.

3.4 Provisions

Provisions for the expected cost of warranty obligations are recognized at the best estimate of the expenditure required to settle the Company'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 Company 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 Company'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 Company is obliged to pay additional income taxes for 3 years from 2018. As a result, as the Company 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 Company 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 Leases – Estimating the incremental borrowing rate

When the Company cannot readily determine the interest rate implicit in the lease, it uses its incremental borrowing rate (IBR) to measure lease liabilities. The IBR is the rate of interest that the Company would have to pay to borrow over a similar term, and with a similar security, the funds necessary to obtain an asset of a similar value to the right-of-use asset in a similar economic environment. The IBR therefore reflects what the Company 'would have to pay', which requires estimation when no observable rates are available (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 (for example, when leases are not in the subsidiary's functional currency).

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

3.10 Determining the lease term of contracts with renewal & termination options – Company as lessee

The Company determines the lease term as the non-cancellable term of the lease, together with any periods covered by an option to extend the lease if it is reasonably certain to be exercised, or any periods covered by an option to terminate the lease, if it is reasonably certain not to be exercised.

The Company has several lease contracts that include extension and termination options. The Company 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 Company 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 – Company as lessor

The Company has sub-lease contracts for right-of-use assets classified as investment properties. The Company 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 Fair value

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

4. Financial risk management

The Company 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 Company. 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 Company enters into derivative contracts to hedge against certain risks.

4.1 Market risk

4.1.1 Foreign currency risk

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

The Company 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 Company's monetary assets and liabilities denominated in foreign currencies other than the Company'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	₩ 264,621	₩ 29,214	₩ 249	₩ 76,325	₩ 6,262	₩ 376,671
Liabilities	(84,473)	(2,190)	(2,594)	(1,248)	-	(90,505)
	₩ 180,148	₩ 27,024	₩ (2,345)	₩ 75,077	₩ 6,262	₩ 286,166

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

4.1.1 Foreign currency risk(cont'd)

	December 31, 2019					
	USD	EUR	JPY	GBP	Others	Total
Assets	₩ 281,536	₩ 44,035	₩ 4,392	₩ 83,385	₩ 28,164	₩ 441,512
Liabilities	(155,256)	(2,215)	(4,748)	(2,025)	(1,185)	(165,429)
	₩ 126,280	₩ 41,820	₩ (356)	₩ 81,360	₩ 26,979	₩ 276,083

The table below summarizes the impact of 10% increase/decrease of currency exchange rates on profit before income tax expenses for the year.

	Impact on profit before income tax expenses	
	2020	2019
10% Increase	₩ 28,617	₩ 27,608
10% Decrease	(28,617)	(27,608)

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

4.1.2 Interest rate risk

The Company'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 Company is exposed to interest rate risk mainly due to its borrowings 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 Company 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 Company 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 Company'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	₩ 137,202	₩ 110,585
Financial liabilities	(213,512)	(159,629)
	₩ (76,310)	₩ (49,044)

A sensitivity analysis on the Company'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
Increase	₩ (763)	₩ (490)
Decrease	763	490

4.1.3 Price risk

The Company is exposed to equity price risks arising from its listed equity investments. The Company 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 Company'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 Company when the counterparty defaults on the obligations of the contract. Credit risk arises from financial assets at fair value through OCI and financial assets at fair value through profit or loss which are not equity securities, deposits in financial institution, financial derivatives and guarantee limit, and others. As well as from the Company's normal transactions and investing activities. To manage credit risk, the Company evaluates the creditworthiness of each customer or counterparty considering the financial status, past experience and other factors. The Company establishes credit limit for each customer and counterparty.

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

Also, the Company reevaluates customers' creditworthiness periodically, reassesses credit transaction limit and readjusts level of collateral. The Company 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.

The carrying amount of 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.

	<u>December 31, 2020</u>	
Cash and cash equivalents	₩	69,610
Short-term and long-term financial instruments		145,360
Trade and other receivables		451,262
Deposits		49,150
Short-term and long-term investment securities:		
Financial assets at fair value through profit or loss		11,764
Derivative assets		8,824
	<u>₩</u>	<u>735,970</u>
	<u>December 31, 2019</u>	
Cash and cash equivalents	₩	126,345
Short-term and long-term financial instruments		21,516
Trade and other receivables		448,340
Deposits		13,201
Short-term and long-term investment securities:		
Financial assets at fair value through profit or loss		10,764
Derivative assets		2,404
	<u>₩</u>	<u>622,570</u>

Apart from the above, in the case of contracts such as financial guarantees provided by the Company, the amount of guarantees to be paid by the Company at the request of the guarantee is the maximum amount exposed to the credit risk (see Note 31).

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

4.2 Credit risk (cont'd)

Details of trade receivables 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
		Within due	Less than 3 months	3-6 months	6-12 months	More than 12 months	Subtotal	Total
Book value	₩ 250,248	₩ 90,482	₩ 1,915	₩ 845	₩ 460	₩ 1,589	₩ 95,291	₩ 345,539
Expected credit loss rate	8.01%	-	0.47%	2.25%	8.70%	14.54%		
Expected credit loss	₩ 20,041	₩ -	₩ 9	₩ 19	₩ 40	₩ 231	₩ 299	₩ 20,340

(*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
		Within due	Less than 3 months	3-6 months	6-12 months	More than 12 months	Subtotal	Total
Book value	₩ 254,468	₩ 118,701	₩ 17,174	₩ 544	₩ 451	₩ 729	₩ 137,599	₩ 392,067
Expected credit loss rate	8.18%	-	0.06%	1.29%	3.99%	12.07%		
Expected credit loss	₩ 20,809	₩ -	₩ 11	₩ 7	₩ 18	₩ 88	₩ 124	₩ 20,933

(*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.

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

4.3 Liquidity risk

Liquidity risk is the risk that the Company 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 Company prepares for the funding balance of its business activities, investment activities and financing activities for the maturity of financial assets and liabilities. The Company manages the liquidity risks that may occur in the future in advance by securing and maintaining required liquidity.

A summary of the Company'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				
Book value		Total	Less than 1 year	1-2 years	2-5 years	More than 5 years
Financial liabilities	₩ 2,154,693	₩ 2,239,775	₩ 1,425,875	₩ 426,114	₩ 220,391	₩ 167,395
Interest on financial liabilities	-	67,025	42,262	19,160	5,603	-
	<u>₩ 2,154,693</u>	<u>₩ 2,306,800</u>	<u>₩ 1,468,137</u>	<u>₩ 445,274</u>	<u>₩ 225,994</u>	<u>₩ 167,395</u>
		December 31, 2019				
		Nominal cash flows according to contract				
Book value		Total	Less than 1 year	1-2 years	2-5 years	More than 5 years
Financial liabilities	₩ 2,232,305	₩ 2,259,358	₩ 1,649,227	₩ 357,307	₩ 252,824	₩ -
Interest on financial liabilities	-	73,287	40,482	18,434	14,371	-
	<u>₩ 2,232,305</u>	<u>₩ 2,332,645</u>	<u>₩ 1,689,709</u>	<u>₩ 375,741</u>	<u>₩ 267,195</u>	<u>₩ -</u>

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 separate statements of financial position. 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 Company are explained in Note 31.

4.2 Capital risk

The Company 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 Company 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 Company'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	₩ 2,760,522	₩ 2,607,723
Total equity	2,653,306	2,144,653
Debt-to-equity ratio	104.04%	121.59%

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

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
Short-term financial instruments	₩ 111,207	₩ 19,250	Bank transaction deposits, shared growth deposit, establishment of the right of pledge and others
Long-term financial instruments	34,123	2,129	Bank transaction deposits, deposits provided for business, establishment of the right of pledge and others
	<u>₩ 145,330</u>	<u>₩ 21,379</u>	

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 fair value through profit or loss	₩ 1,497	₩ 3,997
Long-term investment securities	Financial assets (designated) at fair value through OCI	59,664	220,150
	Financial assets at fair value through profit or loss	10,267	6,767
		<u>69,931</u>	<u>226,917</u>
		<u>₩ 71,428</u>	<u>₩ 230,914</u>

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 (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	₩ 219,915
	Non-marketable equity securities	Sosius-Well to Sea Investment 2nd Private Equity Funds for Corporate Financial Stability and others	40,235	235
			<u>59,664</u>	<u>220,150</u>
Financial assets at fair value through profit or loss	Contributions	Construction Guarantee Cooperative and others	3,828	4,098
	Beneficiary certificates	Pangaea Ventures Fund IV and others	3,539	1,869
	Debt securities	Kodit 2020 the 9th Securitization Specialty Co., Ltd. and others	4,397	4,797
			<u>11,764</u>	<u>10,764</u>
			<u>₩ 71,428</u>	<u>₩ 230,914</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 32).

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

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

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

	2020					
	Beginning balance	Acquisition	Disposal (*1)	Valuation	Substitution (*2)	Ending Balance
Financial assets (designated) at fair value through OCI(*1, *2)	₩ 220,150	₩ 137,891	₩ (375,609)	₩ 578,311	₩ (501,079)	₩ 59,664
Financial assets at fair value through profit or loss	10,764	3,896	(2,896)	-	-	11,764
	<u>₩ 230,914</u>	<u>₩ 141,787</u>	<u>₩ (378,505)</u>	<u>₩ 578,311</u>	<u>₩ (501,079)</u>	<u>₩ 71,428</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 replaced to Investments in subsidiaries. On the date of replacement, the fair value of the ordinary and preferred shares was ₩501,079 million. As of the date of replacement, 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 by division (see Note 35)	Ending Balance
Financial assets (designated) at fair value through OCI	₩ 361	₩ -	₩ -	₩ 74,529	₩ 145,260	₩ 220,150
Financial assets at fair value through profit or loss	7,617	4,047	(900)	-	-	10,764
	<u>₩ 7,978</u>	<u>₩ 4,047</u>	<u>₩ (900)</u>	<u>₩ 74,529</u>	<u>₩ 145,260</u>	<u>₩ 230,914</u>

Changes in accumulated other comprehensive income of financial assets (designated) at fair value through OCI for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020					
	Beginning balance	Valuation	Disposal (see Note 6)	Substitution (see Note 6)	Ending balance	
Equity instruments designated at fair value through OCI	Accumulated other comprehensive income before income tax	₩ 74,593	₩ 578,311	₩ (200,855)	₩ (448,327)	₩ 3,722
	Income tax effect	(18,051)	(186,032)	55,235	147,948	(900)
		<u>₩ 56,542</u>	<u>₩ 392,279</u>	<u>₩ (145,620)</u>	<u>₩ (300,379)</u>	<u>₩ 2,822</u>
	2019					
	Beginning balance	Valuation			Ending balance	
Equity instruments designated at fair value through OCI	Accumulated other comprehensive income before income tax	₩ 65	₩ 74,528	₩	₩	₩ 74,593
	Income tax effect	(15)	(18,036)			(18,051)
		<u>₩ 50</u>	<u>₩ 56,492</u>	<u>₩</u>	<u>₩</u>	<u>₩ 56,542</u>

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

7. Trade and other receivables

Trade and other receivables as of December 31, 2020 and 2019 consist of the following (Korean won in millions):

	December 31, 2020			
	Gross amount	Present value discount	Provision for impairment	Book value
Current:				
Trade receivables	₩ 345,539	₩ -	₩ (20,340)	₩ 325,199
Non-trade receivables	36,908	-	(3,584)	33,324
Accrued income	146	-	-	146
Short-term loans	60,127	-	(5)	60,122
Current portion of long-term financial lease receivables	603	(216)	-	387
Others	13	-	-	13
	<u>₩ 443,336</u>	<u>₩ (216)</u>	<u>₩ (23,929)</u>	<u>₩ 419,191</u>

	December 31, 2020			
	Gross amount	Present value discount	Provision for impairment	Book value
Non-current:				
Trade receivables	₩ -	₩ -	₩ -	₩ -
Non-trade receivables	-	-	-	-
Long-term loans	27,667	-	-	27,667
Financial lease receivables	5,428	(1,024)	-	4,404
	<u>₩ 33,095</u>	<u>₩ (1,024)</u>	<u>₩ -</u>	<u>₩ 32,071</u>

	December 31, 2019			
	Gross amount	Present value discount	Provision for impairment	Book value
Current:				
Trade receivables	₩ 391,886	₩ -	₩ (20,753)	₩ 371,133
Non-trade receivables	29,179	-	(1,315)	27,864
Accrued income	179	-	-	179
Short-term loans	45,681	-	(763)	44,918
Current portion of long-term financial lease receivables	-	-	-	-
Others	73	-	-	73
	<u>₩ 466,998</u>	<u>₩ -</u>	<u>₩ (22,831)</u>	<u>₩ 444,167</u>

	December 31, 2019			
	Gross amount	Present value discount	Provision for impairment	Book value
Non-current:				
Trade receivables	₩ 181	₩ -	₩ (181)	₩ -
Non-trade receivables	35	-	(35)	-
Long-term loans	4,173	-	-	4,173
Financial lease receivables	-	-	-	-
	<u>₩ 4,389</u>	<u>₩ -</u>	<u>₩ (216)</u>	<u>₩ 4,173</u>

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

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	Division (see Note 35)	Ending Balance
Trade receivables	₩ 20,753	₩ 875	₩ (908)	₩ (372)	₩ (8)	₩ 20,340
Non-trade receivables	1,315	(14)	-	2,293	(10)	3,584
Short-term loans	763	(758)	-	-	-	5
Long-term trade receivables	181	-	-	-	(181)	-
Long-term non-trade receivables	35	-	-	-	(35)	-
	<u>₩ 23,047</u>	<u>₩ 103</u>	<u>₩ (908)</u>	<u>₩ 1,921</u>	<u>₩ (234)</u>	<u>₩ 23,929</u>

	2019					
	Beginning balance	Provision for impaired receivables (reversal)	Write off	Division (see Note 35)	Ending balance	
Trade receivables	₩ 23,266	₩ (1,769)	₩ (715)	₩ (29)	₩ 20,753	
Non-trade receivables	1,635	(300)	(20)	-	1,315	
Short-term loans	5	758	-	-	763	
Long-term trade receivables	181	-	-	-	181	
Long-term non-trade receivables	35	-	-	-	35	
	<u>₩ 25,122</u>	<u>₩ (1,311)</u>	<u>₩ (735)</u>	<u>₩ (29)</u>	<u>₩ 23,047</u>	

Impairment loss (reversal of impairment loss) on impaired trade receivables is included in selling and administrative expenses in the separate statements of income, 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
Merchandise	₩ 18,872	₩ (2,079)	₩ 16,793	₩ 18,181	₩ (1,956)	₩ 16,225
Finished goods	35,458	(4,394)	31,064	46,357	(2,464)	43,893
Work in process	19,016	-	19,016	38,300	(7)	38,293
Raw materials	85,843	(3,984)	81,859	123,168	(4,019)	119,149
Materials in transit	9,043	-	9,043	15,380	-	15,380
Others	3,265	-	3,265	4,189	-	4,189
	<u>₩ 171,497</u>	<u>₩ (10,457)</u>	<u>₩ 161,040</u>	<u>₩ 245,575</u>	<u>₩ (8,446)</u>	<u>₩ 237,129</u>

The amount of (reversal of) write-down of inventories is ₩3,508 million and ₩(-)1,015 million for the years ended December 31, 2020 and 2019, respectively.

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

9. Derivatives

Details of derivative contracts are as follows:

Derivative contracts	Purpose	Description
Currency forward contracts	Cash flow hedge	The Company designated the currency forward contracts as hedging instrument to hedge the cash flow risk arising from changes in foreign currency of forecast sales
Equity forward contracts	Fair value hedge	The Company 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

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)
Currency	Amount	Currency	Amount			
Currency forward contracts:						
KRW	13,272	USD	12,000	₩ 217	₩ -	₩ 217
	Stock warrants and others (*2)			8,607	8,607	-
	Equity forward contracts (*3)			-	6,248	-
				₩ 8,824	₩ 14,855	₩ 217

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

(*2) Valuation of stock warrants issued by DHC.

(*3) 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 separate 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 separate statement of financial position due to their maturity.

December 31, 2019						
Buy		Sell		Assets (liabilities)	Gain (loss)	Accumulated other comprehensive income (*1)
Currency	Amount	Currency	Amount			
Currency forward contracts:						
KRW	101,799	USD	97,000	₩ 1,954	₩ -	₩ 1,954
KRW	3,091	GBP	2,000	55	-	55
KRW	33,338	CNY	202,000	2	-	2
	Stock warrants (*2)			-	(168)	-
				₩ 2,011	₩ (168)	₩ 2,011

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

(*2) Valuation of stock warrants issued by DHC.

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

10. Financial instruments by category

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

Financial assets	December 31, 2020					
	Financial assets at fair value through profit or loss	Financial assets (designated) at fair value through OCI	Derivatives designated as hedging instruments	Financial assets at amortized cost	Book value	Fair value
Cash and cash equivalents	₩ -	₩ -	₩ -	₩ 69,610	₩ 69,610	₩ 69,610
Short-term and long-term financial instruments	9,000	-	-	136,360	145,360	145,360
Short-term and long-term investment securities	11,764	59,664	-	-	71,428	71,428
Trade and other receivables	-	-	-	451,262	451,262	451,262
Derivative assets	8,607	-	217	-	8,824	8,824
Deposits	-	-	-	35,442	35,442	35,442
	<u>₩ 29,371</u>	<u>₩ 59,664</u>	<u>₩ 217</u>	<u>₩ 692,674</u>	<u>₩ 781,926</u>	<u>₩ 781,926</u>

Financial liabilities	December 31, 2020					
	Financial liabilities at fair value through profit or loss	Derivatives designated as hedging instruments	Financial guarantee contract	Financial liabilities at amortized cost	Book value	Fair value
Trade and other payables	₩ -	₩ -	₩ 7,445	₩ 333,587	₩ 341,032	₩ 341,032
Borrowings, bonds and asset-backed loans	-	-	-	1,545,208	1,545,208	1,545,208
Lease liabilities	-	-	-	275,898	275,898	275,898
	<u>₩ -</u>	<u>₩ -</u>	<u>₩ 7,445</u>	<u>₩ 2,154,693</u>	<u>₩ 2,162,138</u>	<u>₩ 2,162,138</u>

Financial assets	December 31, 2019					
	Financial assets at fair value through profit or loss	Financial assets (designated) at fair value through OCI	Derivatives designated as hedging instruments	Financial assets at amortized cost	Book value	Fair value
Cash and cash equivalents	₩ -	₩ -	₩ -	₩ 126,345	₩ 126,345	₩ 126,345
Short-term and long-term financial instruments	9,000	-	-	12,516	21,516	21,516
Short-term and long-term investment securities	10,764	220,150	-	-	230,914	230,914
Trade and other receivables	-	-	-	448,340	448,340	448,340
Derivative assets	-	-	2,404	-	2,404	2,404
Deposits	-	-	-	13,201	13,201	13,201
	<u>₩ 19,764</u>	<u>₩ 220,150</u>	<u>₩ 2,404</u>	<u>₩ 600,402</u>	<u>₩ 842,720</u>	<u>₩ 842,720</u>

Financial liabilities	December 31, 2019					
	Financial liabilities at fair value through profit or loss	Derivatives designated as hedging instruments	Financial guarantee contract	Financial liabilities at amortized cost	Book value	Fair value
Trade and other payables	₩ -	₩ -	₩ 3,690	₩ 662,333	₩ 666,023	₩ 666,023
Borrowings, bonds and asset-backed loans	-	-	-	1,569,573	1,569,573	1,569,573
Lease liabilities	-	-	-	17,509	17,509	17,509
Derivative liabilities	-	393	-	-	393	393
	<u>₩ -</u>	<u>₩ 393</u>	<u>₩ 3,690</u>	<u>₩ 2,249,415</u>	<u>₩ 2,253,498</u>	<u>₩ 2,253,498</u>

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

10. Financial instruments by category (cont'd)

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
Financial assets at fair value:				
Financial assets at fair value through profit or loss	₩ -	₩ 9,000	₩ 11,764	₩ 20,764
Financial assets (designated) at fair value through OCI	19,429	-	40,235	59,664
Derivative assets	8,607	217	-	8,824
	<u>28,036</u>	<u>9,217</u>	<u>51,999</u>	<u>89,252</u>
Financial liabilities (designated) at fair value:				
Financial liabilities at fair value through profit or loss	-	-	-	-
Derivative liabilities ² designated as hedging instruments	-	-	-	-
	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
	<u>₩ 28,036</u>	<u>₩ 9,217</u>	<u>₩ 51,999</u>	<u>₩ 89,252</u>
	December 31, 2019			
	Level 1	Level 2	Level 3	Total
Financial assets at fair value:				
Financial assets at fair value through profit or loss	₩ -	₩ 9,000	₩ 10,764	₩ 19,764
Financial assets (designated) at fair value through OCI	219,915	-	235	220,150
Derivative assets	-	2,404	-	2,404
	<u>219,915</u>	<u>11,404</u>	<u>10,999</u>	<u>242,318</u>
Financial liabilities (designated) at fair value:				
Financial liabilities at fair value through profit or loss	-	-	-	-
Derivative liabilities designated as hedging instruments	-	(393)	-	(393)
	<u>-</u>	<u>(393)</u>	<u>-</u>	<u>(393)</u>
	<u>₩ 219,915</u>	<u>₩ 11,011</u>	<u>₩ 10,999</u>	<u>₩ 241,925</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 Company 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 separate statements of financial position. 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.

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

10. Financial instruments by category (cont'd)

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							Other comprehensive income (*2)
	Profit or loss (*1)							
	Interest	Dividends	Financial guarantee	Impairment (reversal)	Disposal	Foreign exchange		
Financial assets:								
Financial assets at amortized cost	₩ 4,794	₩ -	₩ -	₩ (91)	₩ (1,675)	₩ (15,029)	₩ -	-
Financial assets at fair value through profit or loss	-	162	-	-	-	-	-	-
Financial assets (designated) at fair value through OCI	-	30	-	-	(1,671)	-	-	578,311
	<u>₩ 4,794</u>	<u>₩ 192</u>	<u>₩ -</u>	<u>₩ (91)</u>	<u>₩ (3,346)</u>	<u>₩ (15,029)</u>	<u>₩ -</u>	<u>₩ 578,311</u>
Financial liabilities:								
Financial liabilities at amortized cost	₩ (79,558)	₩ -	₩ -	₩ -	₩ (839)	₩ 6,407	₩ -	-
Financial guarantee contract	-	-	5,310	-	-	-	-	-
	<u>₩ (79,558)</u>	<u>₩ -</u>	<u>₩ 5,310</u>	<u>₩ -</u>	<u>₩ (839)</u>	<u>₩ 6,407</u>	<u>₩ -</u>	<u>₩ -</u>

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

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

	2019							Other comprehensive income (*2)
	Profit or loss (*1)							
	Interest	Dividends	Financial guarantee	Impairment (reversal)	Disposal	Foreign exchange		
Financial assets:								
Financial assets at amortized cost	₩ 5,009	₩ -	₩ -	₩ (3,087)	₩ (2,495)	₩ 16,700	₩ -	-
Financial assets at fair value through profit or loss	-	-	-	-	(160)	-	-	-
Financial assets (designated) at fair value through OCI	-	9	-	-	-	-	-	74,528
	<u>₩ 5,009</u>	<u>₩ 9</u>	<u>₩ -</u>	<u>₩ (3,087)</u>	<u>₩ (2,655)</u>	<u>₩ 16,700</u>	<u>₩ -</u>	<u>₩ 74,528</u>
Financial liabilities:								
Financial liabilities at amortized cost	₩ (77,787)	₩ -	₩ -	₩ -	₩ (202)	₩ (8,641)	₩ -	-
Financial guarantee contract	-	-	1,741	-	-	-	-	-
	<u>₩ (77,787)</u>	<u>₩ -</u>	<u>₩ 1,741</u>	<u>₩ -</u>	<u>₩ (202)</u>	<u>₩ (8,641)</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.

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

10. Financial instruments by category (cont'd)

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 for trading	₩ 14,855	₩ 5,449	₩ -	₩ (168)	₩ (634)	₩ -
Derivatives designated as fair value hedges	-	-	(46,930)	-	-	-
Derivatives designated as cash flow hedges	-	212	(1,794)	-	-	1,213
	<u>₩ 14,855</u>	<u>₩ 5,661</u>	<u>₩ (48,724)</u>	<u>₩ (168)</u>	<u>₩ (634)</u>	<u>₩ 1,213</u>

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

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
Financial assets:						
Trade receivables	₩ 6,325	₩ (2,856)	₩ 3,469	₩ 8,332	₩ (4,260)	₩ 4,072
Other receivables	36	(36)	-	67	(36)	31
	<u>₩ 6,361</u>	<u>₩ (2,892)</u>	<u>₩ 3,469</u>	<u>₩ 8,399</u>	<u>₩ (4,296)</u>	<u>₩ 4,103</u>
Financial liabilities:						
Trade payables	₩ 14,059	₩ (2,892)	₩ 11,167	₩ 40,247	₩ (4,296)	₩ 35,951

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

11. Investments in subsidiaries, joint ventures and associates

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

	Location	Ownership interests (%)	December 31, 2020	December 31, 2019
Subsidiaries:				
Doosan Heavy Industries & Construction Co., Ltd. ("DHC") (*1,2,3)	Korea	41.95	₩ 2,050,512	₩ 1,374,533
Doosan Fuel Cell Co., Ltd. ("DFC") (*1,4)	Korea	14.73	501,079	-
Oricom Inc. ("Oricom")	Korea	61.55	23,168	23,168
Doosan Bears Inc.	Korea	100.00	15,559	15,559
Doosan Business Research Institute Co., Ltd. (formerly, DLI Corporation) (*5)	Korea	100.00	8,000	8,000
Doosan Digital Innovation America LLC	USA	100.00	4,889	4,889
Doosan Information & Communications Beijing Co., Ltd. (Doosan Digital Innovation China LLC.) (*6)	China	100.00	3,230	3,230
Doosan Digital Innovation Europe Ltd.	UK	100.00	4,870	4,870
Doosan Mottrol (Jiangyin) Co., Ltd. (*7)	China	100.00	-	21,601
Doosan Electro-Materials (Changshu) Co., Ltd.	China	100.00	45,964	45,964
Doosan Electro-Materials America, LLC (*8)	USA	100.00	8,837	1,101
Doosan Electro-Materials Vietnam Company Ltd. (*9)	Vietnam	100.00	4,865	-
Doosan Industrial Vehicle Europe N.V.	Belgium	99.99	16,934	16,934
Doosan Industrial Vehicle U.K. Ltd.	UK	100.00	1,909	1,909
Doosan Logistics Europe GmbH	Germany	100.00	1,979	1,979
Doosan Industrial Vehicle America Corp.	USA	100.00	27,016	27,016
Doosan Industrial Vehicle China Co., Ltd. (formerly, Doosan Industrial Vehicle Yantai Co., Ltd.)	China	100.00	10,617	10,617
Doosan Fuel Cell America, Inc.	USA	100.00	112,512	112,512
Doosan Energy Solutions America, Inc.	USA	100.00	1,680	1,680
Doosan Cuvex Co., Ltd. (*1,10)	Korea	33.57	69,314	32,636
DBC Co., Ltd. (*1)	Korea	46.00	49,004	49,004
Doosan Robotics Inc.	Korea	100.00	72,000	72,000
Doosan Mobility Innovation Inc. (*11)	Korea	100.00	54,800	42,900
Doosan Logistics Solution Co., Ltd.	Korea	100.00	20,000	20,000
Doosan Mecatec Co., Ltd. (*2)	Korea	-	-	197,853
Neoplux Co., Ltd. (*12)	Korea	-	-	49,047
Doosan Hong Kong Ltd.	China	100.00	-	-
Doosan Electro-Materials Singapore Pte. Ltd.	Singapore	100.00	-	-
Doosan Shanghai Chemical Materials Co., Ltd.	China	100.00	-	-
D-Pay 1st Co., Ltd. (*13,14)	Korea	-	-	-
D-Pay 2nd Co., Ltd. (*13,15)	Korea	-	-	-
New Star Motive 1st Co., Ltd. (*13,15)	Korea	-	-	-
			3,108,738	2,139,002
Associates:				
Prestolite Asia Ltd.	Korea	28.36	468	468
Wise Fashion Co., Ltd. (*16)	Korea	19.34	3,018	3,018
PT. SEGARA AKASA (*17)	Indonesia	30.00	71	-
KDDI Korea Corporation	Korea	10.76	-	-
Mastern Professional Investment Type Private Security Investment Trust No.98 (*18)	Korea	25.45	70,000	-
			73,557	3,486

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

	<u>Location</u>	<u>Ownership interests (%)</u>	<u>December 31, 2020</u>	<u>December 31, 2019</u>
Joint venture:				
Sichuan Kelun-Doosan Biotechnology Company Limited	China	50.00	2,526	2,526
			<u>₩ 3,184,821</u>	<u>₩ 2,145,014</u>

(*1) The (potential) share of the decision-making rights of the above subsidiaries for assessing whether they have control or not is less than half, but it has been determined that they have de facto control.

(*2) During the current year, the Company invested 100% of the common shares of Doosan Mecatec Co., Ltd. in kind to the subsidiary DHC. As a result, DHC acquired 44,102,845 ordinary shares (acquisition amount: ₩240,801 million) during the current year.

(*3) During the current year, the Company made its paid-in capital increase by ₩435,177 million.

(*4) As of December 31, 2019, it was classified as fair value through other comprehensive income financial assets. During the current year, the Company has gained the control and it was replaced by investment in subsidiaries (see Note 6).

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

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

(*7) During the current year, the investee was succeeded to the newly established Mottrol Co., Ltd. by the split-off.

(*8) During the current year, the Company made its paid-in capital increase by ₩7,736 million.

(*9) During the current year, the Company made an establishment investment by ₩4,865 million.

(*10) During the current year, the Company made its paid-in capital increase by ₩36,678 million.

(*11) During the current year, the Company made its paid-in capital increase by ₩11,900 million.

(*12) During the current year, the Company disposed of.

(*13) Although the Company does not hold a significant stake in a special-purpose company, considering the terms of the arrangement in which the structured entity was established, the Company decided that it had control over the activities of the structured entity that could have the most significant impact on the special-purpose company's earnings.

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

(*15) During the current year, the investee was newly established.

(*16) Although the Company's ownership interest in the investee is less than 20%, the investee is classified as an associate considering the exercise of voting rights in the board of directors.

(*17) During the current year, the Company newly invested ₩71 million.

(*18) During the current year, the Company newly invested ₩80,000 million, of which ₩10,000 million was disposed of.

Some of the investments in subsidiaries were provided as collateral to the KDB, Korea Exim Bank, Korea Investment & Securities Co., Ltd. and Shinyoung Securities Co., Ltd. (see Note 32).

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

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

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

	December 31, 2020		December 31, 2019	
	Book value	Fair value	Book value	Fair value
Subsidiaries:				
DHC	₩ 2,050,512	₩ 2,121,724	₩ 1,374,533	₩ 397,294
Oricom	23,168	39,591	23,168	36,383
DFC	501,079	565,898	-	-

The Company determines whether impairment loss is recognized in respect of subsidiaries, joint ventures and associates in accordance with KIFRS 1036 *Impairment of Assets*. The Company determined whether there is any indication of impairment of investment securities as of December 31, 2020. As a result, the Company performed an impairment test by comparing the carrying amount of the investment in DHC, a subsidiary, with the recoverable amount (the greater of the fair value less costs and value in use).

The carrying amount of investments in DHC before impairment test was ₩2,050,512 million as of December 31, 2020.

The recoverable amount of investments in DHC was calculated based on fair value less costs of disposal, and the measurement of the fair value was determined based on the market price disclosed in the active market.

As a result of measuring the recoverable amount, there is no impairment loss recognized for DHC during the current year as the carrying amount of the investment stock does not exceed the recoverable amount.

A reasonably possible change in a key assumption would cause the change of recoverable amount. Therefore, management continuously observes related sales and industrial trend subsequently.

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	₩ 384,978	₩ 151,727	₩ 77,177	₩ 74,927	₩ 22,823	₩ 711,632
Acquisition/capital expenditure	188	63,158	2,593	28,230	25,324	119,493
Reclassification	(134,610)	(55,072)	11,218	614	(24,597)	(202,447)
Disposal	(72,366)	(32,730)	(1,664)	(11,581)	(5,061)	(123,402)
Depreciation	(61)	(14,333)	(17,078)	(25,115)	-	(56,587)
Decrease due to division (see Note 35)	(67,644)	(4,101)	(25,470)	(5,375)	(1,080)	(103,670)
Impairment	-	-	-	-	(260)	(260)
December 31	₩ 110,485	₩ 108,649	₩ 46,776	₩ 61,700	₩ 17,149	₩ 344,759
Acquisition cost	₩ 86,923	₩ 162,804	₩ 229,547	₩ 213,743	₩ 18,197	₩ 711,214
Accumulated depreciation (accumulated impairment losses are included)	(22)	(54,155)	(182,760)	(152,015)	(1,048)	(390,000)
Government grants	-	-	(11)	(28)	-	(39)
Accumulated revaluation surplus	23,584	-	-	-	-	23,584

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

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

	2019					
	Land	Buildings and Structures	Machinery	Others	Construction in progress	Total
January 1	₩ 424,872	₩ 186,319	₩ 115,391	₩ 76,548	₩ 22,338	₩ 825,468
Effect of adoption of new accounting standards	-	9,270	-	2,946	-	12,216
Acquisition/capital expenditure	388	3,422	8,992	42,623	29,786	85,211
Reclassification	(12,269)	(788)	12,821	5,756	(26,242)	(20,722)
Disposal	(35,162)	(10,665)	(2,240)	(4,128)	-	(52,195)
Depreciation	(43)	(17,027)	(21,585)	(32,596)	-	(71,251)
Decrease due to division (see Note 35)	(4,993)	(17,611)	(35,544)	(5,219)	(1,335)	(64,702)
Reclassification of assets as held for sale (see Note 37)	-	-	-	(10,961)	(710)	(11,671)
Impairment	-	(1,193)	(650)	-	(1,014)	(2,857)
Asset revaluation	12,185	-	-	-	-	12,185
Acquisition of government grants	-	-	(8)	(42)	-	(50)
December 31	₩ 384,978	₩ 151,727	₩ 77,177	₩ 74,927	₩ 22,823	₩ 711,632
Acquisition cost	₩ 332,135	₩ 222,368	₩ 317,716	₩ 232,415	₩ 23,871	₩ 1,128,505
Accumulated depreciation (accumulated impairment losses are included)	-	(70,641)	(239,636)	(157,466)	(1,048)	(468,791)
Government grants	-	-	(903)	(22)	-	(925)
Accumulated revaluation surplus	52,843	-	-	-	-	52,843

In addition, the Company's land and buildings are partially pledged as collateral for loans from financial institutes (see Note 32).

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

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	₩ -	₩ 4,266	₩ 1,209	₩ 10,133	₩ -	₩ 15,608
Acquisition/capital expenditure	188	62,682	900	2,797	-	66,567
Reclassification to property, plant and equipment	-	-	-	(17)	-	(17)
Disposal (*1)	-	(1,692)	-	(374)	-	(2,066)
Depreciation	(22)	(7,875)	(754)	(5,614)	-	(14,265)
Decrease due to division (see Note 35)	-	(11)	-	(352)	-	(363)
December 31	₩ 166	₩ 57,370	₩ 1,355	₩ 6,573	₩ -	₩ 65,464
Acquisition cost	₩ 188	₩ 64,906	₩ 5,023	₩ 27,944	₩ -	₩ 98,061
Accumulated depreciation	(22)	(7,536)	(3,668)	(21,371)	-	(32,597)

(*1) The amount is due to the termination of the lease contract and others.

	2019					
	Land	Buildings and Structures	Machinery	Others	Construction in progress	Total
January 1	₩ -	₩ -	₩ 1,270	₩ 10,712	₩ -	₩ 11,982
Effect of adoption of new accounting standards	-	9,270	-	2,946	-	12,216
Acquisition/capital expenditure	-	493	644	3,859	-	4,996
Depreciation	-	(4,288)	(705)	(7,083)	-	(12,076)
Decrease due to division (see Note 35)	-	(1,209)	-	(301)	-	(1,510)
December 31	₩ -	₩ 4,266	₩ 1,209	₩ 10,133	₩ -	₩ 15,608
Acquisition cost	₩ -	₩ 8,112	₩ 4,123	₩ 28,246	₩ -	₩ 40,481
Accumulated depreciation	-	(3,846)	(2,914)	(18,113)	-	(24,873)

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

The Company 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 statement of comprehensive income related to revaluation model, which the Company applies to measurement of the land is ₩12,185 million as of December 31, 2019.

In addition, if the land were stated at cost, the land would amount to ₩86,901 million and ₩332,135 million as of December 31, 2020 and 2019, respectively.

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

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	₩ -	₩ -	₩ 110,485	₩ -	₩ -	₩ 384,978

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	Fair value increases (decreases), if rate of land price increases (decreases).
	Parcel conditions and others	Fair value increases (decreases), if correction of parcel conditions and others increases (decreases).
	Land conditions affecting the sales price and others	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	Fair value increases (decreases), if the private information correction increases (decreases).
	Point-in-time correction	Fair value increases (decreases), if the point-in-time correction increases (decreases).
	Value formation factor	Fair value increases (decreases), if the value forming factor increases (decreases).

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

	2020	2019
Cost of sales	₩ 34,772	₩ 32,324
Selling and administrative expenses	12,980	19,308
Research and development cost and others	525	409
Loss from discontinued operations	8,310	19,210
	<u>₩ 56,587</u>	<u>₩ 71,251</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	₩ 6,862	₩ 6,271
Selling and administrative expenses	6,805	5,250
Loss from discontinued operations	598	555
	<u>₩ 14,265</u>	<u>₩ 12,076</u>

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

13. Intangible assets

Changes in intangible assets for the years ended December 31, 2020 and 2019 consist of the following (Korean won in millions):

	2020				
	Goodwill	Industrial rights	Development costs	Other intangible assets	Total
January 1	₩ 107,711	₩ 1,389	₩ 27,071	₩ 28,101	₩ 164,272
Acquisition/capital expenditure	-	453	19,129	1,737	21,319
Reclassification	-	11	214	4,058	4,283
Disposal	-	(7)	-	(1,282)	(1,289)
Amortization	-	(419)	(3,195)	(4,805)	(8,419)
Impairment	-	-	(725)	-	(725)
Acquisition of government grants	-	-	(78)	-	(78)
Decrease due to division (see Note 35)	(84,562)	(147)	(3,972)	(5,112)	(93,793)
December 31	₩ 23,149	₩ 1,280	₩ 38,444	₩ 22,697	₩ 85,570
Acquisition costs	₩ 23,149	₩ 4,987	₩ 82,519	₩ 65,370	₩ 176,025
Accumulated amortization (accumulated impairment losses are included)	-	(3,707)	(39,679)	(42,673)	(86,059)
Government grants	-	-	(4,396)	-	(4,396)
	2019				
	Goodwill	Industrial rights	Development costs	Other intangible assets	Total
January 1	₩ 131,943	₩ 2,265	₩ 27,304	₩ 32,691	₩ 194,203
Acquisition/capital expenditure	-	511	15,646	3,430	19,587
Reclassification	-	-	(4,869)	9,818	4,949
Disposal	-	(59)	-	-	(59)
Amortization	-	(526)	(2,944)	(6,127)	(9,597)
Impairment	-	-	(3,457)	-	(3,457)
Acquisition of government grants	-	-	(398)	-	(398)
Decrease due to division (see Note 35)	(24,232)	(774)	(4,211)	(1,947)	(31,164)
Reclassification of assets as held for sale (see Note 37)	-	(29)	-	(9,765)	(9,794)
December 31	₩ 107,711	₩ 1,389	₩ 27,071	₩ 28,101	₩ 164,272
Acquisition costs	₩ 107,711	₩ 5,228	₩ 69,560	₩ 90,181	₩ 272,680
Accumulated amortization (accumulated impairment losses are included)	-	(3,839)	(36,158)	(62,080)	(102,077)
Government grants	-	-	(6,331)	-	(6,331)

The carrying amount of membership with indefinite useful lives in other intangible assets is ₩10,570 million and ₩11,387 million as of December 31, 2020 and 2019, respectively.

Meanwhile, expenditure on research and development, which was recognized as expenses, amounted to ₩36,850 million and ₩34,382 million for the years ended December 31, 2020 and 2019, respectively.

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

13. Intangible assets (cont'd)

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

CGUs	December 31, 2020	December 31, 2019	Description
Mottrol BG (*1)	₩ -	₩ 84,562	Manufacturing and sale of hydraulic components
Digital Innovation BU	2,015	2,015	Operation and development of software
Industrial vehicles BG	15,076	15,076	Manufacturing and sale of forklifts
Fuel Cell BG	6,058	6,058	Manufacturing and sale of fuel cell
	₩ 23,149	₩ 107,711	

(*1) Part of its goodwill (Carrying amount: ₩84,562 million) was transferred to the newly incorporated company, Mottrol Co., Ltd. due to the split-off in the current year (see Note 35).

The recoverable amount of CGU is determined based on value in use. The discount rate and the permanent growth rate used in calculating value in use as of December 31, 2020 are as follows:

	Digital Innovation BU	Industrial vehicles BG	Fuel Cell BG
Discount rate	10.90%	10.90%	15.37%
Permanent growth rate	0.00%	1.00%	1.00%

Estimates for value in use calculation are as follows.

The Company uses cash flow projections based on financial budgets approved by the directors covering five-year periods 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 periods have been extrapolated using the expected 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 result of recoverable amount of the Company calculated based on value in use calculation was not to cause the aggregate carrying amount to exceed the aggregate recoverable amount of the CGUs. Therefore, no impairment loss is recognized based on the impairment test for the year ended December 31, 2020.

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

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

	2020	2019
Cost of sales	₩ 2,939	₩ 2,017
Selling and administrative expenses	4,104	3,780
Research and development cost and others	173	92
Loss from discontinued operations	1,203	3,708
	₩ 8,419	₩ 9,597

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

14. Investment properties

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

	2020			
	Land	Buildings	Construction in Progress	Total
January 1	₩ 453,465	₩ 109,385	₩ 14	₩ 562,864
Acquisition	-	202,531	5,541	208,072
Disposal	(435,688)	(169,768)	(5,555)	(611,011)
Reclassification	134,610	63,463	-	198,073
Decrease due to division (see Note 35)	(57)	(86)	-	(143)
Revaluation (*1)	6,215	(5,315)	-	900
December 31	₩ 158,545	₩ 200,210	₩ -	₩ 358,755

	2019			
	Land	Buildings	Construction in Progress	Total
January 1	₩ 434,930	₩ 105,483	₩ 1,820	₩ 542,233
Acquisition	-	22	4,169	4,191
Disposal	-	(1,188)	-	(1,188)
Reclassification	12,269	9,902	(5,975)	16,196
Decrease due to division (see Note 35)	(5,136)	-	-	(5,136)
Revaluation (*1)	11,402	(4,834)	-	6,568
December 31	₩ 453,465	₩ 109,385	₩ 14	₩ 562,864

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

The Company's land and buildings included in the above investment properties are pledged as collateral for borrowings from financial institutions (see Note 32).

In addition, lease income related to investment properties amounted to ₩24,592 million and ₩28,807 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	₩ -
Acquisition	202,431
Revaluation	(5,227)
December 31	₩ 197,204

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

The Company 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.

14. Investment properties (cont'd)

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	₩ -	₩ -	₩ 158,545	₩ -	₩ -	₩ 453,465
Buildings	-	-	200,210	-	-	109,385
Construction in progress	-	-	-	-	-	14
	₩ -	₩ -	₩ 358,755	₩ -	₩ -	₩ 562,864

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	Fair value increases (decreases), if rate of land price increases (decreases).
	Parcel conditions and others	Fair value increases (decreases), if correction of parcel conditions and others increases (decreases).
	Land conditions affecting the sales price and others	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, etc.	Private information correction	Fair value increases (decreases), If the private information correction increases (decreases)
	Point-in-time correction	Fair value increases (decreases), if point-in-time correction increases (decreases)
	Value formation factor	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).

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 (%) (*1)	December 31, 2020	December 31, 2019
The 291	-	₩ -	₩ 100,000
The 292-1st	-	-	30,000
The 292-2nd	-	-	120,000
The 293	-	-	50,000
The 295-1st	-	-	20,000
The 296	3.50	30,000	30,000
The 297	4.50	53,000	53,000
The 298	4.52	55,000	55,000
The 299	4.53	75,000	-
The 300	5.65	50,000	-
The 301	5.63	20,000	-
The 302	5.40	50,000	-
The 303	5.30	140,000	-
		473,000	458,000
Discount on bonds payable		(1,540)	(1,111)
		471,460	456,889
Reclassification of current portion of long-term bonds:			
Principal amount of bonds		(137,828)	(169,891)
Discount on bonds payable		(172)	(109)
		₩ 333,632	₩ 286,998

(*1) Nominal interest rate

15.2 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	December 31, 2019
General borrowings	Korea Exim Bank and others	2.34~5.40	₩ 709,761	₩ 508,000

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

15.3 Long-term borrowings

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

	Annual interest rate (%)	December 31, 2020	December 31, 2019
Borrowings in Korean won:			
KDB	3.81	₩ 20,000	₩ 90,000
China Bank	3.65~4.53	30,000	40,000
Shinhan Bank	2.26~3.16	40,000	30,000
Nonghyup Bank	-	-	25,000
Hana Bank	-	-	30,000
Korea Exim Bank	-	-	90,000
NongHyup Life Insurance Co.,Ltd. and others	-	-	125,000
Borrowings in foreign currency:			
Korea Exim Bank	4.41	₩ 12,508	₩ 26,629
		102,508	456,629
Present value discounts		-	(1,946)
		102,508	454,683
Reclassification of current portion of long-term borrowings		(102,508)	(143,315)
		₩ -	₩ 311,368

15.4 Asset-backed loans

The Company 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):

	Annual interest rate (%)	December 31, 2020	December 31, 2019
Asset-backed loan:			
D-Pay 1st Co., Ltd.	-	₩ -	₩ 150,000
D-Pay 2nd Co., Ltd.	4.54~4.76	150,000	-
New-Star Motive 1st Co., Ltd.	4.65	113,000	-
		263,000	150,000
Present value discounts		(1,522)	-
		261,478	150,000
Reclassification of current portion of long-term borrowings		(95,263)	(150,000)
		₩ 166,215	₩ -

With respect to the above Asset-backed loan, the carrying amount of the trade receivables and others recognized in the financial statement as of December 31, 2020 and 2019 is ₩25,630 million and ₩1,852 million, respectively, which did not meet the derecognition criteria (see Note 31).

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.

16.2 Lease liabilities

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

	2020		2019	
January 1	₩	17,509	₩	-
Effect of adoption of new accounting standards and account reclassification		-		24,664
Acquisition of lease assets		278,890		4,996
Payment of lease fees		(22,854)		(12,715)
Interest expense		4,881		880
Contract cancellation		(2,142)		-
Decrease due to division (see Note 35)		(386)		(1,550)
Others		-		1,234
December 31	₩	275,898	₩	17,509

The maturity analysis of lease liabilities as of December 31, 2020 and 2019 is 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	₩	356,159	₩ 44,509	₩ 38,614	₩ 105,641	₩ 167,395

		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	₩	17,822	₩ 9,006	₩ 5,992	₩ 2,824	₩ -

16.2 Lease liabilities (cont'd)

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	₩ 1,622	₩ 1,555
Selling and administrative expenses	1,001	2,766
Research and development cost and others	2	1,012
Loss from discontinued operations	39	72
	₩ 2,664	₩ 5,405

Cash outflows from financing activities due to the repayment of lease liabilities are ₩22,854 million and ₩12,715 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 ₩2,664 million and ₩5,405 million for the years ended December 31, 2020 and 2019, respectively. Therefore, the total cash outflow of the lease is ₩25,518 million and ₩18,120 million for the years ended December 31, 2020 and 2019, respectively.

16.3 Lease receivables

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

	Nominal cash flows according to contract				
	Total	Less than 1 year	1–2 years	2–5 years	More than 5 years
Lease receivables	₩ 6,031	₩ 603	₩ 603	₩ 1,809	₩ 3,016

As a lessor accounting for operating lease, the lease fee that does not vary according to the index or rate is ₩1,048 million.

17. Net defined benefit liabilities

The Company 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	₩ 168,022	₩ 198,435
Fair value of plan assets	(152,139)	(171,369)
Net defined benefit liabilities	<u>₩ 15,883</u>	<u>₩ 27,066</u>

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	₩ 20,200	₩ 21,245
Net interest costs	915	1,461
Effect from curtailment and settlement	59	-
	<u>₩ 21,174</u>	<u>₩ 22,706</u>

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

	2020	2019
Cost of sales	₩ 10,405	₩ 12,174
Selling and administrative expenses	7,693	7,426
Others	164	424
Loss from discontinued operations	2,912	2,682
	<u>₩ 21,174</u>	<u>₩ 22,706</u>

17. Net defined benefit liabilities (cont'd)

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

	2020		
	Defined benefit liabilities	Plan assets	Net defined benefit liabilities
Beginning balance	₩ 198,435	₩ (171,369)	₩ 27,066
Profit or loss:			
Current service cost	20,200	-	20,200
Interest cost (income)	4,063	(3,148)	915
Effect from curtailment and settlement	59	-	59
	<u>24,322</u>	<u>(3,148)</u>	<u>21,174</u>
Remeasurements:			
Actuarial loss from change in demographic assumptions	3,766	-	3,766
Actuarial gain from change in financial assumptions	(9,502)	-	(9,502)
Others	4,077	688	4,765
	<u>(1,659)</u>	<u>688</u>	<u>(971)</u>
Transfer in	2,658	(949)	1,709
Transfer out	(1,451)	592	(859)
Decrease due to division (see Note 35)	(33,135)	29,877	(3,258)
Contributions by employer directly to plan assets	-	(21,254)	(21,254)
Benefit payments	(21,148)	13,424	(7,724)
Ending balance	<u>₩ 168,022</u>	<u>₩ (152,139)</u>	<u>₩ 15,883</u>
	2019		
	Defined benefit liabilities	Plan assets	Net defined benefit liabilities
Beginning balance	₩ 190,741	₩ (150,381)	₩ 40,360
Profit or loss:			
Current service cost	21,245	-	21,245
Interest cost (income)	5,164	(3,703)	1,461
	<u>26,409</u>	<u>(3,703)</u>	<u>22,706</u>
Remeasurements:			
Actuarial loss from change in demographic assumptions	5	-	5
Actuarial loss from change in financial assumptions	11,469	-	11,469
Others	(2,846)	1,266	(1,580)
	<u>8,628</u>	<u>1,266</u>	<u>9,894</u>
Transfer in	3,714	(1,971)	1,743
Transfer out	(928)	586	(342)
Decrease due to division (see Note 35)	(17,365)	13,224	(4,141)
Contributions by employer directly to plan assets	-	(39,250)	(39,250)
Benefit payments	(12,764)	8,860	(3,904)
Ending balance	<u>₩ 198,435</u>	<u>₩ (171,369)</u>	<u>₩ 27,066</u>

17. Net defined benefit liabilities (cont'd)

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

	December 31, 2020	December 31, 2019
Discount rate (%)	2.29	2.18
Salary growth rate (%):		
Employee	3.00~4.00	3.00~5.00
Executive	1.40	2.30

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

	December 31, 2020	December 31, 2019
Saving deposits and others	₩ 152,139	₩ 171,369

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	₩ (12,856)	(-) 7.65%
		1% decrease	14,846	8.84%
	Salary growth rate	1% increase	13,961	8.31%
		1% decrease	(12,383)	(-) 7.37%
December 31, 2019	Discount rate	1% increase	(13,289)	(-) 6.70%
		1% decrease	14,973	7.55%
	Salary growth rate	1% increase	14,004	7.06%
		1% decrease	(12,254)	(-) 6.18%

The weighted average maturity of the defined benefit liabilities as of December 31, 2020 and 2019 is 8.4 years and 7.1 years, respectively. The Company expects to contribute ₩16,735 million for defined benefit plans in 2021.

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

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	Decrease due to division (see Note 35)	Ending balance	Current	Non-current
Provision for product warranties	₩ 9,393	₩ 12,429	₩ (9,649)	₩ (2,564)	₩ 9,609	₩ 9,609	₩ -
Provision for restoration	1,030	61	-	(1,091)	-	-	-
Other provisions	37	-	-	-	37	37	-
	<u>₩ 10,460</u>	<u>₩ 12,490</u>	<u>₩ (9,649)</u>	<u>₩ (3,655)</u>	<u>₩ 9,646</u>	<u>₩ 9,646</u>	<u>₩ -</u>

	2019						
	Beginning balance	Increase (decrease)	Used	Ending balance	Current	Non-current	
Provision for product warranties	₩ 6,611	₩ 4,989	₩ (2,207)	₩ 9,393	₩ 9,393	₩ -	
Provision for restoration	967	63	-	1,030	-	1,030	
Other provisions	37	-	-	37	37	-	
	<u>₩ 7,615</u>	<u>₩ 5,052</u>	<u>₩ (2,207)</u>	<u>₩ 10,460</u>	<u>₩ 9,430</u>	<u>₩ 1,030</u>	

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

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 35).

The Company'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 Company 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.

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

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	192,392	197,116
	<u>₩ 792,396</u>	<u>₩ 797,120</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)
	<u>₩ (1,147,970)</u>	<u>₩ (1,146,809)</u>

21.1 Treasury stocks

The Company acquired registered ordinary shares and non-voting preferred shares, and recognized them as other capital item for the stabilization of share price. Changes in treasury stocks for the years ended December 31, 2020 and 2019 are as follows (in millions of Korean won, 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 35)	(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	<u>3,000,866</u>	<u>612,104</u>	<u>3,612,970</u>	<u>₩ 171,231</u>	<u>₩ 13,794</u>	<u>₩ 185,025</u>
Balance at January 1, 2020	<u>3,000,866</u>	<u>612,104</u>	<u>3,612,970</u>	<u>₩ 171,231</u>	<u>₩ 13,794</u>	<u>₩ 185,025</u>
Balance at December 31, 2020	<u>3,000,866</u>	<u>612,104</u>	<u>3,612,970</u>	<u>₩ 171,231</u>	<u>₩ 13,794</u>	<u>₩ 185,025</u>

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

21.2 Share-based payment

The Company 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 Company 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 period	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.

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			
	<u>71,820</u>	<u>(25,542)</u>	<u>46,278</u>	₩	<u>3,265</u>	₩	<u>(1,161)</u>	₩	<u>2,104</u>	
	2019									
	Number of ordinary shares to be issued				Valuation amount					
	Beginning	Forfeited	Spin-off(*1)	Ending	Beginning	Forfeited	Spinoff(*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		
	<u>88,850</u>	<u>(9,550)</u>	<u>(7,480)</u>	<u>71,820</u>	₩	<u>4,066</u>	₩	<u>(461)</u>	₩	<u>3,265</u>

(*1) During the current year, the Company was succeeded to the newly incorporated company according to the spin-off (see Note 35).

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
Gain on valuation of derivatives designated as hedges (*1)	₩ 164	₩ 1,524
Profit (Loss) on valuation of financial assets (designated) at fair value through OCI (*2)	2,822	56,542
Land revaluation surplus	34,312	143,290
	<u>₩ 37,298</u>	<u>₩ 201,356</u>

(*1) 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).

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

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	2,780,422	2,101,824
	<u>₩ 2,847,845</u>	<u>₩ 2,169,247</u>

The Commercial Code of the Republic of Korea requires the Company 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.

Separate statements of appropriation of retained earnings for the years ended December 31, 2020 and 2019 are as follows (Korean won):

	2020
Unappropriated retained earnings:	
Unappropriated retained earnings carried over from the previous year	₩ 2,078,512,004,650
Profit for the year	180,219,914,846
Remeasurements of net defined benefit liabilities	736,611,615
Reclassification of land revaluation surplus	108,978,634,166
Reclassification from AOCI to retained earnings	411,974,761,968
Interim dividends	-
	<u>2,780,421,927,245</u>
Appropriation of retained earnings:	
Dividends	(19,894,954,700)
	<u>(19,894,954,700)</u>
Unappropriated retained earnings to be carried forward	<u>₩ 2,760,526,972,545</u>

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

23. Retained earnings (cont'd)

	2019
Unappropriated retained earnings:	
Unappropriated retained earnings carried over from the previous year	₩ 1,549,872,557,085
Profit for the year	633,803,581,789
Remeasurements of defined benefit plan	(7,499,246,560)
Interim dividends	(76,656,988,200)
Reclassification of land revaluation surplus	2,304,186,036
	<u>2,101,824,090,150</u>
Appropriation of retained earnings:	
Dividends	(23,312,085,500)
	<u>(23,312,085,500)</u>
Unappropriated retained earnings to be carried forward	<u>₩ 2,078,512,004,650</u>

Details of dividends for the years 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 Company 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 Company for the year ended December 31, 2020 are as follows (Korean won in millions, except for share data):

	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. Revenues

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

24.1 Disaggregation revenue

	2020		2019
Revenues from contracts with customers:			
Finished goods	₩ 1,180,565	₩	1,212,142
Merchandise	144,622		143,288
Others	179,408		185,934
	<u>1,504,595</u>		<u>1,541,364</u>
Others:			
Dividend	8,933		19,833
Rental income and others	35,808		26,839
	<u>44,741</u>		<u>46,672</u>
	<u>₩ 1,549,336</u>	₩	<u>1,588,036</u>

24.2 Disaggregation revenues from contracts with customers

	2020		2019
Type of Business:			
Electro-Materials BG	₩ 641,119	₩	576,896
Industrial vehicles BG	646,321		753,499
Digital Innovation BU	125,078		124,802
Others	92,077		86,167
	<u>₩ 1,504,595</u>	₩	<u>1,541,364</u>
Timing of revenue recognition:			
Transfer at a point in time	₩ 1,327,846	₩	1,355,430
Transfer over time	176,749		185,934
	<u>₩ 1,504,595</u>	₩	<u>1,541,364</u>

25. 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	₩ 7,262	₩	2,104
Purchases of raw materials and merchandise	762,049		787,539
Employee benefits expenses	296,597		298,535
Depreciation and amortization	55,493		57,930
Others	319,068		301,963
	<u>₩ 1,440,469</u>	₩	<u>1,448,071</u>

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

26. 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	₩ 90,081	₩ 94,108
Retirement benefits	8,032	6,828
Employee benefits	23,088	18,273
Travel expenses	2,089	8,113
Utility expenses	522	678
Sales commission	19,587	20,297
Taxes and dues	3,379	5,875
Depreciation	12,980	19,309
Advertising expenses	4,345	7,769
Packaging expenses	1,269	1,430
Research and development	25,195	22,662
Freight expenses	9,159	6,686
Commission expenses	7,336	2,620
Samples expenses	1,801	2,335
(Reversal of provision) bad debt expenses	517	(1,397)
Amortization	4,104	3,780
Others	16,499	5,768
	<u>₩ 229,983</u>	<u>₩ 225,134</u>

27. 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	₩ 4,794	₩ 4,718
Dividend income	176	9
Gain on foreign currency transaction	26,466	18,529
Gain on foreign currency translation	4,858	7,922
Gain on derivative transactions	5,661	-
Gain on valuation of derivatives	14,855	-
Financial guarantee income	5,310	1,741
	<u>62,120</u>	<u>32,919</u>
Finance expenses:		
Interest expense	81,083	67,567
Loss on foreign currency transactions	22,824	12,303
Loss on foreign currency translations	19,853	5,887
Loss on derivative transactions	-	634
Loss on valuation of derivatives	-	168
Loss on repayment of bonds	839	202
Other financial expenses	3,117	1,883
	<u>127,716</u>	<u>88,644</u>
	<u>₩ (65,596)</u>	<u>₩ (55,725)</u>

28. 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 investment in subsidiaries	₩ 62,388	₩ -
Gain on disposal of property, plant and equipment	6,131	2,217
Gain on disposal of investment properties	41,829	-
Gain on valuation of investment properties	6,333	11,431
Gain on disposal of short-term financial assets	362	-
Others	3,812	1,861
	<u>120,855</u>	<u>15,509</u>
Other non-operating expenses:		
Loss on disposal of trade receivables	1,405	1,743
Other bad debt expense (reversal of provision)	(26)	(377)
Loss on disposal of property, plant and equipment	3,032	3,800
Impairment loss of property, plant and equipment	260	1,447
Loss on disposal of intangible assets	23	58
Impairment loss of intangible assets	725	3,104
Loss on disposal of investment properties	14,165	1,188
Loss on valuation of investment properties	5,433	4,867
Loss on disposal of short-term financial assets	-	160
Loss on disposal of long-term financial assets	2,033	-
Donations	5,850	6,291
Others	16,021	4,418
	<u>48,921</u>	<u>26,699</u>
	<u>₩ 71,934</u>	<u>₩ (11,190)</u>

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

29. 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
Current income tax on profit for the year	₩ 189,035	₩ 24,523
Deferred tax:		
Origination and reversal of temporary differences	163,752	38,901
Charged or credited directly to equity	(178,813)	(49,406)
Income tax revenues(expenses) classified as profit (loss) from discontinued operations	<u>(85,753)</u>	<u>(2,373)</u>
Income tax expenses	<u>₩ 88,221</u>	<u>₩ 11,645</u>

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
		Profit or loss	Equity	Division (see Note 35)	
Accrued revenues	₩ (16)	₩ (11)	₩ -	₩ -	₩ (27)
Inventory valuation allowance	3,571	(1,040)	-	-	2,531
Investment securities	(41,224)	59,307	(179,012)	-	(160,929)
Property, plant and equipment	(91,985)	47,512	-	-	(44,473)
Investment properties	(40,339)	20,967	-	-	(19,372)
Accrued expenses	17,455	146	-	-	17,601
Defined benefit liabilities	6,549	(529)	(235)	(770)	5,015
Others	8,560	(111,291)	434	-	(102,297)
	<u>₩ (137,429)</u>	<u>₩ 15,061</u>	<u>₩ (178,813)</u>	<u>₩ (770)</u>	<u>₩ (301,951)</u>
	2019				
	Beginning balance	Changes			Ending balance
		Profit or loss	Equity	Division (see Note 35)	
Accrued revenues	₩ (5)	₩ (11)	₩ -	₩ -	₩ (16)
Inventory valuation allowance	2,458	1,205	-	(92)	3,571
Investment securities	943	6,391	(48,558)	-	(41,224)
Property, plant and equipment	(88,299)	(646)	(2,949)	(91)	(91,985)
Investment properties	(45,628)	5,289	-	-	(40,339)
Accrued expenses	13,902	4,042	-	(489)	17,455
Defined benefit liabilities	9,766	(4,654)	2,394	(957)	6,549
Others	10,895	(1,111)	(293)	(931)	8,560
	<u>₩ (95,968)</u>	<u>₩ 10,505</u>	<u>₩ (49,406)</u>	<u>₩ (2,560)</u>	<u>₩ (137,429)</u>

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 nil.

The probability of realizing deferred tax assets depends on the Company's ability to generate taxable income in future years, economic situation and industry forecast. The Company periodically reviews these matters.

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

29. Income tax expenses (cont'd)

Temporary differences from investments in subsidiaries, joint ventures and associates, which are not recognized as deferred tax assets (liabilities), are as follows (Korean won in millions):

	2020	2019	Remarks
Investments in subsidiaries	₩ (632,845)	₩ (797,792)	Able to control the reversal of the temporary difference

The aggregate deferred tax relating to items that are charged or credited directly to equity for the years ended December 31, 2020 and 2019 is as follows (Korean won in millions):

	2020	2019
Gain (loss) on valuation of financial assets (designated) at fair value through OCI	₩ (186,032)	₩ (18,036)
Gain (loss) on valuation of derivatives	13,339	(293)
Land revaluation surplus	-	(2,948)
Remeasurements of net defined benefit liabilities	(235)	2,394
Other capital surplus	(5,885)	(30,523)
	<u>₩ (178,813)</u>	<u>₩ (49,406)</u>

A reconciliation of income tax expenses and accounting profit before income tax expenses for the years ended December 31, 2020 and 2019 is as follows (Korean won in millions):

	2020	2019
Profit before income tax expenses	₩ 115,205	₩ 73,051
Tax at domestic tax rates applicable to profit	31,681	17,678
Adjustments:		
Non-taxable income and non-deductible expenses	4,941	2,849
Tax credits	(4,245)	(3,828)
Additional income tax and tax paid (refunded) for previous year	819	(2,002)
Corporate tax on unappropriated earnings of enterprises	5,333	-
Temporary difference not recognized as deferred income tax	48,391	(2,880)
Others	1,301	(172)
Income tax expenses	<u>₩ 88,221</u>	<u>₩ 11,645</u>
Average effective tax rate (Income tax expenses/Profit before income tax expenses)	76.58%	15.94%

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

30. Earnings per share

30.1 Basic earnings per share

Basic earnings per share for the years ended December 31, 2020 and 2019 are as follows (Korean won, except for share data):

	2020			2019		
	Continuing	Discontinued	Total	Continuing	Discontinued	Total
Basic earnings per ordinary share	₩ 1,086	₩ 9,031	₩ 10,117	₩ 1,713	₩ 31,310	₩ 33,023
Basic earnings per old-type preferred share(*1)	1,091	9,066	10,157	1,715	31,352	33,067

(*1) The Company 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*.

Profit (loss) for the year attributable to the ordinary equity holders of the Company is as follows (Korean won):

	2020		
	Continuing	Discontinued	Total
Profit (loss) for the year	₩ 26,983,894,273	₩ 153,236,020,573	₩ 180,219,914,846
Less: Profit (loss) attributable to new-type preferred shares	(8,550,432,756)	-	(8,550,432,756)
Less: Profit (loss) attributable to old-type preferred shares	(3,743,292,522)	(31,117,717,603)	(34,861,010,125)
Profit (loss) for the year attributable to the ordinary equity holders of the Company	₩ 14,690,168,995	₩ 122,118,302,970	₩ 136,808,471,965

	2019		
	Continuing	Discontinued	Total
Profit (loss) for the year	₩ 61,405,638,524	₩ 572,397,943,265	₩ 633,803,581,789
Less: Profit (loss) attributable to new-type preferred shares	(30,085,368,168)	-	(30,085,368,168)
Less: Profit (loss) attributable to old-type preferred shares	(6,347,228,173)	(115,999,648,490)	(122,346,876,663)
Profit (loss) for the year attributable to the ordinary equity holders of the Company	₩ 24,973,042,183	₩ 456,398,294,775	₩ 481,371,336,958

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 is 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	13,522,969	3,432,220	14,576,797	3,700,016

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

30.2 Diluted earnings per share

Diluted earnings per share for the years ended December 31, 2020 and 2019 are as follows (Korean won):

	2020			2019		
	Continuing	Discontinued	Total	Continuing	Discontinued	Total
Diluted earnings per ordinary share	₩ 1,086	₩ 9,031	₩ 10,117	₩ 1,713	₩ 31,310	₩ 33,023
Diluted earnings per old-type preferred share	1,091	9,066	10,157	1,715	31,352	33,067

Diluted profit for the year attributable to the ordinary equity holders of the Company for the years ended December 31, 2020 and 2019 is as follows (Korean won):

	2020		
	Continuing	Discontinued	Total
Profit (loss) for the year attributable to the ordinary equity holders of the Company	₩ 14,690,168,995	₩ 122,118,302,970	₩ 136,808,471,965
Share-based compensation expense (after income tax)	-	-	-
Diluted profit (loss) for the year attributable to the ordinary equity holders of the Company	₩ 14,690,168,995	₩ 122,118,302,970	₩ 136,808,471,965

	2019		
	Continuing	Discontinued	Total
Profit (loss) for the year attributable to the ordinary equity holders of the Company	₩ 24,973,042,183	₩ 456,398,294,775	₩ 481,371,336,958
Share-based compensation expense (after income tax)	-	-	-
Diluted profit (loss) for the year attributable to the ordinary equity holders of the Company	₩ 24,973,042,183	₩ 456,398,294,775	₩ 481,371,336,958

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	13,522,969	14,576,797

As there are no potential ordinary shares for old-type preferred share, diluted earnings per share for old-type preferred share are equal to basic earnings per share for old-type preferred share.

30.3 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 plus 1%

(*2) The Company should distribute 2% of par value of preferred shares annually. In case the Company distributes more than 2% of par value for ordinary shares, preferred shares are participated in dividend for the exceeded dividend.

31. Contingencies and commitments

31.1 Notes, bills and checks offered in security

As of December 31, 2020, the Company provided 2 blank checks as collateral against financial institutions for the Company's debt, guarantees to fulfill a contract and payment guarantees of the Company.

31.2 Credit lines for borrowings

Credit lines for borrowings of the Company as of December 31, 2020 are as follows (Korean won in millions and foreign currency in thousands):

Description	Financial institutions	Credit line	
Operating borrowings and others	Korea Exim Bank and others	KRW	535,261
Credit bond mortgage limit	Woori Bank and others	KRW	43,400
Facility borrowings and others	Korea Exim Bank and others	KRW	108,065
		USD	11,500
L/C guarantees of payment and others	KDB and others	USD	64,451
Commercial paper	KB Securities Co., Ltd. and others	KRW	248,500
Electronic short-term bond	KIWOOM Securities Co., Ltd.	KRW	160,000
Asset-backed loan	D-Pay 2nd Co., Ltd.	KRW	150,000
	New-Star Motive 1st Co., Ltd.	KRW	113,000
		KRW	1,358,226
		USD	75,951

31.3 Transferred trade receivables

With respect to the Company's Asset-backed loan, the carrying amount of the trade receivables and others recognized in the financial statement as of December 31, 2020 is ₩25,630 million, which did not meet the derecognition criteria (see Note 15).

31.4 Litigation in progress

The Company is involved in lawsuits as a defendant with claims exposure of ₩5,639 million as of December 31, 2020. The ultimate outcome of the lawsuit cannot presently be determined.

31.5 Technical contract

The Company has technical license agreements with Mitsui & co. plastics Ltd. and others for the year ended December 31, 2020, and the Company paid ₩52 million as license fee.

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

31.6 Guarantees of payment

Guarantees of payment provided by the Company as of December 31, 2020 are as follows (Korean won in millions and foreign currency in thousands):

Provided to	Amount	Description
Subsidiaries:		
Doosan Electro Materials (Changshu) Co., Ltd	USD 29,500	An on-site guarantee of payment
	CNY 80,000	An on-site guarantee of payment
Doosan Industrial Vehicle U.K. Ltd.	GBP 9,000	An on-site guarantee of payment
Doosan Industrial Vehicle Europe N.V.	EUR 10,000	An on-site guarantee of payment
Doosan Industrial Vehicle China Co., Ltd.	USD 10,000	An on-site guarantee of payment
(formerly, Doosan Industrial Vehicle Yantai Co., Ltd.)	CNY 12,000	An on-site guarantee of payment
Doosan Fuel Cell America, Inc.	USD 165,529	An on-site guarantee of payment
	KRW 89,765	An on-site guarantee of payment
Doosan Energy Solutions America, Inc.	USD 67,598	An on-site guarantee of payment
D-Pay 2nd Co., Ltd.	KRW 150,000	An on-site guarantee of payment
New-Star Motive 1st Co., Ltd.	KRW 113,000	An on-site guarantee of payment
Doosan Mecatec Co., Ltd.	USD 50,900	An on-site guarantee of payment
	KRW 30,000	An on-site guarantee of payment
Doosan Logistics Solution Co., Ltd.	EUR 10,000	An on-site guarantee of payment
Mottrol Co., Ltd.	USD 649	An on-site guarantee of payment
	KRW 74,986	An on-site guarantee of payment
Other related parties:		
Volta Energy Solutions Hungary Kft. (formerly, Doosan Energy Solution Kft.)	EUR 72,000	An on-site guarantee of payment
Volta Energy Solutions Europe Kft. (formerly, Doosan Corporation Europe Kft.)	USD 5,038	An on-site guarantee of payment
	USD 329,214	
	CNY 92,000	
	GBP 9,000	
	EUR 92,000	
	KRW 457,751	

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 Company) 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 company before the division. In this regard, borrowings and bonds subject to solidarity guarantee provided by the Company 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
	₩ 139,000

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

31.6 Guarantees of payment (cont'd)

Guarantees of payment provided by third parties to the Company as of December 31, 2020 are as follows (Korean won in millions and foreign currency in thousands):

Provided to	Amount	Description
Seoul Guarantee Insurance	KRW 45,713	Performance guarantee
Korea Defense Industry Association	KRW 74,986	Performance guarantee
Machinery Financial Cooperative	KRW 9,159	Performance guarantee
Korea Software Financial Cooperative(*1)	KRW 1,601	Performance guarantee
KDB	USD 11,451	Debt guarantee
Woori Bank and others	USD 17,180	L/C guarantee of payment
	KRW 131,459	
	USD 28,631	

(*1) In connection with this, as of December 31, 2020, equity share of ₩84 million is provided as collateral.

31.7 Agreement with shareholders

For the year ended December 31, 2020, the Company entered into an agreement with the preferred shares investor regarding the issuance of the preferred shares of the following subsidiaries.

	Doosan Cuvex Co., Ltd.	Doosan Business Research Institute Co., Ltd. (formerly, DLI Corporation)
Put option	On October 24, 2021, the investor may make a purchase request to the Company or a third party designated by the Company for the whole or a part of the redeemable convertible preferred shares held by the investor, an amount equal to the amount of the issuance plus a certain amount of accrual.	-
Early put option	The investor may request the Company to make a purchase before a redemption date in the event of a certain reason, and the calculation method of the settled amount is the same as above.	-
Call option	On October 24, 2021, the investor may sell all or part of the redeemable convertible preferred share to the Company or a third party designated by the Company in an amount equal to the amount of the issuance plus a certain amount of accrual.	On September 28, 2021, the investor may sell all or part of the redeemable preferred share to the Company or a third party designated by the Company in an amount equal to the amount of the issuance plus a certain amount of accrual.

31.8 Other agreements

As of December 31, 2020, the Company signed a lease contract with its subsidiary, DBC Co., Ltd., for 15 years from the commencement date of lease. Meanwhile, DBC Co., Ltd. signed a contract to sell Bundang Doosan Tower to Bundang Doosan Tower REIT Co., Ltd. as of January 8, 2021, and the lease agreement was terminated.

The Company sold Doosan Technology Institute located in Seongbok-dong, Suji-gu, Yongin-si, Gyeonggi-do during 2019, and has been responsible for the lease for 5 years after the sale.

The Company sold Doosan Tower, located in 275, Jangchungdan-ro, Jung-gu, Seoul, during the current year, and has been responsible for leasing offices and shopping malls of Doosan Tower for five years after the sale. Meanwhile, if the lessor notifies the Company for extending the lease term of Doosan Tower within 6 months from the 4th year of the commencement date of the lease term, the Company's liability on lease agreement will be extended on the same terms once for 5 years.

32. Pledged assets

The Company pledged certain assets as collateral for its financial liabilities as of December 31, 2020, which are as follows (Korean won in millions and foreign currency in thousands):

Institution	Pledged asset	Related accounts	Financial liabilities	Pledged amount
KDB	Fixed deposit, Jeung-pyeong, Iksan plant and others (*1)	Short-term financial instruments,	KRW 83,000	KRW 209,750
			KRW -	USD 39,556
Woori Bank	Anmyeondo land and others	Property, plant and equipment and investment properties	KRW 63,000	KRW 132,000
Shinhan Bank	Incheon plant		KRW -	KRW 40,000
Hana Bank	Fixed deposit		KRW 9,980	KRW 9,980

(*1) In addition, property, plant and equipment held by Mottrol Co., Ltd., a subsidiary of the company, is provided as collateral for the financial liabilities.

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 Company 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.

Details of collateral provided by the Company for third parties are as follows (Korean won in millions):

As of December 31, 2020, the Company established right of pledge (maximum pledge amount: ₩45,500 million) on land and buildings (pledged amount: ₩14,413 million) to guarantee loan agreement between Happy Tomorrow Apollo 3rd Co., Ltd. and KDB Capital Corporation. As of December 31, 2020, the amount of the borrowings is ₩35,000 million.

As of December 31, 2020, the Company provided 578,760 shares (pledged amount ₩29,114 million) of DBC Co., Ltd. to Korea Securities Finance Co., Ltd. as collateral for ₩375,000 million PF loan signed by DBC to establish of Bundang Doosan Tower. As of December 31, 2020, the amount of the borrowings is ₩375,000 million.

As of December 31, 2020, DHC, a subsidiary of the Company, 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 Company 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 Company 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. The total carrying amount of assets provided as collateral by the Company is ₩2,994,855 million. 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, 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.

As of December 31, 2020, New star Motive 1st Co., Ltd., a subsidiary of the Company, 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 Company's inventories located in Incheon plant has been pledged as collateral.

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

33. Related party transactions

The details related to the disclosure of related parties as of December 31, 2020 and 2019 are as follows:

Relationship with the Company	December 31, 2020	December 31, 2019
Subsidiaries	Doosan Heavy Industries & Construction Co., Ltd. ("DHC") and its subsidiaries (*1, 2)	Doosan Heavy Industries & Construction Co., Ltd. ("DHC") and its subsidiaries (*1, 2)
	Doosan Infracore Co., Ltd. ("DI") and its subsidiaries	Doosan Infracore Co., Ltd. ("DI") and its subsidiaries
	Doosan Engineering & Construction Co., Ltd. ("DEC")	Doosan Engineering & Construction Co., Ltd. ("DEC")
	Doosan Fuel Cell Co., Ltd. ("DFC") (*3)	-
	Oricom Inc	Oricom Inc
	Doosan Bears Inc.	Doosan Bears Inc.
	Doosan Business Research Institute Co.,Ltd. (formerly, DLI Corporation) (*4)	Doosan Business Research Institute Co.,Ltd. (formerly, DLI Corporation) (*4)
	Doosan Cuvex Co., Ltd.	Doosan Cuvex Co., Ltd.
	DBC Co., Ltd.	DBC Co., Ltd.
	Doosan Robotics Inc.	Doosan Robotics Inc.
	Doosan Mobility Innovation Inc	Doosan Mobility Innovation Inc
	Mottrol Co., Ltd. (*5)	-
	-	Doosan Mecatec Co., Ltd. (*2)
	-	Neoplux Co., Ltd.
	-	D-Pay 1st Co., Ltd.
	D-Pay 2nd Co., Ltd.	-
	New Star Motive 1st Co., Ltd.	-
	Doosan Digital Innovation America, LLC	Doosan Digital Innovation America, LLC
	Doosan Information & Communications Beijing Co., Ltd.(formerly, Doosan Digital Innovation China Co., Ltd.) (*4)	Doosan Information & Communications Beijing Co., Ltd.(formerly, Doosan Digital Innovation China Co., Ltd.) (*4)
	Doosan Digital Innovation Europe Ltd.	Doosan Digital Innovation Europe Ltd.
	Doosan Mottrol (Jiangyin) Co., Ltd.	Doosan Mottrol (Jiangyin) Co., Ltd.
	Doosan Hong Kong Ltd. and its subsidiaries	Doosan Hong Kong Ltd. and its subsidiaries
	Doosan Electro-Materials Singapore Pte. Ltd.	Doosan Electro-Materials Singapore Pte. Ltd.
	Doosan Shanghai Chemical Materials Co., Ltd.	Doosan Shanghai Chemical Materials Co., Ltd.
	Doosan Electro-Materials (Changshu) Co., Ltd.	Doosan Electro-Materials (Changshu) Co., Ltd.
	Doosan Electro-Materials America, LLC	Doosan Electro-Materials America, LLC
	Doosan Electro-Materials Vietnam Company Ltd.	-
	Doosan Industrial Vehicle Europe N.V.	Doosan Industrial Vehicle Europe N.V.
	Doosan Industrial Vehicle U.K. Ltd. and its subsidiaries	Doosan Industrial Vehicle U.K. Ltd. and its subsidiaries
	Doosan Logistics Europe GmbH	Doosan Logistics Europe GmbH
	Doosan Industrial Vehicle America Corp. and its subsidiaries	Doosan Industrial Vehicle America Corp. and its subsidiaries
	Doosan Industrial Vehicle China Co., Ltd. (formerly, Doosan Industrial Vehicle Yantai Co., Ltd.).	Doosan Industrial Vehicle China Co., Ltd. (formerly, Doosan Industrial Vehicle Yantai Co., Ltd.).
	Doosan Fuel Cell America, Inc.	Doosan Fuel Cell America, Inc.
	Doosan Logistics Solution Co., Ltd.	Doosan Logistics Solution Co., Ltd.
	Doosan Energy Solutions America, Inc.	Doosan Energy Solutions America, Inc.

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

33. Related party transactions (cont'd)

Relationship with the Company	December 31, 2020	December 31, 2019
Associates	Prestolite ASIA LTD. KDDI KOREA Corporation Wise Fashion Co., Ltd. PT. SEGARA AKASA Mastern Professional Investment Type Private Security Investment Trust No.98	Prestolite ASIA LTD. KDDI KOREA Corporation Wise Fashion Co., Ltd. - -
Joint ventures	Sichuan Kelun-Doosan Biotechnology Company Limited	Sichuan Kelun-Doosan Biotechnology Company Limited
Other related parties	- - - -	Doosan Fuel Cell Co., Ltd. ("DFC") (*3) Solus Advanced Materials Co., Ltd. (formerly, Doosan Solus Co., Ltd) (*4, 6) Volta Energy Solutions Sarl(formerly, Doosan Electro-Materials Luxembourg Sarl) and its subsidiaries (*4, 6) Volta Energy Solutions Europe Kft(formerly, Doosan Corporation Europe Kft.) and its subsidiaries (*4, 6) Neo Trans Co., Ltd. (*6) Doosan Yonkang Foundation (*6) Dongdaemun Future Foundation (*6) Chung-Ang University and others (*6)

(*1) DI and its subsidiaries, as well as DEC and their subsidiaries are excluded.

(*2) During the current year, the Company invested 100% of the common shares of Doosan Mecatec Co., Ltd. in kind to DHC. As a result, it was included in DHC's subsidiary during the current year.

(*3) During the current year, the Company obtained control over the investee and classified it as a subsidiary.

(*4) During the current year, the name of the related party was changed.

(*5) During the current year, the investee was newly established according to split-off.

(*6) 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*.

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

33. Related party transactions (cont'd)

Significant transactions for the years ended December 31, 2020 and 2019, between the Company and related parties are as follows (Korean won in millions):

		2020					
Related parties		Sales	Other income	Others (disposal of assets, etc.)	Purchases	Other expenses	Others (purchase of assets, etc.)
Subsidiaries	DHC and its subsidiaries	₩ 59,601	₩ 3,228	₩ -	₩ 5,053	₩ 5,168	₩ 143
	DI and its subsidiaries	126,187	-	-	58,455	2,916	11,520
	DEC and its subsidiaries	6,827	43	-	395	-	27
	Overseas subsidiaries for industrial vehicles BG (*1)	272,187	1,343	-	48,530	366	-
	Others (*2)	446,946	4,583	5,400	16,806	10,346	108
		<u>911,748</u>	<u>9,197</u>	<u>5,400</u>	<u>129,239</u>	<u>18,796</u>	<u>11,798</u>
Associates	2	-	800,000	-	4,650	248,417	
Other related parties (*2)	6,458	2,589	-	16,809	1,799	2,176	
	<u>₩ 918,208</u>	<u>₩ 11,786</u>	<u>₩ 805,400</u>	<u>₩ 146,048</u>	<u>₩ 25,245</u>	<u>₩ 262,391</u>	
		2019					
Related parties		Sales	Other income	Others (disposal of assets, etc.)	Purchases	Other expenses	Others (purchase of assets, etc.)(*3)
Subsidiaries	DHC and its subsidiaries	₩ 58,898	₩ 673	₩ -	₩ 6,070	₩ 9,751	₩ 24,145
	DI and its subsidiaries	141,472	50	46,350	65,382	5,185	8
	DEC and its subsidiaries	6,561	57	-	466	-	7,445
	Overseas subsidiaries for industrial vehicles BG (*1)	325,678	837	-	46,582	1,503	-
	Others (*2)	318,037	3,856	3	125,714	23,327	210
		<u>850,646</u>	<u>5,473</u>	<u>46,353</u>	<u>244,214</u>	<u>39,766</u>	<u>31,808</u>
Associates	105,987	-	-	-	-	-	
Other related parties (*2)	8,377	708	7	17,179	1,988	4,174	
	<u>₩ 965,010</u>	<u>₩ 6,181</u>	<u>₩ 46,360</u>	<u>₩ 261,393</u>	<u>₩ 41,754</u>	<u>₩ 35,982</u>	

(*1) Doosan Industrial Vehicle UK, Ltd., Doosan Industrial Vehicle America Corp. and Doosan Industrial Vehicle China Co., Ltd. (formerly, Doosan Industrial Vehicle Yantai Co., Ltd.) etc.

(*2) Other subsidiaries include details of transactions with DFC in the current and previous year, and the transaction details of other related parties for the previous year have been restated.

(*3) It includes purchases of DBC shares from DHC and DEC.

The above transaction details include amounts classified as profit or loss from discontinued operations in the current and previous income statements.

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

33. Related party transactions (cont'd)

As of December 31, 2020 and 2019, significant balances related to the transactions between the Company and related parties are as follows (Korean won in millions):

		December 31, 2020						
	Related parties	Trade receivables	Other receivables	Trade payables	Other payables	Lease liabilities	Asset-backed loan	
Subsidiaries	DHC and its subsidiaries	₩ 42,243	₩ 10,270	₩ 248	₩ 1,497	₩ -	₩ -	
	DI and its subsidiaries	12,043	2,178	23,678	5,442	7,842	-	
	DEC and its subsidiaries	3,420	5,017	3	344	-	-	
	Overseas subsidiaries for industrial vehicles BG (*1)	132,384	2,927	12,094	1,158	-	-	
	Others (*2)	53,354	104,612	4,994	2,385	-	263,000	
		<u>243,444</u>	<u>125,004</u>	<u>41,017</u>	<u>10,826</u>	<u>7,842</u>	<u>263,000</u>	
Associates		2	32,200	-	2,952	253,809	-	
Other related parties (*2)		249	1,322	52	410	1,825	-	
		<u>₩ 243,695</u>	<u>₩ 158,526</u>	<u>₩ 41,069</u>	<u>₩ 14,188</u>	<u>₩ 263,476</u>	<u>₩ 263,000</u>	
		December 31, 2019						
	Related parties	Trade receivables	Other receivables	Trade payables	Other payables	Lease liabilities	Asset-backed loan	
Subsidiaries	DHC and its subsidiaries	₩ 9,999	₩ 5,477	₩ 678	₩ 226	₩ -	₩ -	
	DI and its subsidiaries	14,991	2,431	10,931	4,913	-	-	
	DEC and its subsidiaries	3,304	4,383	7	105	-	-	
	Overseas subsidiaries for industrial vehicles BG (*1)	123,763	1,879	13,012	398	-	-	
	Others (*2)	64,565	51,273	3,121	4,902	-	150,000	
		<u>216,622</u>	<u>65,443</u>	<u>27,749</u>	<u>10,544</u>	<u>-</u>	<u>150,000</u>	
Associates		-	-	-	-	-	-	
Other related parties (*2)		14,272	4,888	7,603	4,393	2,806	-	
		<u>₩ 230,894</u>	<u>₩ 70,331</u>	<u>₩ 35,352</u>	<u>₩ 14,937</u>	<u>₩ 2,806</u>	<u>₩ 150,000</u>	

(*1) Doosan Industrial Vehicle UK, Ltd., Doosan Industrial Vehicle America Corp. and Doosan Industrial Vehicle China Co., Ltd. (formerly, Doosan Industrial Vehicle Yantai Co., Ltd.), etc.

(*2) Other subsidiaries include details of transactions with DFC in the current and previous year and the transaction details of other related parties for the previous year have been restated.

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

33. Related party transactions (cont'd)

Fund and equity transactions for the years ended December 31, 2020 and 2019 between the Company and related parties are as follows (Korean won in millions):

Related parties	Borrowing		Lease liabilities		Contribution		Dividend		Loan	
	Borrowings	Repayment	increase	Decrease	Received	Provided(*1)	Income	Paid	Loans	Repayment
2020										
Subsidiaries:										
DHC and its subsidiaries (*1)	₩ -	₩ -	₩ -	₩ -	₩ -	₩ 712,656	₩ -	₩ -	₩ -	₩ -
DI and its subsidiaries	-	-	10,827	3,350	-	-	-	-	-	-
DEC and its subsidiaries	-	-	-	-	-	-	-	-	97,891	97,891
Others(*1)	263,000	150,000	-	-	-	209,001	7,009	-	90,044	38,315
	<u>263,000</u>	<u>150,000</u>	<u>10,827</u>	<u>3,350</u>	<u>-</u>	<u>921,657</u>	<u>7,009</u>	<u>-</u>	<u>187,935</u>	<u>136,206</u>
Associates	-	-	258,309	8,315	-	70,071	12	-	-	-
Joint ventures	-	-	-	-	-	-	1,911	-	-	-
Others	-	-	2,176	1,527	-	(277,717)	-	2,160	-	-
	<u>₩ 263,000</u>	<u>₩ 150,000</u>	<u>₩ 271,312</u>	<u>₩ 13,192</u>	<u>₩ -</u>	<u>₩ 714,011</u>	<u>₩ 8,932</u>	<u>₩ 2,160</u>	<u>₩ 187,935</u>	<u>₩ 136,206</u>

(*1) It contains 100 percent of Doosan Mecatec's ordinary shares were invested in kind in DHC (see Note 11).

Related parties	Borrowing		Lease liabilities		Contribution		Dividend		Loan	
	Borrowings	Repayment	increase	Decrease	Received	Provided	Income	Paid	Loans	Repayment
2019										
Subsidiaries:										
DHC and its subsidiaries (*1)	₩ -	₩ -	₩ -	₩ -	₩ -	₩ 141,586	₩ -	₩ -	₩ -	₩ -
Others(*1)	150,000	-	-	-	-	130,525	21,514	-	-	-
	<u>150,000</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>272,111</u>	<u>21,514</u>	<u>-</u>	<u>-</u>	<u>-</u>
Associates	-	-	-	-	-	3,000	91	-	-	-
Joint ventures	-	-	-	-	-	-	603	-	-	-
Others	-	-	4,174	1,527	-	11,275	10,887	9,426	12,013	12,013
	<u>₩ 150,000</u>	<u>₩ -</u>	<u>₩ 4,174</u>	<u>₩ 1,527</u>	<u>₩ -</u>	<u>₩ 286,386</u>	<u>₩ 33,095</u>	<u>₩ 9,426</u>	<u>₩ 12,013</u>	<u>₩ 12,013</u>

(*1) It contains the transaction amount of DBC Co., Ltd. shares from DHC and DEC.

The above transactions include amounts classified as profit or loss from discontinued operations in the current and previous income statements.

The Company provided guarantees of payment and others to related parties as of December 31, 2020 (see Note 31).

The Company defines key management personnel as registered officer and non-registered officer (including outside director) who have the authority and responsibility for planning, operation and control and are in charge of business or division unit. Compensation to key management personnel of the Company for the years ended December 31, 2020 and 2019 is as follows (Korean won in millions):

	2020	2019
Employee benefits	₩ 35,333	₩ 36,525
Retirement benefits	1,815	1,933
	<u>₩ 37,148</u>	<u>₩ 38,458</u>

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

34. Cash flow statement

The adjustments and changes in cash generated from operating activities in the separate statements of cash flows for the years ended December 31, 2020 and 2019 is as follows (Korean won in millions):

	2020	2019
Adjustments for:		
Interest expense	₩ 79,558	₩ 77,787
Income tax expenses	173,974	14,019
Loss on foreign currency translation	20,207	7,233
Loss on valuation of derivatives	-	168
Loss on derivative transactions	-	634
Loss on disposal of trade receivables	1,675	2,495
Loss on disposal of short-term financial assets	-	160
Loss on disposal of long-term financial assets	2,033	-
Loss on repayment of asset-backed loan	-	669
Loss on repayment of bonds	839	202
Depreciation	56,587	71,252
Amortization	8,419	9,597
Loss on disposal of property, plant and equipment	3,424	3,976
Impairment loss on property, plant and equipment	260	5,607
Loss on disposal of intangible assets	29	58
Impairment loss on intangible assets	725	10,576
Loss on disposal of investment properties	14,165	1,188
Loss on valuation of investment properties	5,433	4,867
Retirement benefits	21,010	22,282
Increase (reversal of) in bad debt expenses	875	(1,769)
Increase (reversal of) in other bad debt expenses	(784)	4,856
Increase (reversal of) in provisions	12,490	5,053
Write-down of inventories	3,197	5,646
Interest income	(4,794)	(5,009)
Dividend income	(9,124)	(33,105)
Gain on foreign currency translation	(4,981)	(11,019)
Gain on valuation of derivatives	(14,855)	-
Gain on disposal of short-term financial assets	(362)	-
Gain on disposal of investment in subsidiaries	(62,388)	-
Gain/Loss on disposal of discontinued operations and impairment loss	(207,208)	(619,843)
Gain on disposal of property, plant and equipment	(6,166)	(2,465)
Reversal of impairment loss on property, plant and equipment	-	(1)
Gain on disposal of intangible assets	(184)	-
Gain on disposal of investment properties	(41,829)	-
Gain on valuation of investment properties	(6,333)	(11,434)
Financial guarantee income	(5,310)	(1,740)
Others	(339)	-
	₩ 40,243	₩ (438,060)

34. Cash flow statement (cont'd)

	2020		2019
Changes in operating assets and liabilities:			
Trade receivables	₩ (63,335)	₩	8,492
Other receivables	(15,202)		(58,088)
Inventories	3,436		10,079
Derivative assets	-		(634)
Other current assets	2,711		(6,956)
Long-term other receivables	(37,687)		(1,762)
Other non-current assets	436		(1,645)
Trade payables	(131,987)		26,594
Other payables	(31,425)		33,132
Provisions	(9,649)		(2,207)
Other current liabilities	(9,893)		49,189
Long-term other payables	(71,660)		1,887
Retirement benefits paid	(7,724)		(3,904)
Defined benefit liabilities transferred from affiliated companies	851		1,402
Increase in plan assets	(21,254)		(39,250)
	<u>₩ (392,382)</u>	₩	<u>16,329</u>

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	₩ 24,597	₩	26,242
Reclassification of current portion of bonds	287,302		169,891
Reclassification of current portion of long-term borrowings	63,315		173,315
Reclassification of current portion of long-term asset-backed loan	95,263		150,000
Acquisition or disposal of investment in subsidiaries	239,611		-
Decreases of assets and liabilities due to division (see Note 35)	233,709		186,664
Reclassification to the non-current assets held for sale	450,230		35,321

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

34. Cash flow statement (cont'd)

Details of changes in liabilities arising from financial activities for the year ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020						
	Beginning balance	Cash flows from financing activities	Fluctuation of foreign exchange rate	Reclassification of current portion	Division (see Note 35)	Others	Ending balance
Short-term borrowings	₩ 508,000	₩ 201,761	₩ -	₩ -	₩ -	₩ -	₩ 709,761
Current portion of long-term borrowings	143,315	(103,315)	(803)	63,315	-	(4)	102,508
Current portion of bonds	169,891	(320,542)	-	287,302	-	1,177	137,828
Current portion of long-term asset-backed loan	150,000	(150,000)	-	95,263	-	-	95,263
Current lease liabilities	8,925	(17,973)	-	10,282	(266)	29,353	30,321
Long-term borrowings	311,368	(248,435)	-	(63,315)	-	382	-
Bonds	286,998	333,376	-	(287,302)	-	560	333,632
Long-term asset-backed loan	-	261,003	-	(95,263)	-	475	166,215
Non-current lease liabilities	8,584	-	-	(10,282)	(120)	247,396	245,578
	<u>₩ 1,587,081</u>	<u>₩ (44,125)</u>	<u>₩ (803)</u>	<u>₩ -</u>	<u>₩ (386)</u>	<u>₩ 279,339</u>	<u>₩ 1,821,106</u>

	2019						
	Beginning balance	Cash flows from financing activities	Fluctuation of foreign exchange rate	Reclassification of current portion	Division (see Note 35)	Others (*1)	Ending balance
Short-term borrowings	₩ 104,645	₩ 413,355	₩ -	₩ -	₩ (10,000)	₩ -	₩ 508,000
Current portion of long-term borrowings	82,858	(82,858)	-	173,315	(30,000)	-	143,315
Current portion of bonds	299,664	(300,000)	-	169,891	-	336	169,891
Current portion of long-term asset-backed loan	-	-	-	150,000	-	-	150,000
Current lease liabilities (*1)	-	(11,835)	-	10,524	(700)	10,936	8,925
Long-term borrowings	413,198	70,000	913	(173,315)	-	572	311,368
Bonds	447,269	107,186	-	(169,891)	(98,732)	1,166	286,998
Long-term asset-backed loan	-	149,092	-	(150,000)	-	908	-
Non-current lease liabilities(*1)	-	-	-	(10,524)	(850)	19,958	8,584
Financial lease liabilities(*1)	12,448	-	-	-	-	(12,448)	-
	<u>₩ 1,360,082</u>	<u>₩ 344,940</u>	<u>₩ 913</u>	<u>₩ -</u>	<u>₩ (140,282)</u>	<u>₩ 21,428</u>	<u>₩ 1,587,081</u>

(*1) The effects of accounting policy changes and reclassification of accounts upon the initial introduction of KIFRS 1116 Leases are included.

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

35. Division

The Company decided to sell the Mottrol segment in accordance with the Board's resolution of September 4, 2020 and the key decision is as follows:

	Contents
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 Company 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 Company 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:

	Divided company	Newly incorporated company
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 details of the assets and liabilities of the Mottrol segment carried over to the newly incorporated company are as follows (Korean won in millions):

Assets	Book amount	Liabilities	Book amount
Cash and cash equivalents	₩ 39	Trade payables	₩ 79,209
Trade receivables	98,932	Other payables	5,525
Other receivables	256	Current lease liabilities	266
Inventory	71,620	Other current liabilities	72,612
Other current assets	6,629	Current provisions	2,564
Investment in subsidiaries, associates and joint ventures	21,601	Net defined benefit liabilities	3,258
Property, plant and equipment	103,670	Non-current provisions	1,091
Intangible assets	93,793	Non-current lease liabilities	120
Investment properties	143	Other non-current liabilities	1,530
Other long-term receivables	681		
Deposit	1,750		
Deferred income tax assets	770		
	<u>₩ 399,884</u>		<u>₩ 166,175</u>

According to the split-off, the divided company acquired all of the shares issued by the newly incorporated company. As of December 31, 2020, the shares were classified as assets held for sale (see Note 37). 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 spin-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 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 income for the previous year has been restated (see Note 36).

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

35. Division (cont'd)

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.

Company name	Divided company		Newly incorporated company	
	Doosan Corporation		Doosan Fuel Cell Co., Ltd.	Doosan Solus Co., Ltd.
Split ratio	0.9060062		0.0605940	0.0333998

The details of the assets and liabilities of the fuel cell and material segments carried over to the newly incorporated company are as follows (Korean won in millions):

Assets	Book amount	Liabilities	Book amount
Cash and cash equivalents	₩ 59,047	Trade payables	₩ 65,312
Trade receivables	75,356	Other payables	32,725
Other receivables	57,588	Other current liabilities	92,152
Inventory	187,110	Bonds	98,732
Other current assets	31,870	Short-term borrowings	10,000
Investment in subsidiaries, associates and joint ventures	55,183	Current portion of long-term borrowings	30,000
Property, plant and equipment	64,702	Net defined benefit liabilities	4,141
Intangible assets	31,164	Other non-current liabilities	936
Investment properties	5,136		
Other long-term receivables	1,223		
Deposit	2,382		
Deferred income tax assets	2,560		
Other non-current assets	6,388		
	<u>₩ 579,709</u>		<u>₩ 333,998</u>

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 Company measured the dividend payable at the date of settlement at ₩865,554 million, the fair value of the above assets and liabilities, and recognized ₩619,843 million, a difference from the carrying amount of ₩245,711 million, as profit from the disposal of discontinued operations in the statement of profit or loss (see Note 36).

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

35. Division (cont'd)

The discount and permanent growth rates used to measure the fair value of the assets and liabilities above are as follows:

	<u>Doosan Fuel Cell Co., Ltd</u>	<u>Doosan Solus Co., Ltd</u>
Discount rate	10.97%	9.51%~13.40%
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 OCI 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 (see Note 36).

36. Discontinued operations

Details of discontinued operations for the years ended December 31, 2020 and 2019 are as follows:

	2020			
Discontinued operations	<u>Duty-free segment</u>		<u>Mottrol segment</u>	
Main business	Sales of duty-free goods		Manufacturing and sales of hydraulic components, etc. and defense industry	
Method	Transfer of business (*1)		Split-off (*2)	
	2019			
Discontinued operations	<u>Fuel cell segment</u>	<u>Materials segment</u>	<u>Duty-free segment</u>	<u>Mottrol segment</u>
Main business	Manufacturing and sales of fuel cell	Manufacturing and sales of OLED and others	Sales of duty-free goods	Manufacturing and sales of hydraulic components, etc. and defense industry
Method	Spin-off (*3)	Spin-off (*3)	Transfer of business (*1)	Split-off (*2)

(*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 the resolution of the shareholders' meeting dated October 20, 2020, the Company completed the division on December 1, 2020, by dividing the Mottrol segment into Mottrol Co., Ltd.

(*3) According to the resolution of the shareholders' meeting dated August 13, 2019, the Company completed the division on October 1, 2019 by dividing the fuel cell segment into DFC and the electro-material segment into Doosan Solus Co., Ltd.

The operating results of the above segments are marked as discontinued operations, and the comparative income statement has been restated.

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

36. Discontinued operations (cont'd)

Details of profit or loss from discontinued operations for the year ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020		
	Duty-free segment	Mottrol segment	Total
Sales	₩ 4,660	₩ 505,577	₩ 510,237
Cost of sales	1,832	423,652	425,484
Selling and administrative expenses	9,783	43,886	53,669
Operating profit (loss)	(6,955)	38,039	31,084
Non-operating profit (loss)	404	293	697
Profit (loss) before income tax expenses	(6,551)	38,332	31,781
Income tax expenses (benefits)	(1,585)	9,276	7,691
	(4,966)	29,056	24,090
Profit or loss from disposal of discontinued operations before income tax expenses and impairment loss	(287)	207,495	207,208
Tax expenses related to disposal of discontinued operations	(70)	78,132	78,062
	(217)	129,363	129,146
Profit or loss from discontinued operations	₩ (5,183)	₩ 158,419	₩ 153,236

	2019				
	Fuel cell segment	Materials segment	Duty-free segment	Mottrol segment	Total
Sales	₩ 276,911	₩ 82,737	₩ 454,985	₩ 472,669	₩ 1,287,302
Cost of sales	267,628	38,548	285,535	410,711	1,002,422
Selling and administrative expenses	13,666	18,511	219,187	40,002	291,366
Operating profit (loss)	(4,383)	25,678	(49,737)	21,956	(6,486)
Non-operating profit (loss)	(8,369)	(659)	(10,436)	1,080	(18,384)
Profit (loss) before income tax expenses	(12,752)	25,019	(60,173)	23,036	(24,870)
Income tax expenses (benefits)	(3,086)	6,054	(14,561)	5,546	(6,047)
	(9,666)	18,965	(45,612)	17,490	(18,823)
Profit from disposal of discontinued operations before income tax expenses	158,447	461,396	-	-	619,843
Tax expenses related to disposal of discontinued operations	-	13,310	-	-	13,310
	158,447	448,086	-	-	606,533
Impairment loss before income tax recognized as a measure of net fair value	-	-	(20,201)	-	(20,201)
Tax benefits related to the impairment loss	-	-	(4,889)	-	(4,889)
	-	-	(15,312)	-	(15,312)
Profit (loss) from discontinued operations	₩ 148,781	₩ 467,051	₩ (60,924)	₩ 17,490	₩ 572,398

Doosan Corporation
Notes to the separate financial statements
December 31, 2020 and 2019

36. Discontinued operations (cont'd)

Cash flows from discontinued operations for the year ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020		
	Duty-free segment	Mottrol segment	Total
Net cash flows from operating activities	₩ (5,286)	₩ (39,684)	₩ (44,970)
Net cash flows from Investing activities (*1)	33,664	(7,355)	26,309
Net cash flows from financing activities	-	-	-
	<u>₩ 28,378</u>	<u>₩ (47,039)</u>	<u>₩ (18,661)</u>

(*1) It includes cash flow of the disposal of discontinued operations.

	2019				
	Fuel cell segment	Materials segment	Duty-free segment	Mottrol segment	Total
Net cash flows from operating activities	₩ (9,442)	₩ 12,581	₩ (38,587)	₩ 26,634	₩ (8,814)
Net cash flows from Investing activities	(3,434)	(14,650)	(4,763)	(14,875)	(37,722)
Net cash flows from financing activities	-	-	-	-	-
	<u>₩ (12,876)</u>	<u>₩ (2,069)</u>	<u>₩ (43,350)</u>	<u>₩ 11,759</u>	<u>₩ (46,536)</u>

37. Assets held for sale

As described in Note 35 on the financial statements, as of the end of the current year, the Company classifies stocks of the Mottrol Co., Ltd. that are to be sold as assets held for sale in the financial statements. The details of assets held for sale as of December 31, 2020 are as follows (Korean won in millions):

	December 31, 2020		
	Book value before impairment	Impairment loss	Fair value less costs to sell
Investment in subsidiaries	₩ 450,230	₩ -	₩ 450,230

As described in Note 36 on the financial statements, as of December 31, 2019, the Company classifies some assets of the duty-free segment that are to be sold as held for sale in the financial statements. The details of assets held for sale as of December 31, 2019 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 discontinued operating profit or loss in the previous year income statement.

38. 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 Company 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 Company has prepared the separate financial statements by reasonably estimating the impact of COVID -19 on the Company. However, there are significant uncertainties in estimating the timing for endpoint of COVID -19 and the impact of Covid-19 on the Company.

39. Events after the reporting period

At the board meeting held on March 11, 2021, the board has resolved to divide the industrial vehicle segment that manufactures and sales forklift on July 1, 2021, the spin-off date. By establishing Doosan Materials Handling Solution Co., Ltd., Doosan Corporation will remain after division. The shares of the new company, which will be held by the Company according to the split-off, will be sold to Doosan Bobcat Co., Ltd., our subsidiary. (Sales price: ₩750,000 million).

In accordance with the Board of Directors' resolution of March 19, 2021, the Company decided to make a investment in kind of 10,016,672 ordinary shares and 2,039,091 preferred shares of DFC, to its subsidiary, DHC. The details are as follows.

	<u>Details</u>
Investment due date	April 2, 2021
Investment object	47,843,956 ordinary shares of DHC
The amount of investment	₩544,225 million

Meanwhile, the board of directors approved to provide all of the investment objects as additional collateral for DHC's emergency operating fund agreement of ₩3,000,000 million signed with the KDB and Korea Exim Bank during the current year.

Independent auditor's report on internal control over financial reporting

The Shareholders and Board of Directors Doosan Corporation

Opinion

We have audited Doosan Corporation's (the "Company") internal control over financial reporting ("ICFR") based on the Conceptual Framework for designing and operating ICFR established by the Operating Committee of ICFR (the "ICFR Committee") as of December 31, 2020.

In our opinion, the Company's ICFR has been effectively designed and operated, in all material respects, as of December 31, 2020, in accordance with the Conceptual Framework for designing and operating ICFR.

We also have audited, in accordance with the Korean Auditing Standards ("KGAAS"), the separate statement of financial position as of December 31, 2020, and the separate statements of income, separate statements of comprehensive income, separate statements of changes in equity and separate statements of cash flows for the year then ended, and notes to the financial statements, including a summary of significant accounting policies, and our report dated March 22, 2021 expressed *"an unqualified opinion thereon"*.

Basis for opinion on ICFR

We conducted our audit in accordance with KGAAS. Our responsibilities under those standards are further described in the Auditor's responsibilities for the audit of ICFR section of our report.

We are independent of the Company in accordance with the ethical requirements that are relevant to our audit of ICFR in the Republic of Korea, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Responsibilities of management and those charged with governance for ICFR

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

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

Auditor's responsibilities for the audit of ICFR

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

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

ICFR definition and inherent limitations

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

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

The engagement partner on the audit resulting in this independent auditor's report is 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 auditors' report date to the time this report is used. Such events and circumstances could significantly affect the Company's ICFR and may result in modifications to this report.

ICFR Operating Status Report by CEO

To the Shareholders, Board of Directors and Audit Committee of Doosan Corporation,

We, as the Chief Executive officer and the Internal Accounting Manager of Doosan Company, assessed operating status of the Company's Internal Control over Financial Reporting("ICFR") for the year ending December 31, 2020.

Design and operation of ICFR is the responsibility of the Company's management, including the Chief Executive Officer and the Internal Accounting Manager.

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

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

Based on our assessment, we concluded that the Company's ICFR is designed and operated effectively as of December 31, 2020, in all material respects, in accordance with the 'Conceptual Framework for Designing and Operating Internal Control over Financial Reporting.

We certify that this report does not contain any untrue statement of a fact, or omit to state a fact necessary to be presented herein. We also certify that this report does not contain or present any statements which might cause material misunderstandings of the readers, and we have reviewed and verified this report with sufficient care.

3, 4, 2021

Internal Accounting Manager

Baek Seung-am

Chief Executive Officer

Dong Hyun-Soo

