

Hyundai Doosan Infracore Co., Ltd. and Subsidiaries

**Consolidated Financial Statements
December 31, 2021 and 2020**

Hyundai Doosan Infracore Co., Ltd. and Subsidiaries
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December 31, 2021 and 2020

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Independent Auditor's Report

(English Translation of a Report Originally Issued in Korean)

To the Board of Directors and Shareholders of
Hyundai Doosan Infracore Co., Ltd.

Opinion

We have audited the accompanying consolidated financial statements of Hyundai Doosan Infracore Co., Ltd. and its subsidiaries (collectively referred to as the "Group"), which comprise the consolidated statements of financial position as at December 31, 2021 and 2020, and the consolidated statements of profit or loss, and the consolidated statements of comprehensive income, and consolidated statements of changes in equity and consolidated statements of cash flows for the years then ended, and notes to the consolidated financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Group as at December 31, 2021 and 2020, and its consolidated financial performance and its consolidated cash flows for the years then ended in accordance with International Financial Reporting Standards as adopted by the Republic of Korea (Korean IFRS).

Basis for Opinion

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

Emphasis of Matter

(1) The impact of Conronavirus disease 2019 (COVID-19)

Without modifying our opinion, we draw attention to Note 3 to the consolidated financial statements of the Group. Note 3 to the consolidated financial statements describes management's plans and action taken to resolve uncertainty relating to the impact of Coronavirus disease 2019 (COVID-19) on the Group, and to solve these events or circumstances.

(2) Presentation of discontinued operations

Without modifying our opinion, we draw attention to Note 37, 38 to the consolidated financial statements of the Group. As discussed in Note 37 and 38, the operating results of the investment business segment that are to be transferred to the newly established corporation due to the spin-off during the year ended December 31, 2021 are presented as discontinued operations and the comparative consolidated statement of profit or loss has been restated.

Key Audit Matters

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the consolidated financial statements of the current period. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in

forming our opinion thereon, and we do not provide a separate opinion on these matters.

(1) Impairment assessment of capitalized development costs

Why it is determined to be a key audit matter

As at December 31, 2021, the carrying amount of development costs capitalized as intangible asset is ₩ 104,928 million. The Group operates several R&D centers in Korea, Europe and other regions, and invests significant amounts to develop new products and technologies. Given the extent of judgement of management required, we consider impairment assessment of capitalized development costs to be a key audit matter (Note 13).

How our audit addressed the key audit matter

Key audit procedures we have performed in relation to impairment assessment of capitalized development costs are as follows.

- Obtained an understanding on Group's accounting policies for impairment assessment of development costs, and tested design and operating effectiveness of related internal controls
- Obtained the details of capitalized development costs and reconciled the total amount to the amount recorded in the general ledger
- Tested development costs capitalized by examining management's assessment documentation and assessing whether the criteria set out in the relevant accounting standards have been met on a sampling basis
- Obtained an understanding and evaluated the development progress and prospect of the projects selected as a sample by interviewing with appropriate project manager and performing other procedures, and assessed appropriateness of management's conclusion on impairment analysis
- Examined whether the actual sales have been generated from the projects selected and evaluated reasonableness of sales and profitability forecasts to assess future economic benefits of the projects capitalized

(2) Evaluation of provision for warranty

Why it is determined to be a key audit matter

As at December 31, 2021, the carrying amount of provision for warranty amounts to ₩ 152,917 million. The Group provides product warranties for certain periods after sales of products and recognizes provision for warranty by estimating expected repair expenses. The performance obligation of warranty is determined based on diverse assumptions such as warranty periods, expected warranty expenses and the nature and extent of the Group provides. We drew attention to the adequacy of the warranty evaluation considering the fact that the management's estimation is intervened in measuring the provision for warranty (Note 19).

How the matter was addressed in the audit

We performed the following audit procedures in relation to the evaluation of provision for warranty of the Group. We:

- Obtained an understanding of Group's accounting policies for valuation of provision for warranty, and tested design and operating effectiveness of related internal controls
- Verified the accuracy of basic information for accounting estimation used by the management
- Compared reasons for the major assumptions, that management used for estimating the relevant liabilities, with the past performance
- Independently recalculated the balance of liabilities as at December 31, 2020

Other Matter

Auditing standards and their application in practice vary among countries. The procedures and practices used in the Republic of Korea to audit such consolidated financial statements may differ from those generally accepted and applied in other countries.

Responsibilities of Management and Those Charged with Governance for the Consolidated Financial Statements

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

In preparing the consolidated financial statements, management is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group or to cease operations.

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

Auditor's Responsibilities for the Audit of the Consolidated Financial Statements

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

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

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

- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the Group audit. We remain solely responsible for our audit opinion.

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

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

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

The engagement partner on the audit resulting in this independent auditor's report is Yun-Gyung Chang, Certified Public Accountant.

Seoul, Korea
March 11, 2022

This report is effective as of March 11, 2022, the audit report date. Certain subsequent events or circumstances, which may occur between the audit report date and the time of reading this report, could have a material impact on the accompanying consolidated financial statements and notes thereto. Accordingly, the readers of the audit report should understand that there is a possibility that the above audit report may have to be revised to reflect the impact of such subsequent events or circumstances, if any.

Hyundai Doosan Infracore Co., Ltd. and Subsidiaries
Consolidated Statements of Financial Position
December 31, 2021 and 2020

(in Korean won)	Notes	December 31, 2021		December 31, 2020	
Assets					
Current assets					
Cash and cash equivalents	4,10,36,37	₩	545,383,450,272	₩	1,663,459,039,827
Short-term financial instruments	4,5,10		78,617,146,367		139,940,131,859
Short-term investment securities	4,6,10,37		29,628,600		111,160,898,007
Trade and other receivables	4,7,10,37		1,358,091,518,641		1,358,281,427,677
Derivative assets	4,9,10		1,886,450,241		415,822,604
Inventories	8,34		1,077,584,469,079		1,589,908,086,009
Other current assets	4,10,37		178,251,465,519		186,449,615,091
			<u>3,239,844,128,719</u>		<u>5,049,615,021,074</u>
Non-current assets					
Long-term financial instruments	4,5,10		1,288,780,690		582,864,908
Long-term investment securities	4,6,10		19,078,504,426		40,447,591,006
Long-term trade and other receivables	4,7,10		7,829,091,484		4,969,070,586
Investments in associates and joint ventures	11,37		393,863,593		143,219,994,410
Property, plant and equipment	12,34,37		1,162,534,800,169		1,851,511,569,146
Intangible assets	13,37		165,399,677,304		4,480,673,780,764
Investment properties	14,37		11,148,499,179		135,527,255,910
Deferred tax assets	30		94,433,403,506		156,818,059,667
Right-of-use assets	15		36,852,362,288		88,408,864,815
Other non-current assets	10,37		43,486,686,377		75,112,121,557
			<u>1,542,445,669,016</u>		<u>6,977,271,172,769</u>
Total assets		₩	<u>4,782,289,797,735</u>	₩	<u>12,026,886,193,843</u>
Liabilities					
Current liabilities					
Trade and other payables	4,10,16	₩	949,708,464,572	₩	1,600,710,190,244
Short-term borrowings	4,10,17,36,37		468,222,918,528		930,840,259,045
Current portion of bonds	4,10,17,36,37		741,411,814,544		612,592,894,338
Current portion of long-term borrowings	4,10,17,36,37		38,765,974,986		80,918,529,449
Current tax liabilities	30		211,150,780,775		32,897,125,091
Current derivative liabilities	9,10		2,354,540,803		220,775,235
Provisions	19		116,303,366,399		240,699,675,799
Current lease liabilities	4,10,15		13,601,820,753		25,214,690,922
Other current liabilities	10		227,249,861,350		358,548,574,067
			<u>2,768,769,542,710</u>		<u>3,882,642,714,190</u>
Non-current liabilities					
Other non-current payables	10,16		4,122,351		5,658,287
Bonds	4,10,17,33,34,36,37		504,723,820,697		1,795,800,115,056
Long-term borrowings	4,10,17,33,34,36,37		6,575,146,557		868,988,012,974
Net defined benefit liabilities	18,37		13,282,472,967		438,980,831,440
Non-current derivative liabilities	9,10		-		43,774,149,009
Deferred tax liabilities	30		34,261,161,774		272,264,977,225
Non-current provisions	19		37,734,432,460		62,526,535,945
Non-current lease liabilities	4,10,15		11,190,372,322		52,184,669,864
Other non-current liabilities	10,37		35,924,831,769		120,719,925,261
			<u>643,696,360,897</u>		<u>3,655,244,875,061</u>
Total liabilities			<u>3,412,465,903,607</u>		<u>7,537,887,589,251</u>
Equity					
Share capital	1,20		197,434,567,000		1,079,658,125,000
Capital surplus	20		629,006,834,313		166,597,929,630
Other components of equity	21		(1,580,314,102,146)		(71,162,757,356)
Accumulated other comprehensive income	22		245,424,395,334		(205,475,268,112)
Retained earnings	23		1,879,093,975,716		1,408,125,824,003
Equity attributable to owners of the Parent Company			<u>1,370,645,670,217</u>		<u>2,377,743,853,165</u>
Non-controlling interest			<u>(821,776,089)</u>		<u>2,111,254,751,427</u>
Total equity			<u>1,369,823,894,128</u>		<u>4,488,998,604,592</u>
Total liabilities and equity		₩	<u>4,782,289,797,735</u>	₩	<u>12,026,886,193,843</u>

The above consolidated statements of financial position should be read in conjunction with the accompanying notes.

Hyundai Doosan Infracore Co., Ltd. and Subsidiaries
Consolidated Statements of Profit or Loss
Years Ended December 31, 2021 and 2020

<i>(in Korean won)</i>	Notes	2021		2020	
Revenue	24,25	₩	4,593,665,146,349	₩	3,988,103,997,064
Cost of goods sold	26		<u>(3,706,827,366,414)</u>		<u>(3,146,070,044,294)</u>
Gross profit			886,837,779,935		842,033,952,770
Selling and administrative expenses	26,27		<u>(622,329,974,358)</u>		<u>(577,589,318,925)</u>
Operating profit			264,507,805,577		264,444,633,845
Finance income	10,28		118,981,946,352		116,516,290,967
Finance costs	10,28		(160,535,739,367)		(246,322,974,886)
Other non-operating income	10,29		10,739,743,808		10,737,444,913
Other non-operating expenses	10,29		(37,835,258,651)		(28,874,960,044)
Loss on equity method	11		<u>(21,844,588,648)</u>		<u>(3,838,742,518)</u>
Profit before income tax			174,013,909,071		112,661,692,277
Income tax expense	30		<u>(62,429,670,386)</u>		<u>(59,411,943,560)</u>
Profit from continuing operations		₩	111,584,238,685	₩	53,249,748,717
Profit from discontinued operations	38	₩	456,251,591,575	₩	231,823,934,432
Profit for the year :		₩	567,835,830,260	₩	285,073,683,149
Owners of the Parent Company		₩	461,535,332,054	₩	148,834,138,692
Non-controlling interest			106,300,498,206		136,239,544,457
Earnings per share					
attributable to the equity holders of the Parent Company	31				
Continuing operations and Discontinued operations					
Basic earnings per share		₩	5,816	₩	2,278
Diluted earnings per share			5,336		2,263
Continuing operations					
Basic earnings per share		₩	1,335	₩	586
Diluted earnings per share			1,228		582

The above consolidated statements of profit or loss should be read in conjunction with the accompanying notes.

Hyundai Doosan Infracore Co., Ltd. and Subsidiaries
Consolidated Statements of Comprehensive Income
Years Ended December 31, 2021 and 2020

<i>(in Korean won)</i>	Notes	2021	2020
Profit for the year		₩ 567,835,830,260	₩ 285,073,683,149
Other comprehensive income			
<i>Items that will not be reclassified to profit or loss :</i>			
Remeasurements of net defined benefit liability	18	12,567,971,522	(11,017,849,266)
Revaluation reserves of property, plant and equipment	12	3,199,520,031	-
Gain on valuation of equity instruments at fair value through other comprehensive income		1,544,268,015	-
Share of other comprehensive income of associates	11	-	43,762,664
<i>Items that may be subsequently reclassified to profit or loss :</i>			
Exchange differences		200,422,321,301	(76,846,084,349)
Cash flow hedges	9	(220,337,813)	3,056,646,628
Other comprehensive income for the year, net of tax		<u>217,513,743,056</u>	<u>(84,763,524,323)</u>
Total comprehensive income for the year		<u>₩ 785,349,573,316</u>	<u>₩ 200,310,158,826</u>
Total comprehensive income for the year is attributable to:			
Owners of the Parent Company		₩ 616,637,221,671	₩ 104,600,518,607
Non-controlling interest		<u>168,712,351,645</u>	<u>95,709,640,219</u>
		<u>₩ 785,349,573,316</u>	<u>₩ 200,310,158,826</u>

The above consolidated statements of comprehensive income should be read in conjunction with the accompanying notes.

Hyundai Doosan Infracore Co., Ltd. and Subsidiaries
Consolidated Statements of Changes in Equity
Years Ended December 31, 2021 and 2020

(in Korean won)

	Attributable to owners of the Parent Company										Non-controlling Interest	Total
	Share capital	Capital surplus	Other components of equity	Accumulated other comprehensive income	Retained Earnings	Subtotal						
Balance at January 1, 2020	₩ 1,040,806,395,000	₩ 154,356,219,760	₩ (70,649,474,593)	₩ (159,818,151,453)	₩ 1,257,868,188,737	₩ 2,222,563,177,451	₩ 2,044,988,860,808	₩ 4,267,552,038,259				
Total comprehensive income:												
Profit for the year	-	-	-	-	148,834,138,692	148,834,138,692	136,239,544,457	285,073,683,149				
Remeasurement of net defined benefit liabilities	-	-	-	-	(417,257,631)	(417,257,631)	(10,600,591,635)	(11,017,849,266)				
Revaluation reserves of property, plant and equipment	-	-	-	(1,799,768,503)	1,799,768,503	-	-	-				
Share of retained earnings of associates	-	-	-	-	40,985,702	40,985,702	2,776,962	43,762,664				
Exchange differences	-	-	-	(46,801,841,183)	-	(46,801,841,183)	(30,044,243,166)	(76,846,084,349)				
Cash flow hedges	-	-	-	2,944,493,027	-	2,944,493,027	112,153,601	3,056,646,628				
Total comprehensive income for the period	-	-	-	(45,657,116,659)	150,257,635,266	104,600,518,607	95,709,640,219	200,310,158,826				
Transactions with owners:												
Cancellation and redemption of share options	-	513,282,763	(513,282,763)	-	-	-	-	-				
Exercise of stock warrants	38,851,730,000	10,892,620,131	-	-	-	49,744,350,131	-	49,744,350,131				
Issuance of convertible bonds	-	835,806,976	-	-	-	835,806,976	-	835,806,976				
Dividend of subsidiary	-	-	-	-	-	-	(29,443,749,600)	(29,443,749,600)				
Total transactions with owners	38,851,730,000	12,241,709,870	(513,282,763)	-	-	50,580,157,107	(29,443,749,600)	21,136,407,507				
Balance at December 31, 2020	₩ 1,079,658,125,000	₩ 166,597,929,630	₩ (71,162,757,356)	₩ (205,475,268,112)	₩ 1,408,125,824,003	₩ 2,377,743,853,165	₩ 2,111,254,751,427	₩ 4,488,998,604,592				
Balance at January 1, 2021	₩ 1,079,658,125,000	₩ 166,597,929,630	₩ (71,162,757,356)	₩ (205,475,268,112)	₩ 1,408,125,824,003	₩ 2,377,743,853,165	₩ 2,111,254,751,427	₩ 4,488,998,604,592				
Total comprehensive income:												
Profit for the year	-	-	-	-	461,535,332,054	461,535,332,054	106,300,498,206	567,835,830,260				
Remeasurement of net defined benefit liabilities	-	-	-	-	7,888,551,644	7,888,551,644	4,679,419,878	12,567,971,522				
Revaluation reserves of property, plant and equipment	-	-	-	3,199,520,031	-	3,199,520,031	-	3,199,520,031				
Loss(Gain) on valuation of financial assets at fair value through other comprehensive income	-	-	-	-	1,544,268,015	1,544,268,015	-	1,544,268,015				
Exchange differences	-	-	-	142,692,502,747	-	142,692,502,747	57,729,818,554	200,422,321,301				
Cash flow hedges	-	-	-	(222,952,820)	-	(222,952,820)	2,615,007	(220,337,813)				
Total comprehensive income for the period	-	-	-	145,669,069,958	470,968,151,713	616,637,221,671	168,712,351,645	785,349,573,316				
Transactions with owners:												
Cancellation and redemption of share options	-	289,872,269	(289,872,269)	-	-	-	-	-				
Exercise of stock warrants	190,248,616,000	67,801,213,194	-	-	-	258,049,829,194	-	258,049,829,194				
Acquisition and disposition of treasury shares	-	3,784,187	(1,093,992,368)	-	-	(1,090,208,181)	-	(1,090,208,181)				
Changes in Shares of Subsidiaries	-	-	(166,663,913,629)	-	-	(166,663,913,629)	(138,500,758,821)	(305,164,672,450)				
Capital increase	115,107,913,000	568,598,691,210	-	-	-	683,706,604,210	-	683,706,604,210				
Capital reduction without consideration	(318,097,492,000)	-	318,097,492,000	-	-	-	-	-				
Spin-off	(869,482,595,000)	(174,284,656,177)	(1,659,201,058,524)	305,230,593,488	-	(2,397,737,716,213)	(2,142,288,120,340)	(4,540,025,836,553)				
Total transactions with owners	(882,223,558,000)	462,408,904,683	(1,509,151,344,790)	305,230,593,488	-	(1,623,735,404,619)	(2,280,788,879,161)	(3,904,524,283,780)				
Balance at December 31, 2021	₩ 197,434,567,000	₩ 629,006,834,313	₩ (1,580,314,102,146)	₩ 245,424,395,334	₩ 1,879,093,975,716	₩ 1,370,645,670,217	₩ (821,776,089)	₩ 1,369,823,894,128				

The above consolidated statements of changes in equity should be read in conjunction with the accompanying notes.

Hyundai Doosan Infracore Co., Ltd. and Subsidiaries
Consolidated Statements of Cash Flows
Years Ended December 31, 2021 and 2020

<i>(in Korean won)</i>	Note	2021	2020
Cash flows from operating activities			
Cash generated from operations:	36		
Profit for the year		₩ 567,835,830,260	₩ 285,073,683,149
Adjustments		329,543,741,991	711,646,180,133
Changes in operating assets and liabilities		(483,842,464,590)	289,155,613,357
Interest received		12,451,669,045	18,463,373,663
Interest paid		(122,304,729,369)	(143,306,988,879)
Dividends received		448,000,000	560,000,000
Income tax paid		(106,022,958,098)	(110,745,091,807)
Net cash inflow from operating activities		198,109,089,239	1,050,846,769,616
Cash flows from investing activities			
Decrease in short-term financial instruments		39,322,985,491	5,030,514,078
Decrease in long-term financial instruments		-	240,578,471
Disposal of short-term investment securities		12,774,451,423	-
Disposal of long-term investment securities		3,612,403,602	3,225,381,820
Decrease in loans		15,643,237	260,528,473
Disposal of property, plant and equipment		5,291,125,862	8,520,711,678
Disposal of investment properties		406,880,321	53,367,500
Disposal of intangible assets		2,452,985,930	5,076,894,597
Others		7,747,375,000	1,382,892,899
Increase in long-term financial instruments		(3,721,226,431)	-
Acquisition of short-term investment securities		(225,073,803)	(100,500,186,033)
Acquisition of long-term investment securities		(6,353,884,653)	(30,599,233,803)
Increase in loans		(1,292,898)	(28,321,200,000)
Acquisition of property, plant and equipment	12	(119,325,994,512)	(220,138,150,928)
Acquisition of intangible assets	14	(36,912,836,532)	(95,719,541,929)
Acquisition of investment properties	13	(463,969,580)	(1,436,320,658)
Acquisition of investment in associates and joint ventures	11	(3,604,000,000)	(46,184,763,344)
Others		(77,268,031,278)	(4,056,208,823)
Net cash outflow from investing activities		(176,252,458,821)	(503,164,736,002)
Cash flows from financing activities			
Capital increase		688,345,319,740	-
Net increase in short-term borrowings		-	345,268,747,480
Proceeds from long-term borrowings		553,898,760,857	258,849,691,723
Proceeds from issuance of bonds		504,097,301,104	1,447,919,299,190
Exercise of stock warrants		257,496,711,725	49,540,236,110
Disposal of treasury shares		1,832,377	-
Net decrease in short-term borrowings		(362,225,676,584)	-
Repayment of long-term borrowings		(53,383,480,745)	(646,518,781,751)
Repayment of bonds		(687,000,000,000)	(962,019,463,446)
Cost of issuance of new shares		(4,638,715,530)	-
Changes in Shares of Subsidiaries		(295,043,826,999)	-
Payments for lease liabilities		(27,641,638,915)	(34,657,953,968)
Dividends paid		-	(29,443,749,600)
Acquisition of treasury shares		(1,101,427,547)	-
Net cash inflow (outflow) from financing activities		572,805,159,483	428,938,025,738
Effects of exchange rate changes on cash and cash equivalents		71,151,023,091	(69,334,390,641)
Decrease cash due to spin-off		(1,783,888,402,547)	-
Net increase (decrease) in cash and cash equivalents		(1,118,075,589,555)	907,285,668,711
Cash and cash equivalents at the beginning of the year		1,663,459,039,827	756,173,371,116
Cash and cash equivalents at the end of the year		₩ 545,383,450,272	₩ 1,663,459,039,827

The above consolidated statements of cash flows should be read in conjunction with the accompanying notes.

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1. General Information

(1) The Parent Company

Hyundai Doosan Infracore Co.,Ltd. (the Parent Company) was incorporated on October 23, 2000, through a spin-off from machinery business segment of Daewoo Heavy Industries Ltd. ("DHI"). The Parent Company operates and manages manufacturing and selling businesses of industrial machinery and equipment.

On February 2, 2001, the Parent Company listed its stock on the Korea Exchange, and changed its name to Doosan Infracore Co., Ltd. from Daewoo Heavy Industries & Machinery Ltd. on April 29, 2005 and changed its name to Hyundai Doosan Infracore Co.,Ltd. from Doosan Infracore Co., Ltd. on September 10, 2021.

On July 1, 2021, the investment business segment including business of Doosan Bobcat Co., Ltd. and others, was spun off.

The Parent Company's share capital as at December 31, 2021, amount to ₩ 197,435 million through capital reduction without consideration (reduction in par value) and capital increases after the spin-off. As at December 31, 2021, 33.35% of the Parent Company is owned by Hyundai Genuine Co., Ltd.

Hyundai Doosan Infracore Co., Ltd. and Subsidiaries

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(2) Consolidated Subsidiaries

1) The Parent Company's consolidated subsidiaries as at December 31, 2021 and 2020, are as follows:

Subsidiary	Main business	Location	Ownership interest held				Fiscal year end
			Ownership interest held		by non-controlling		
			by the Group ¹ (%)		interests ¹ (%)		
			2021	2020	2021	2020	
Doosan Infracore China Co., Ltd. ²	Manufacturing and Sales	China	100.00	80.00	-	20.00	December 31
Doosan Infracore (China) Investment Co., Ltd.	Holdings	China	100.00	100.00	-	-	December 31
Doosan Infracore North America LLC.	Manufacturing and Sales	USA	100.00	100.00	-	-	December 31
Doosan Infracore Japan Corp.	Purchases	Japan	100.00	100.00	-	-	December 31
Doosan (China) Financial Leasing Corp.	Finance	China	100.00	100.00	-	7.80	December 31
Doosan Bobcat Chile S.A.	Sales	Chile	100.00	100.00	-	-	December 31
Doosan Infracore (Shandong) Co., Ltd.	Sales	China	100.00	100.00	-	13.00	December 31
Doosan Infracore Norway AS.	Manufacturing and Sales	Norway	100.00	100.00	-	-	December 31
Doosan Infracore South America Industria E Comercio De Maquinas De Construcao LTDA	Sales	Brazil	99.99	99.99	0.01	0.01	December 31
Doosan Infracore Construction Equipment India Private Ltd.	Sales	India	100.00	100.00	-	-	March 31
Clue Insight Inc	Software Development and Sales	USA	72.21	72.47	27.79	27.53	December 31
Doosan Infracore Europe s.r.o. ³	Manufacturing and Sales	Czech	100.00	100.00	-	-	December 31
Doosan Infracore Hunan Corp.	Sales	China	100.00	100.00	-	20.00	December 31
Doosan Infracore Beijing Corp.	Sales	China	100.00	100.00	-	20.00	December 31
ECUBE Solution Co., Ltd.	Manufacturing and Sales	Korea	60.00	60.00	40.00	40.00	December 31

¹ The 'ownership interests held by the Group' refers to the simply aggregated portion of ownership interests directly held by the Parent Company and its consolidated subsidiaries. The 'ownership interests held by non-controlling interests' refers to the portion of ownership interests that are not attributable to the owners of the Parent Company, directly or indirectly. The 'ownership interests held by non-controlling interests' may differ from the portion of interests calculated by subtracting aggregated total portion of interests directly held by the entities within the Group from 100% (In other words, it is calculated by subtracting the effective ownership interest held by the entities within the

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Group from 100%).

² For the year ended December 31, 2021, the Group acquired all of the residual shares of Doosan Infracore China Co., Ltd.

³ For the year ended December 31, 2020, Doosan Infracore Czech Republic s.r.o. merged with Doosan Infracore Europe B.V. and changed its name to Doosan Infracore Europe s.r.o.

2) Summarized financial information for major consolidated subsidiaries as at and for the year ended December 31, 2021 is as follows:

(in millions of Korean won)

		Assets	Liabilities	Sales	Profit(loss) for the year	Total comprehensive income
Doosan Infracore China Co., Ltd.	₩	1,495,940	₩ 757,322	₩ 1,182,200	₩ 15,007	₩ 15,007
Doosan Infracore (China) Investment Co., Ltd.		130,287	2,966	13,669	(78,372)	(78,372)
Doosan Infracore North America LLC		192,991	134,623	366,873	11,429	11,429
Doosan (China) Financial Leasing Corp.		830,223	554,858	63,273	27,048	27,048
Doosan Infracore Europe s.r.o.		312,315	289,830	689,482	4,368	4,406
Doosan Infracore Beijing Corp.		27,265	30,771	166,382	(8,164)	(8,164)

3) Financial information for subsidiaries attributable to significant non-controlling interests as at and for the year ended December 31, 2021, is as follows:

(in millions of Korean won)

		Net income allocated to non-controlling interests	Cumulative non- controlling interests	Dividends allocated to non-controlling interests
Doosan Infracore China Co., Ltd.	₩	7,322	₩ -	₩ -

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(3) Changes in the Scope of Consolidation

1) Changes in the scope of consolidation for the year ended December 31, 2021, are as follows:

Subsidiary	Description	Reason
Doosan Infracore USA LLC	Newly included in consolidation	New establishment corporation
Doosan International Australia Pty Ltd.	Excluded from consolidation	Liquidation
Doosan Infracore USA LLC	Excluded from consolidation	Spin-off
D20 Capital, LLC	Excluded from consolidation	Spin-off
D20 CAPITAL FUND I, L.P.	Excluded from consolidation	Spin-off
Doosan Bobcat Co., Ltd.	Excluded from consolidation	Spin-off
Doosan Bobcat Global Collaboration Center, Inc.	Excluded from consolidation	Spin-off
Doosan Bobcat Singapore Pte. Ltd.	Excluded from consolidation	Spin-off
Doosan Bobcat Korea Co., Ltd.	Excluded from consolidation	Spin-off
Doosan Bobcat Chile Compact SpA.	Excluded from consolidation	Spin-off
Doosan Bobcat India Private Ltd.	Excluded from consolidation	Spin-off
Bobcat Corp.	Excluded from consolidation	Spin-off
Doosan Bobcat Mexico S.A. de C.V.	Excluded from consolidation	Spin-off
Doosan Bobcat China Co., Ltd.	Excluded from consolidation	Spin-off
Clark Equipment Co.	Excluded from consolidation	Spin-off
Bobcat Equipment Ltd.	Excluded from consolidation	Spin-off
Bobcat Bensheim GmbH.	Excluded from consolidation	Spin-off
Doosan Holding France S.A.S.	Excluded from consolidation	Spin-off
CJSC Doosan International Russia	Excluded from consolidation	Spin-off
Doosan International UK Ltd.	Excluded from consolidation	Spin-off
Doosan International South Africa Pty Ltd.	Excluded from consolidation	Spin-off
Doosan Bobcat EMEA s.r.o.	Excluded from consolidation	Spin-off
Bobcat France S.A.	Excluded from consolidation	Spin-off
Geith International Ltd.	Excluded from consolidation	Spin-off

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

Subsidiary	Description	Reason
Doosan Infracore Hunan Corp.	Newly included in consolidation	New establishment corporation
Doosan Infracore Beijing Corp.	Newly included in consolidation	New establishment corporation
ECUBE Solution Co., Ltd.	Newly included in consolidation	New establishment corporation
Doosan Infracore Europe B.V.	Excluded from consolidation	Merger

2. Significant Accounting Policies

2.1 Basis of Preparation

The Group maintains its accounting records in Korean won and prepares statutory financial statements in the Korean language (Hangul) in accordance with International Financial Reporting Standards as adopted by the Republic of Korea (Korean IFRS). The accompanying consolidated financial statements have been condensed, restructured and translated into English from the Korean language financial statements.

Certain information attached to the Korean language financial statements, but not required for a fair presentation of the Group's financial position, financial performance or cash flows, is not presented in the accompanying consolidated financial statements.

The consolidated financial statements of the Group have been prepared in accordance with Korean IFRS. These are the standards, subsequent amendments and related interpretations issued by the International Accounting Standards Board (IASB) that have been adopted by the Republic of Korea.

The consolidated financial statements have been prepared on a historical cost basis, except for the following:

- Certain financial assets and liabilities (including derivative instruments), certain classes of property, plant and equipment and investment property – measured at fair value
- defined benefit pension plans – plan assets measured at fair value

The preparation of financial statements requires the use of critical accounting estimates. Management also needs to exercise judgement in applying the Group's accounting policies. The areas involving a higher degree of judgment or complexity, or areas where assumptions and estimates are significant to the consolidated financial statements are disclosed in Note 3.

(1) New and amended standards and interpretations adopted by the Group

The Group has applied the following standards and amendments for the first time for their annual reporting period commencing January 1, 2021.

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- Amendments to Korean IFRS 1116 Lease – Practical expedient for COVID-19 - Related Rent Concessions

As a practical expedient, a lessee may elect not to assess whether a rent concession occurring as a direct consequence of the COVID-19 pandemic is a lease modification. A lessee that makes this election shall account for any change in lease payments resulting from the rent concession the same way it would account for the change applying this Standard if the change were not a lease modification. The amendment does not have a significant impact on the financial statements.

- Amendments to Korean IFRS 1109 Financial Instruments, Korean IFRS 1039 Financial Instruments: Recognition and Measurement, Korean IFRS 1107 Financial Instruments: Disclosure, Korean IFRS 1104 Insurance Contracts and Korean IFRS 1116 Lease – Interest Rate Benchmark Reform (Phase 2 amendments)

In relation to interest rate benchmark reform, the amendments provide exceptions including adjust effective interest rate instead of book amounts when interest rate benchmark of financial instruments at amortized costs is replaced, and apply hedge accounting without discontinuance although the interest rate benchmark is replaced in hedging relationship. The amendment does not have a significant impact on the financial statements.

(2) New standards and interpretations not yet adopted by the Group

The following new accounting standards and interpretations have been published that are not mandatory for December 31, 2021 reporting periods and have not been early adopted by the Group.

- Amendment to Korean IFRS 1116 - Covid-19 - Related Rent Concessions beyond June 30, 2021

The application of the practical expedient, a lessee may elect not to assess whether a rent concession occurring as a direct consequence of the COVID-19 pandemic is a lease modification, is extended to lease payments originally due on or before June 30, 2022. The amendment should be applied for annual periods beginning on or after April 1, 2021, and earlier application is permitted. The Group does not expect that these amendments have a significant impact on the financial statements

- Amendments to Korean IFRS 1103 Business Combination – Reference to the Conceptual Framework

The amendments update a reference of definition of assets and liabilities to be recognized in a business combination in revised Conceptual Framework for Financial Reporting. However, the amendments add an exception for the recognition of liabilities and contingent liabilities within the scope of Korea IFRS 1037 Provisions, Contingent Liabilities and Contingent Assets, and Korean IFRS 2121 Levies. The amendments also clarifies that contingent assets should not be recognized at the acquisition date. The amendments should be applied for annual periods beginning on or after January 1, 2022, and earlier application is permitted. The Group does not expect that these amendments have a significant impact on the financial statements.

- Amendments to Korean IFRS 1016 Property, Plant and Equipment - Proceeds before intended use

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The amendments prohibit an entity from deducting from the cost of an item of property, plant and equipment any proceeds from selling items produced while the entity is preparing the asset for its intended use. Instead, the entity will recognize the proceeds from selling such items, and the costs of producing those items, in profit or loss. The amendments should be applied for annual periods beginning on or after January 1, 2022, and earlier application is permitted. The Group is in review for the impact of these amendments on the financial statements.

- Amendments to Korean IFRS 1037 Provisions, Contingent Liabilities and Contingent Assets - Onerous Contracts : Cost of Fulfilling a Contract

The amendments clarify that the direct costs of fulfilling a contract include both the incremental costs of fulfilling the contract and an allocation of other costs directly related to fulfilling contracts when assessing whether the contract is onerous. The amendments should be applied for annual periods beginning on or after January 1, 2022, and earlier application is permitted. The Group does not expect that these amendments have a significant impact on the financial statements.

- Amendments to Korean IFRS 1001 Presentation of Financial Statements - Classification of Liabilities as Current or Non-current

The amendments clarify that liabilities are classified as either current or non-current, depending on the substantive rights that exist at the end of the reporting period. Classification is unaffected by the likelihood that an entity will exercise right to defer settlement of the liability or the expectations of management. Also, the settlement of liability includes the transfer of the entity's own equity instruments, however, it would be excluded if an option to settle them by the entity's own equity instruments if compound financial instruments is met the definition of equity instruments and recognized separately from the liability. The amendments should be applied for annual periods beginning on or after January 1, 2023, and earlier application is permitted. The Group is in review for the impact of these amendments on the financial statements.

- New Standard: Korean IFRS 1117 Insurance Contract

Korean IFRS 1117 Insurance Contracts replaces Korean IFRS 1104 Insurance Contracts. This Standard estimates future cash flows of an insurance contract and measures insurance liabilities using discount rates applied with assumptions and risks at the measurement date. The entity recognizes insurance revenue on an accrual basis including services (insurance coverage) provided to the policyholder by each annual period. In addition, investment components (Refunds due to termination/maturity) repaid to a policyholder even if an insured event does not occur, are excluded from insurance revenue, and insurance financial income or expense and the investment income or expense are presented separately to enable users of the information to understand the sources of income or expenses. This Standard should be applied for annual periods beginning on or after January 1, 2023, and earlier application is permitted for entities that applied Korean IFRS 1109 Financial Instruments. The Group is in review for the impact of this new standard on the financial statements.

- Korean IFRS 1001 Presentation of Financial Statements - Disclosure of Accounting Policies

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The amendments to Korean IFRS 1001 define and require entities to disclose their material accounting policies. The IASB amended IFRS Practice Statement 2 Disclosure of Accounting Policies to provide guidance on how to apply the concept of materiality to accounting policy disclosures.

The amendments should be applied for annual periods beginning on or after January 1, 2023, and earlier application is permitted. The Group is in review for the impact of these amendments on the financial statements.

- Korean IFRS 1008 Accounting policies, changes in accounting estimates and errors - Definition of Accounting Estimates

The amendments define accounting estimates and clarify how to distinguish them from changes in accounting policies. The amendments should be applied for annual periods beginning on or after January 1, 2023, and earlier application is permitted. The Group does not expect that these amendments have a significant impact on the financial statements.

- Korean IFRS 1012 Income Taxes - Deferred Tax related to Assets and Liabilities arising from a Single Transaction

The amendments include an additional condition to the exemption to initial recognition of an asset or liability that a transaction does not give rise to equal taxable and deductible temporary differences at the time of the transaction. The amendments should be applied for annual periods beginning on or after January 1, 2023, and earlier application is permitted. The Group is in review for the impact of these amendments on the financial statements.

- Annual improvements to Korean IFRS 2018-2020

Annual improvements of Korean IFRS 2018-2020 Cycle should be applied for annual periods beginning on or after January 1, 2022, and earlier application is permitted. The Group does not expect that these amendments have a significant impact on the financial statements.

- Korean IFRS 1101 First time Adoption of Korean International Financial Reporting Standards – Subsidiaries that are first-time adopters
- Korean IFRS 1109 Financial Instruments – Fees related to the 10% test for derecognition of financial liabilities
- Korean IFRS 1116 Leases – Lease incentives
- Korean IFRS 1041 Agriculture – Measuring fair value

(3) Discontinued operations

A disposal group shall be treated as a discontinued operation when it:

- represents a separate major line of business or geographical area of operations,
- is part of a single co-ordinated plan to dispose of a separate major line of business or geographical area of operations or

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- is a subsidiary acquired exclusively with a view to resale.

The Group recognized profit (loss) from discontinued operations based on the above standard accordingly, and the comparative consolidated statement of profit and loss has been restated.

2.2 Consolidation

The Group has prepared the consolidated financial statements in accordance with Korean IFRS 1110 *Consolidated Financial Statements*.

1) Subsidiaries

Subsidiaries are all entities over which the Group has control. The Group controls an entity when the Group is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power to direct the activities of the entity. Subsidiaries are fully consolidated from the date on which control is transferred to the Group. They are deconsolidated from the date that control ceases.

Subsidiaries are fully consolidated from the date on which control is transferred to the Group. They are deconsolidated from the date that control ceases.

The acquisition method of accounting is used to account for business combinations by the Group. The consideration transferred is measured at the fair values of the assets transferred, and identifiable assets acquired and liabilities and contingent liabilities assumed in a business combination are measured initially at their fair values at the acquisition date. The Group recognizes any non-controlling interest in the acquired entity on an acquisition-by-acquisition basis either at fair value or at the non-controlling interest's proportionate share of the acquired entity's net identifiable assets. All other non-controlling interests are measured at fair values, unless otherwise required by other standards. Acquisition-related costs are expensed as incurred.

The excess of consideration transferred, amount of any non-controlling interest in the acquired entity and acquisition-date fair value of any previous equity interest in the acquired entity over the fair value of the net identifiable assets acquired is recoded as goodwill. If those amounts are less than the fair value of the net identifiable assets of the business acquired, the difference is recognized directly in the profit or loss as a bargain purchase.

Intercompany transactions, balances and unrealized gains on transactions between group companies are eliminated. Accounting policies of subsidiaries have been changed where necessary to ensure consistency with the policies adopted by the Group.

The Group treats transactions with non-controlling interests that do not result in a loss of control as transactions with equity owners of the Group. A changed in ownership interest results in an adjustment between the carrying amounts of the controlling and non-controlling interest to reflect their relative interest in the subsidiary. Any difference between the amount of the adjustment to non-controlling interest and any consideration paid or received is recognized in a separate reserve within equity attributable to owners of the Parent Company. When the Group ceases to consolidate for a

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subsidiary because of a loss of control, any retained interest in the subsidiary is remeasured to its fair value with the changed in carrying amount recognized in profit or loss.

2) Investments in Associates and Joint Ventures

Associates are entities over which the Group has significant influence but not control or joint control, where the Group in general holds 20% or more and 50% or less of the voting rights. Investments in joint ventures are investees sharing control over its economic activities with the Group based on a contractual agreement. The contractually agreed sharing of control of an arrangement only exist when financial and operating policy decisions of the investee require the unanimous consent of the parties sharing control.

Investments in associates and joint ventures (collectively referred to as the "associates, etc.") are accounted for using the equity method of accounting, after initially being recognized at cost. The carrying amount of the investments contains the goodwill identified on initial recognition and is presented at the amount less accumulated impairment losses.

The Group's proportionate interest of the investee's profit or loss and changes in other comprehensive income after the date of acquisition is respectively recognized in the Group's profit or loss and other comprehensive income. Cumulative changes after acquisition are adjusted from the carrying amount of the investment. If the Group's share of losses of the associates, etc. is greater than or equal to the investment in the associate, etc., including other unsecured notes, the Group discontinues to recognize further losses, except where it is obligated or required to be paid on behalf of the associates, etc. If there is an objective evidence of impairment for the investment in the associate, the Group recognizes the difference between the recoverable amount of the associate and its book amount as impairment loss. If an associate uses accounting policies other than those of the Group for like transactions and events in similar circumstances, if necessary, adjustments shall be made to make the associate's accounting policies conform to those of the Group when the associate's financial statements are used by the Group in applying the equity method.

Unrealized gains on transactions between the Group and its associates, etc are eliminated to the extent of the Group's interest in the associates. If there is an objective evidence of impairment for the investment in the associate, the Group recognizes the difference between the recoverable amount of the associate and its book amount as impairment loss.

Accounting policies of associate, etc. are changed if necessary for consistency with those of the Group.

For overseas investees whose financial statements are prepared in foreign currencies, the equity method is applied to financial statements translated in accordance with the accounting treatments of the translation of the financial statements of overseas' subsidiaries. The amount of difference between the translated amount of assets less liabilities and translated amount of equity is recognized as changes in the investee's equity (accumulated other comprehensive income) to the extent equivalent to the Group's interest.

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2.3 Foreign Currency Translation

1) Functional and presentation currency

Items included in the financial statements of each of the Group's entities are measured using the currency of the primary economic environment in which each entity operates (the "functional currency"). The consolidated financial statements are presented in Korean won, which is the Parent Company's functional and presentation currency.

2) Transactions and balances

Foreign currency transactions are translated into the functional currency using the exchange rates at the dates of the transactions. Foreign exchange gains and losses resulting from the settlement of such transactions and from the translation of monetary assets and liabilities denominated in foreign currencies at year end exchange rates are generally recognized in profit or loss. They are deferred in other comprehensive income if they relate to qualifying cash flow hedges and qualifying effective portion of net investment hedges, or are attributable to monetary part of the net investment in a foreign operation.

Non-monetary items that are measured at fair value in a foreign currency are translated using the exchange rates at the date when the fair value was determined. Translation differences on assets and liabilities carried at fair value are reported as part of the fair value gain or loss. For example, translation differences on non-monetary assets and liabilities such as equities held at fair value through profit or loss are recognized in profit or loss as part of the fair value gain or loss and translation differences on non-monetary assets such as equities held at fair value through other comprehensive income are recognized in other comprehensive income.

3) Translation to the presentation currency

The results and financial position of foreign operations that have a functional currency different from the presentation currency are translated into the presentation currency as follows:

- ① Assets and liabilities for each statement of financial position presented are translated at the closing rate at the end of the reporting period.
- ② Income and expenses for each statement of profit or loss are translated at average exchange rates, unless this average is not reasonable approximation of the cumulative effect of the rates prevailing on the transaction dates, in which case income and expenses are translated at the rates on the dates of the transactions.
- ③ All resulting exchange differences are recognized in other comprehensive income.

Exchange differences from the net investment in the foreign operation and from borrowings and other foreign currency instruments designated as hedging instrument for such investment are recognized in other comprehensive income. On disposal of part or all foreign operation, which leads to the loss of

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control, all of the accumulated exchange differences in respect of that operation are reclassified to profit or loss. Goodwill and fair value adjustments arising from the acquisition of a foreign operation are recognized as assets and liabilities of the foreign operation and translated at the closing exchange rate.

2.4 Cash and Cash Equivalents

Cash and cash equivalents include cash on hand, bank deposits, and other short-term highly liquid investments that are readily convertible to a known amount of cash. Bank overdraft is classified as short-term borrowings in the consolidated statements of financial position.

2.5 Financial Assets

1) Classification

The Group classifies its financial assets in the following measurement categories:

- those to be measured at fair value through profit or loss
- those to be measured at fair value through other comprehensive income, and
- those to be measured at amortized cost.

The classification depends on the Group's business model for managing the financial assets and the contractual terms of the cash flows. For financial assets measured at fair value, gains and losses will either be recorded in profit or loss or other comprehensive income. For investments in debt instruments, this will depend on the business model in which the investment is held. The Group reclassifies debt investments when, and only when its business model for managing those assets changes.

For investments in equity instruments that are not held for trading, this will depend on whether the Group has made an irrevocable election at the time of initial recognition to account for the equity investment at fair value through other comprehensive income. The changes of fair value of equity investments that are not designated under the fair value option are recorded through profit or loss.

2) Recognition and Measurement

At initial recognition, the Group measures a financial asset at its fair value plus, in the case of a financial asset not at fair value through profit or loss, transaction costs that are directly attributable to the acquisition of the financial asset. Transaction costs of financial assets carried at fair value through profit or loss are expensed in profit or loss. Financial assets with embedded derivatives are considered in their entirety when determining whether their cash flows are solely payment of principal and interest.

① Debt instruments

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Subsequent measurement of debt instruments depends on the Group's business model for managing the asset and the cash flow characteristics of the asset. The Group classifies its debt instruments into one of the following three measurement categories.

(a) Amortized cost

Assets that are held for collection of contractual cash flows where those cash flows represent solely payments of principal and interest are measured at amortized cost. A gain or loss on a debt investment that is subsequently measured at amortized cost and is not part of a hedging relationship is recognized in profit or loss when the asset is derecognized or impaired. Interest income from these financial assets is included in 'finance income' using the effective interest rate method.

(b) Fair value through other comprehensive income

Assets that are held for collection of contractual cash flows and for selling the financial assets, where the assets' cash flows represent solely payments of principal and interest, are measured at fair value through other comprehensive income. Movements in the carrying amount are taken through other comprehensive income, except for the recognition of impairment loss (reversal of impairment loss), interest income and foreign exchange gains and losses which are recognized in profit or loss. When the financial asset is derecognized, the cumulative gain or loss previously recognized in other comprehensive income is reclassified from equity to profit or loss. Interest income from these financial assets is included in 'finance income' using the effective interest rate method. Foreign exchange gains and losses are presented in 'financial income or expenses' and impairment losses are presented in 'other expenses'.

(c) Fair value through profit or loss

Assets that do not meet the criteria for amortized cost or fair value through other comprehensive income are measured at fair value through profit or loss. A gain or loss on a debt investment that is subsequently measured at fair value through profit or loss and is not part of a hedging relationship is recognized in profit or loss and presented net in the statement of profit or loss within 'other income or expenses' in the year in which it arises.

② *Equity instruments*

The Group subsequently measures all equity investments at fair value. Where the Group's management has elected to present fair value gains and losses on equity investments, which held for long-term investment or strategic purpose, in other comprehensive income, there is no subsequent reclassification of fair value gains and losses to profit or loss following the derecognition of the investment. Dividend income from such investments continue to be recognized in profit or loss as 'finance income' when the right to receive payments is established.

Changes in the fair value of financial assets at fair value through profit or loss are recognized in 'other income and expenses' in the statement of profit or loss as applicable. Impairment loss (reversal of

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impairment loss) on equity investments measured at fair value through other comprehensive income are not reported separately from other changes in fair value.

3) Impairment

The Group assesses on a forward-looking basis the expected credit losses associated with its debt instruments carried at amortized cost and fair value through other comprehensive income. The impairment methodology applied depends on whether there has been a significant increase in credit risk. For trade receivables and lease receivables, the Group applies the simplified approach, which requires expected lifetime credit losses to be recognized from initial recognition of the receivables.

4) Derecognition

If a transfer does not result in derecognition because the Group has retained substantially all the risks and rewards of ownership of the transferred asset, the Group continues to recognize the transferred asset in its entirety and recognizes a financial liability for the consideration received. The Group classified the financial liability as “borrowings” in the statement of financial position.

5) Offsetting of financial instruments

Financial assets and liabilities are offset and the net amount reported in the statement of financial position where there is a legally enforceable right to offset the recognized amounts and there is an intention to settle on a net basis or realize the assets and settle the liability simultaneously. The legally enforceable right must not be contingent on future events and must be enforceable in the normal course of business and in the event of default, insolvency or bankruptcy of the Group or the counterparty.

2.6 Financial Liabilities

1) Classification and measurement

The Group's financial liabilities at fair value through profit or loss are financial instruments held for trading. A financial liability is held for trading if it is incurred principally for the purpose of repurchasing in the near term. A derivative that is not a designated as hedging instruments and an embedded derivative that is separated are also classified as other financial liabilities.

The Group classifies non-derivative financial liabilities, except for financial liabilities at fair value through profit or loss, financial guarantee contracts and financial liabilities that arise when a transfer of financial assets does not qualify for derecognition, as financial liabilities carried at amortized cost and present as ‘trade and other payables’, and ‘borrowings’ in the statement of financial position.

2) Derecognition

Financial liabilities are removed from the statement of financial position when it is extinguished; for example, when the obligation specified in the contract is discharged or cancelled or expired or when

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the terms of an existing financial liability are substantially modified. The difference between the carrying amount of a financial liability extinguished or transferred to another party and the consideration paid (including any non-cash assets transferred or liabilities assumed) is recognized in profit or loss.

3) *Financial guarantee contract liabilities*

Financial guarantee contracts are contracts that require the issuer to make specified payments to reimburse the holder for a loss incurred because a specified debtor fails to make payments when due in accordance with the terms of debt instruments.

Financial guarantee contract liabilities are initially measured at their fair values and, if not designated as at fair value through profit or loss, are subsequently measured at the higher of:

- ① the amount determined in accordance with the expected credit loss model under Korean IFRS 1109 *Financial Instruments* and
- ② the amount initially recognized less, where appropriate, the cumulative amount of income recognized in accordance with Korean IFRS 1115 *Revenue from Contracts with Customers*

2.7 Compound Financial Instruments

The liability component and equity component of compound financial instruments issued by the Group are separately classified based on the substance of the contractual terms. The compound financial instruments issued by the Group are classified and presented separately as the financial liability component and equity conversion option which can be converted into equity instruments at the option of the holder. The liability component of the compound instruments is recognized initially at the fair value of a similar bond that does not have an equity conversion option, and subsequently recognized at amortized cost by applying the effective interest rate until extinguished on conversion or maturity of the bonds. The equity component is determined by deducting the amount of the liability component from the fair value of the compound instrument as a whole. This is recognized and included in equity, net of income tax effects, and is not subsequently remeasured. If it is classified not as equity component but as derivatives, it is regarded as embedded derivatives estimated at the fair value of the same derivatives or calculated from a reasonable valuation model. The subsequent gains or losses arising from its fair value fluctuation are recognized in profit or loss.

2.8 Trade Receivables

Trade receivables are amounts owed by customer for products and services provided in the ordinary course of business. Receivables expected to be collected within one year are classified as current assets. Otherwise, they are classified as non-current assets. Trade receivables are initially measured at fair value and are presented as net of allowance for doubtful accounts, estimated on an individual basis based on past bad debt experience.

2.9 Inventories

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Inventories are stated at the lower of cost or net realizable value. Cost of inventories includes fixed and variable manufacturing overheads allocated to inventories by the most appropriate method of each category. The cost of inventories is determined by the gross average method (the specific identification method for materials in transit). And during the year, perpetual inventory systems are used to value inventories, which are adjusted to physical inventory counts performed at the end of the year.

The Group periodically reviews changes in net realizable value of inventories (current replacement cost for raw materials) due to damage, obsolescence, decline in selling prices and others and recognizes loss on inventory valuation. Loss on inventory valuation is charged to cost of goods sold when it is ordinary and to other non-operating expense when it is extraordinary. When the previous circumstances that caused the loss on inventory valuation no longer exist and the new market value of inventories subsequently exceeds the carrying amount, the valuation loss is reversed to the extent not exceeding the initial carrying amount, and the reversal is deducted from cost of goods sold.

2.10 Property, Plant and Equipment

Property, plant and equipment are stated at cost, less subsequent accumulated depreciation and accumulated impairment losses except for lands to which the revaluation model is applied. When useful life of a certain part of property, plant and equipment is different compared to that of the whole asset, such part is recognized as a separate asset. The historical cost includes expenditure that is directly attributable to the acquisition of the item, including estimated costs of dismantling, removing or restoring the assets at the end of the expected useful life.

Subsequent costs, incurred to replace a part of previously recognized item of property, plant and equipment, are added to the carrying amount of an asset, or recognized as a separate asset, if it is probable that future economic benefits associated with the assets will flow into the Group and the cost of an asset can be measured reliably. In such cases, the carrying amount of what was replaced is derecognized accordingly. Routine maintenance and repairs are expensed as incurred through profit or loss.

Depreciation of all property, plant and equipment, except for land, is calculated using the straight-line method, which reflects the best estimate of the expected consumption pattern of future economic benefits inherent in the asset, to allocate their cost, net of their residual values.

The Group depreciates property, plant and equipment with a limited useful life over the following periods:

	Estimated useful life (years)
Buildings	20 – 40
Structures	10 – 20
Machinery	5 – 15
Vehicles	5
Tools	5

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	Estimated useful life (years)
Office equipment	3 – 10

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

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

When the carrying amount of property, plant and equipment is higher than the recoverable amount, the carrying amount is adjusted to the recoverable amount and the difference is recognized as an impairment loss. Meanwhile, when the recoverable amount subsequently exceeds the carrying amount of the impaired asset, the excess is recorded as a reversal of impairment loss to the extent that the reversed asset does not exceed the carrying amount before the previous impairment, as adjusted by depreciation. Upon derecognition of a property, plant and equipment, the difference between the net disposal amount and carrying amount of the item is recognized as other non-operating income or expense.

2.11 Intangible Assets

Intangible assets are initially measured at cost and are carried at cost, less accumulated amortization and accumulated impairment losses. Subsequent expenditure on an intangible asset is capitalized only when it is probable that the expected future economic benefits that are attributable to the asset will increase.

Intangible assets, except for goodwill and those with indefinite useful lives, are amortized using the straight-line method with no residual value, with amortization beginning when the asset is available for use, over their estimated useful lives as follows. However, Membership rights that have an indefinite useful life are not subject to amortization because there is no foreseeable limit to the period over which the assets are expected to be utilized. Instead of being amortized they are tested for impairment in each reporting period.

	Estimated useful life (years)
Industrial rights	5 – 10
Development costs	5 – 7
Other intangible assets	3 – 5

Goodwill acquired through business combinations refers to the consideration paid in excess of the fair value of the Group's share of the identifiable net assets of the subsidiary on the date of acquisition. Goodwill recognized from the acquisition of certain subsidiary, is classified as intangible assets. Goodwill is tested for impairment annually and carried at the historical cost at the date of business acquisition, less accumulated impairment losses. Impairment loss recognized for goodwill is not reversed. For the purpose of impairment testing, goodwill is allocated to each of the Group's cash-generating units (or groups of cash-generating units) that is expected to benefit from the synergies of

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the combination.

Expenditures relating to development activities are capitalized when the results of development plan were for new product developments or substantial improvement of functions of existing products, there is technical and commercial feasibility of completing the development and the Group has the ability to measure the expenditures attributable to the development with reliability. Capitalized development costs include expenditure on materials, salaries and related overhead cost that is reasonably allocated. Capitalized development costs are presented at the acquisition cost, less accumulated amortization and accumulated impairment losses. Capitalized development costs are amortized using the straight-line method over the estimated useful life and amortization expenses are included in cost of goods and selling and administrative expenses. The expenditure on research and development, which does not meet conditions noted above, is expensed through profit or loss when it is incurred.

The estimated useful life and amortization method for intangible assets with finite useful lives are reviewed at the end of each reporting period. For intangible assets with indefinite useful life, assessment is revisited each period, with the effect of any changes in estimate being accounted for as a change in accounting estimate.

2.12 Investment Property

Investment property is property held to earn rentals or for capital appreciation or both. An investment property is measured initially at its cost, including transaction cost incurred in acquiring the asset. An investment property is measured after initial measurement at depreciated cost (less any accumulated impairment losses). After recognition as an asset, investment property is carried at cost less accumulated depreciation and impairment losses. The Group depreciates investment properties, except for land, using the straight-line method over their useful lives of 40 years.

The estimated useful lives, residual values and depreciation method are reviewed at the end of each reporting period, with the effect of any changes in estimate being accounted for as a change in accounting estimate.

2.13 Borrowing Costs

Borrowing costs that are directly attributable to the acquisition, construction or production of a qualifying asset are capitalized during the period of time that is required to complete and prepare the asset for its intended use. Other borrowing costs are expensed in the period in which they are incurred.

2.14 Impairment of Non-financial Assets

Goodwill and intangible assets that have an indefinite useful life are not subject to amortization and are tested annually for impairment. Other assets are tested for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. An impairment loss is recognized for the amount by which the asset's carrying amount exceeds its recoverable amount. The recoverable amount is the higher of an asset's fair value less costs of disposal and value

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in use. For the purposes of impairment test, assets are grouped at the lowest levels which separately generates identifiable cash flows (cash-generating units). Non-financial assets other than goodwill that suffered an impairment are reviewed for possible reversal of the impairment at the end of each reporting period.

2.15 Trade and Other Payables

These amounts represent liabilities for goods and services provided to the Group prior to the end of reporting period which are unpaid. Trade and other payables are presented as current liabilities, unless payment is not due within 12 months after the reporting period. They are recognized initially at their fair value and subsequently measured at amortized cost using the effective interest method.

2.16 Borrowings

Borrowings are measured initially at fair value, net of transaction costs and subsequently at amortized cost using the effective interest method, with interest expense being recognized on an effective yield basis. The difference between the amount received and the redemption amount is amortized using the effective interest method and recognized in profit or loss. Borrowings are classified as non-current liabilities when the Group has an unconditional right to defer settlement of the liability for at least 12 months after the end of the reporting period. Otherwise, borrowings are classified as current liabilities.

2.17 Post-employment benefits

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

A defined benefit plan is a pension plan that is not a defined contribution plan. Generally, post-employment benefits are payable after the completion of employment, and the benefit amount depended on the employee's age, periods of service or salary levels. The liability recognized in the statement of financial position in respect of defined benefit pension plans is the present value of the defined benefit obligation at the end of the reporting period less the fair value of plan assets. The defined benefit obligation is calculated annually by independent actuaries using the projected unit credit method. The present value of the defined benefit obligation is determined by discounting the estimated future cash outflows using interest rates of high-quality corporate bonds that are denominated in the currency in which the benefits will be paid, and that have terms approximating to the terms of the related obligation. Remeasurement gains and losses arising from experience adjustments and changes in actuarial assumptions are recognized in the period in which they occur, directly in other comprehensive income. Changes in the present value of the defined benefit obligation resulting from plan amendments or curtailments are recognized immediately in profit or loss as past service costs.

Contributions to defined contribution plans are recognized as an expense when employees have rendered service that entitles them to the contributions.

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2.18 Provisions and Contingent Liability

Provisions are recognized when 1) the Group has a present obligation (legal or constructive) as a result of a past event, 2) it is probable that the Group will be required to settle the obligation 3) and a reliable estimate can be made for the amount of the obligation. The amount of the provision is measured as present value of the prospective cash flows estimated to settle the present obligation when the difference between the face value and present value is material. At the end of each reporting period, the remaining provision balance is reviewed and assessed to determine whether the current best estimate is being recognized. The increase in provision due to passage of time is recognized as interest expense. If the existence of an obligation to transfer economic benefit is no longer probable, the related provision is reversed during the period. 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. In this case, profit from reimbursement is offset against the expense incurred in the recognition of provision through profit or loss.

2.19 Derivative Instruments

Derivatives are initially recognized at fair value on the date when a derivative contract is entered into and are subsequently remeasured at their fair value at the end of each reporting period. Changes in the fair value of any derivative instrument that does not qualify for hedge accounting are recognized immediately in profit or loss within 'other non-operating income (expenses)' or 'finance income (costs)' based on the nature of transactions.

- hedges of the fair value of recognized assets or liabilities or a firm commitment (fair value hedges)
- hedges of a particular risk associated with the cash flows of recognized assets and liabilities and highly probable forecast transactions (cash flow hedges), or
- hedges of a net investment in a foreign operation (net investment hedges)

At inception of the hedge relationship, the Group documents the economic relationship between hedging instruments and hedged items including whether changes in the cash flows of the hedging instruments are expected to offset changes in the cash flows of hedged items.

The full fair value of a hedging derivative is classified as a non-current asset or liability when the remaining maturity of the hedged item is more than 12 months; it is classified as a current asset or liability when the remaining maturity of the hedged item is less than 12 months. A non-derivative financial asset and a non-derivative financial liability is classified as a current or non-current based on its expected maturity and its settlement, respectively.

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2.20 Dividend

Dividend payable is recognized as liability when declaration of the dividend is approved at the shareholders' meeting.

2.21 Share-based Payment Arrangement

The Group recognizes share options granted to employees at the fair value at the grant date. The fair value determined at the grant date of the share option is expensed on a straight-line basis over the vesting period, reflecting the expected rate of the share option's right extinction.

2.22 Revenue Recognition

In accordance with K-IFRS 1115, the Group recognizes revenue from all types of the contracts by using the five-step revenue recognition model. The five-step revenue recognition model is as follows:

- Identify contracts with customers
- Identify the separate performance obligation
- Determine the transaction price of the contract
- Allocate the transaction price to each of the separate performance obligations, and
- Recognize the revenue as each performance obligation is satisfied.

(1) Identify the separate performance obligation

The Group generally separates contracts to recognize revenue from service rendered, apart from sales of goods or products. The Group determines standard warranty coverage periods per product and country considering warranty periods required by law and others when entering into contracts with customers for the sales of products. If the Group provides an extended warranty beyond the standard warranty coverage period or a customer has the option to purchase an additional warranty separately, the warranty is considered as a separate performance obligation when revenue is recognized.

(2) Performance obligation recognized at once

Revenue on sales of goods is recognized when the products have been delivered to the customer. Delivery does not occur until the products have been shipped to the specified location, the risks of obsolescence and loss have been transferred to the customer, and the customer has accepted the products in accordance with the sales contract or the acceptance provisions have lapsed or the Group has objective evidences that all criteria for acceptance have been satisfied.

(3) Sales with a right of return

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In accordance with K-IFRS 1115, the Group estimates an amount of variable consideration by using the expected value which the Group expects to better predict the amount of consideration. The Group recognize revenue with transaction price including variable consideration only to the extent that it is highly probable that a significant reversal in the amount of cumulative revenue recognized will not occur when the refund period has lapsed. The refund liability is measured at the amount of consideration received for which the Group does not expect to be entitled.

2.23 Government Grants

Grants from the government are recognized at their fair value where there is a reasonable assurance that the grant will be received and the Group will comply with all attached conditions. Government grants related to assets are presented in the statement of financial position by deducting the grant in arriving at the carrying amount of the asset, and government grants related to income are deferred and later deducted from the related expense.

2.24 Current and Deferred Tax

The tax expense for the period consists of current and deferred tax. Current and deferred tax is recognized in profit or loss, except to the extent that it relates to items recognized in other comprehensive income or directly in equity. In this case, the tax is also recognized in other comprehensive income or directly in equity, respectively.

The current income tax expense is measured at the amount expected to be paid to the taxation authorities, using the tax rates (and tax laws) that have been enacted or substantively enacted by the end of the reporting period. Management periodically evaluates positions taken in tax returns with respect to situations in which applicable tax regulation is subject to interpretation. The Group recognizes current income tax on the basis of amounts expected to be paid to the tax authorities.

Deferred income tax is provided in full, using the liability method, on temporary differences arising between the tax bases of assets and liabilities and their carrying amounts in the consolidated financial statements. However, deferred income tax is not accounted for if it arises from initial recognition of an asset or liability in a transaction other than a business combination that at the time of the transaction affects neither accounting profit nor taxable profit or loss.

Deferred tax assets are recognized only if it is probable that future taxable amounts will be available to utilize those temporary differences and losses.

The Group recognizes a deferred tax liability all taxable temporary differences associated with investments in subsidiaries, associates, and interests in joint arrangements, except to the extent that the Group is able to control the timing of the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future. In addition, The Group recognizes a deferred tax asset for all deductible temporary differences arising from such investments to the extent that it is probable the temporary difference will reverse in the foreseeable future and taxable profit will be available against which the temporary difference can be utilized.

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Deferred tax assets and liabilities are offset when there is a legally enforceable right to offset current tax assets and liabilities and when the deferred tax balances relate to the same taxation authority. Current tax assets and tax liabilities are offset when the Group has a legally enforceable right to offset and intends either to settle on a net basis, or to realize the assets and settle the liability simultaneously.

2.25 Earnings per Share

Basic earnings per common share are computed by dividing net income attributable to owners of the Group by the weighted-average number of common shares outstanding during the period. Diluted earnings per common share are computed by dividing diluted net income attributable to the owners of the Group, which is adjusted by adding back the after-tax amount of expenses related to dilutive potential ordinary shares, by weighted-average number of common shares and dilutive potential ordinary shares outstanding during the period. Anti-dilutive potential ordinary shares are disregarded in the calculation of diluted earnings per share.

2.26 Assets Held for sale

Non-current assets (or disposal group) are classified as held for sale when their carrying amount will be recovered principally through a sale transaction rather than through continuing use and a sale is considered highly probable. The assets are measured at the lower amount between their carrying amount and the fair value less costs to sell.

Non-current assets that are classified either as held for sale or as a part of a disposal group classified as held for sale are not depreciated (or amortized). If the fair value, less costs to sell, of the non-current assets, or disposal groups, held for sale decreases, impairment loss is recognized immediately through profit or loss. When it increases subsequently, the gain is recognized at the amount not exceeding the accumulated impairment loss.

2.27 Lease

Lessor accounting under Korean IFRS 1116

Lease income from operating leases where the Group is a lessor is recognized in income on a straight-line basis over the lease term. Initial direct costs incurred in obtaining an operating lease are added to the carrying amount of the underlying asset and recognized as expense over the lease term on the same basis as lease income. The respective leased assets are included in the statement of financial position based on their nature.

Lessee accounting under Korean IFRS 1116

Contracts may contain both lease and non-lease components. The Group allocates the consideration in the contract to the lease and non-lease components based on their relative stand-alone prices. However, for leases of real estate for which the Group is lessee, the Group applies the practical expedient which has elected not to separate lease and non-lease components and instead accounts for these as a single lease component.

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Lease terms are negotiated on an individual basis and contain a wide range of different terms and conditions. The lease agreements do not impose any covenants, but leased assets may not be used as security for borrowing purposes.

The Group determines the lease term as the non-cancellable period of a lease, together with both (a) periods covered by an option to extend the lease if the lessee is reasonably certain to exercise that option; and (b) periods covered by an option to terminate the lease if the lessee is reasonably certain not to exercise that option. When the lessee and the lessor each has the right to terminate the lease without permission from the other party, the Group should consider a termination penalty in determining the period for which the contract is enforceable.

Assets and liabilities arising from a lease are initially measured on a present value basis. Lease liabilities include the net present value of the following lease payments:

- Fixed payments (including in-substance fixed payments), less any lease incentives receivable
- Variable lease payment that are based on an index or a rate, initially measured using the index or rate as at the commencement date
- Amounts expected to be payable by the Group (the lessee) under residual value guarantees
- The exercise price of a purchase option if the Group (the lessee) is reasonably certain to exercise that option, and
- Payments of penalties for terminating the lease, if the lease term reflects the Group (the lessee) exercising that option

Also, lease liabilities are measured including lease payments to be paid in accordance with an extension option which is reasonably certain to exercise.

The lease payments are discounted using the interest rate implicit in the lease. If that rate cannot be determined, the lessee's incremental borrowing rate is used, being the rate that the lessee would have to pay to borrow the funds necessary to obtain an asset of similar value in a similar economic environment with similar terms and conditions.

To determine the incremental borrowing rate, the Group:

- where possible, uses recent third-party financing received by the individual lessee as a starting point, adjusted to reflect changes in financing conditions since third party financing was received
- makes adjustments specific to the lease, for example term, country, currency and security.

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If a readily observable amortizing loan rate is available to the individual lessee (through recent financing or market data) which has a similar payment profile to the lease, then the Group uses that rate as a starting point to determine the incremental borrowing rate.

The Group is exposed to potential future increases in variable lease payments based on an index or rate, which are not included in the lease liability until they take effect. When adjustments to lease payments based on an index or rate take effect, the lease liability is reassessed and adjusted against the right-of-use asset.

Each lease payment is allocated between the liability and finance cost. The finance cost is charged to profit or loss over the lease period so as to produce a constant periodic rate of interest on the remaining balance of the liability for each period.

Right-of-use assets are measured at cost comprising the following:

- the amount of the initial measurement of lease liability
- any lease payments made at or before the commencement date less any lease incentives received
- any initial direct costs, and
- restoration costs

The right-of-use asset is depreciated over the shorter of the asset's useful life and the lease term on a straight-line basis. If the Group is reasonably certain to exercise a purchase option, the right-of-use asset is depreciated over the underlying asset's useful life. Although the Group elected to apply the revaluation model to its land and buildings that are presented in property, plant and equipment, the Group elected not to apply that revaluation model to buildings held by the Group that are presented in the right-of-use assets.

Payments associated with short-term leases and leases of low-value assets are recognized on a straight-line basis as an expense in profit or loss.

2.28 Segment Reporting

Information of each operating segment is reported in a manner consistent with the internal business segment reporting provided to the chief operating decision-maker. The chief operating decision-maker is responsible for allocating resources and assessing performance of the operating segments.

2.29 Accounting Treatment Related to the Emission Rights Cap and Trade Scheme

The Group classifies the emission rights as intangible assets. The allowance received free of charge from the government are measured at zero, while those purchased are measured at acquisition cost. Also, if the emission rights granted free of charge by the government in relation to certain implementation year are sufficient to fulfill the obligation under the emission liability of current period, the emission liability is measured as zero. However, if there is a shortage, Emissions obligations are

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measured as the sum of the carrying amount of the allocated allowances that will be the best estimate of expenditure required to settle the obligation at the end of reporting period for any excess emission.

2.30 Approval of Issuance of the Financial Statements

The consolidated financial statements 2021 were approved for issue by the Board of Directors on February 4, 2022 and are subject to change with the approval of shareholders at their Annual General Meeting on March 21, 2022.

3. Critical Accounting Estimates and Assumptions

The preparation of the consolidated financial statements requires the Group to make estimates and assumptions concerning the future. Management also needs to exercise judgement in applying the Group's accounting policies. Estimates and assumptions are continually evaluated and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances. As the resulting accounting estimates will, by definition, seldom equal the related actual results, it can contain a significant risk of causing a material adjustment.

The estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are discussed below. Additional information of significant judgement and assumptions of certain items are included in relevant notes.

(1) Impact of Coronavirus disease 2019 ("COVID-19")

In order to prevent the spread of COVID-19, a variety of prevention and control measures, including movement restrictions, are being implemented worldwide. As a result, the global economy is being affected extensively. Also, various forms of government support policies have been announced to cope with COVID-19. The impact of COVID-19 and government support policies were not reflected in the consolidated financial statements because the impact on the estimates of variable consideration, the recoverability of accounts receivables and the recognition of provisions cannot be reasonably estimated due to uncertainties remained as at December 31, 2021.

(2) Provisions for product warranty

The Group provides warranty for products when the related revenue is recognized. At the end of each reporting period, provisions are recorded at the best estimated costs to settle current and future warranty obligations. The Group continuously introduces new products using advanced complex technology, and accordingly, these estimates may change in future due to additional provisions required under local legislation and practice.

(3) Allowance for doubtful accounts of receivables

In order to calculate the impairment of receivables, the management of the Group estimates an expected bad debt considering the aging of receivables, past experience of bad debt and economic

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and industrial factors.

(4) Impairment of capitalized development cost

The Group performs an assessment for impairment of capitalized development costs at the end of each reporting period by reviewing project's business forecast, technical feasibility and future economic benefit. The assessment on indication of impairment or calculation of recoverable amount of capitalized development costs involves management's estimates and judgments.

4. Financial Risk Management

The purpose of the Group's financial risk management is to improve financial structure and efficiency of fund management to create stable and sustainable management performance even under various financial risks such as market risk, credit risk and liquidity risk.

Financial risk management activities are mainly managed by the finance department, and, in close cooperation with the relevant departments, the department is engaged in activities such as identification, valuation and hedging of financial risks, and focusing on minimizing the impact of financial risks through regular monitoring.

(1) Market Risk

1) Foreign exchange risk

The Group is exposed to foreign exchange risk as it makes international transactions in foreign currencies. Foreign exchange risk arises from forecast transactions, recognized assets and liabilities and net investments in foreign operations.

Foreign exchange risk is managed by the Group's Regulation on foreign currencies. The Group's basis for foreign currency management is to reduce the volatility of profit or loss. The Group reduces exposure to foreign exchange risk by matching the inflow and the outflow of foreign currencies (natural hedge), and manages foreign exchange risk by using currency derivatives, such as currency forwards, for the remaining exposures.

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The Group's monetary assets and liabilities denominated in foreign currencies and exposed to foreign exchange risk as at December 31, 2021 and 2020, are as follows:

(in millions of Korean won)

	December 31, 2021				
	USD	EUR	CNY	Others ¹	Total
Financial assets	₩ 392,353	₩ 226,706	₩ 68,393	₩ 30,858	₩ 718,310
Financial liabilities	(208,731)	(47,961)	(52,054)	(15,418)	(324,164)
Net assets (liabilities)	₩ 183,622	₩ 178,745	₩ 16,339	₩ 15,440	₩ 394,146

(in millions of Korean won)

	December 31, 2020				
	USD	EUR	CNY	Others ¹	Total
Financial assets	₩ 810,866	₩ 151,609	₩ 148,916	₩ 79,989	₩ 1,191,380
Financial liabilities	(604,309)	(141,391)	(20,126)	(39,509)	(805,335)
Net assets (liabilities)	₩ 206,557	₩ 10,218	₩ 128,790	₩ 40,480	₩ 386,045

¹ Others are assets and liabilities denominated in foreign currencies other than USD, EUR and CNY. A sensitivity analysis on the Group's profit before income tax, assuming a 10% increase and decrease in functional currency exchange rates (functional currency per foreign currency) of the respective entity holding the assets and liabilities, for the years ended December 31, 2021 and 2020, is as follows:

(in millions of Korean won)

	2021		2020	
	10% increase in foreign exchange currency rate	10% decrease in foreign exchange currency rate	10% increase in foreign exchange currency rate	10% decrease in foreign exchange currency rate
Profit (loss) before income tax				
expense	₩ 39,415	₩ (39,415)	₩ 38,605	₩ (38,605)

2) Interest rate risk

The Group's interest rate risk is related to borrowings and bank deposits with floating interest rates, and the related interest income and expense are exposed to interest rate risk. Borrowings and bank deposits with fixed interest rates do not have influence on current profit or loss and equity due to the changes in market interest rates.

To manage the Group's interest rate risk in advance, the Group tries to minimize external borrowings by using internal funds, reducing borrowings with high interest rates, improving the structure of long-term and short-term borrowings, maintaining the appropriate balance between borrowings with floating interest rate, and fixed interest rate and regularly monitoring domestic and international interest rate changes with action plans.

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Financial assets and liabilities with floating interest rates exposed to interest rate risk as at December 31, 2021 and 2020, is as follows:

<i>(in millions of Korean won)</i>	December 31, 2021		December 31, 2020	
Financial assets	₩	262,873	₩	142,159
Financial liabilities		34,371		962,204

The table below summarizes the impact of increases/decreases of interest rate on the Group's profit (loss) before income tax. The analysis is based on the assumption that the interest rate has increased/decreased by 100 basis points with all other variables held constant.

<i>(in millions of Korean won)</i>	2021				2020			
	100 bp increase		100 bp decrease		100 bp increase		100 bp decrease	
Profit (loss) before income tax expense	₩	2,285	₩	(2,285)	₩	(8,200)	₩	8,200

3) Price risk

The Group is exposed to equity securities price risk arises from investments held by the Group that are classified either as at fair value in the consolidated statement of financial position.

(2) Credit Risk

Credit risk arises during the normal course of transactions and investing activities where customers or other parties are unable to comply with contractual obligations. The Group sets out and monitors credit limits for its customers and counterparts on a periodic basis considering financial conditions, historical experiences and other factors.

Credit risk arises from cash and cash equivalents, derivatives and deposits with banks and financial institutions, as well as credit exposures to major customers, including receivables and definite term contracts.

Main objectives of credit risk management are to efficiently manage credit risk based on the Group's credit policies, to promptly support decision-making processes and to minimize financial losses through safeguarding receivables. Where default is expected for receivables that represents impairment indicators or are past due at the end of reporting period, the Group assesses related credit risk and reflects it on allowances in its consolidated statement of financial position.

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- Exposure to credit risk

Maximum exposures of financial assets of the Group exposed to credit risk as at December 31, 2021 and 2020, are as follows:

<i>(in millions of Korean won)</i>	December 31, 2021		December 31, 2020	
Cash and cash equivalents	₩	545,383	₩	1,663,459
Short-term and long-term financial instrument		79,906		140,523
Trade and other receivables		1,358,092		1,358,281
Long-term trade and other receivables		7,829		4,969
Deposits		38,250		42,256
Derivative assets		1,886		416
Short-term and long-term financial instrument (excluding equity securities)		18,165		137,449
Total	₩	2,049,511	₩	3,347,353

Aging analysis of the Group's receivables and Loss allowance provision for trade receivables as at December 31, 2021 and 2020, is as follows:

<i>(in millions of Korean won)</i>		December 31, 2021							
		Individually impaired receivables	Receivables assessed for impairment on a collective basis					Total	
			Within due	0-3 months	3-6 months	6-12 months	Over 12 months		
Trade receivables	₩	106,997	₩ 500,889	₩ 29,477	₩ 5,392	₩ 7,152	₩ 7,961	₩ 657,868	
Financial lease receivables		-	729,381	34,440	8,845	3,914	7,250	783,830	
Other receivables		37,752	20,903	24,933	737	127	16,165	100,617	
Accrued income		-	4,876	-	-	-	-	4,876	
Short-term loans		-	1	-	-	-	-	1	
Long-term trade receivables		-	7,822	-	-	-	48	7,870	
Long-term other receivables		4,213	-	-	-	-	-	4,213	
Total	₩	148,962	₩ 1,263,872	₩ 88,850	₩ 14,974	₩ 11,193	₩ 31,424	₩ 1,559,275	
Loss allowance provision for trade receivables	₩	(93,187)	₩ (755)	₩ (288)	₩ (344)	₩ (2,333)	₩ (6,894)	₩ (103,801)	

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(in millions of Korean
won)

December 31, 2020

	Individually impaired receivables		Receivables assessed for impairment on a collective basis					Total	
			Within due	0-3 months	3-6 months	6-12 months	Over 12 months		
Trade receivables	₩	219,125	₩ 521,963	₩ 62,623	₩ 5,409	₩ 5,224	₩ 9,596	₩	823,940
Financial lease receivables		-	648,265	9,854	779	221	7,975		667,094
Other receivables		36,205	41,261	31,982	73	112	16,489		126,122
Accrued income		-	5,318	-	-	-	3		5,321
Short-term loans		26,112	61	-	-	-	-		26,173
Long-term trade receivables		-	4,961	-	-	-	45		5,006
Long-term other receivables		4,148	-	-	-	-	-		4,148
Total	₩	285,590	₩ 1,221,829	₩ 104,459	₩ 6,261	₩ 5,557	₩ 34,108	₩	1,657,804
Loss allowance provision for trade receivables	₩	(202,008)	₩ (3,708)	₩ (559)	₩ (407)	₩ (958)	₩ (7,802)	₩	(215,442)

Receivables with specific impairment indicators such as insolvency and bankruptcy are individually assessed using appropriate allowance rates. A group of financial assets with similar credit risk natures that are not individually significant is assessed on a collective basis based on aging analysis and the Group's historical experience on collection.

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(3) Liquidity Risk

Liquidity risk represents the risk that the Group may encounter difficulties in fulfilling its obligations to repay financial liabilities or in being not able to have additional funding for its normal business operations due to liquidity shortage.

The Group prepares cash flow budgets for a three-month period as well as annual fiscal year to forecast cash flows from operating, investing and financing activities. Through these forecasts, the Group secures and maintains an appropriate level of liquidity volume and accordingly manages liquidity risk in advance.

Details of the Group's liquidity risk analysis as at December 31, 2021 and 2020, are as follows:

(in millions of
Korean won)

		December 31, 2021					
		Nominal cash flows					
	Carrying amount	Total	Less than 1 year	Less than 2 year	Less than 5 year	More than 5 years	
Financial liabilities	₩ 2,789,228	₩ 2,839,965	₩ 2,287,976	₩ 402,621	₩ 148,498	₩ 870	

(in millions of
Korean won)

		December 31, 2020					
		Nominal cash flows					
	Carrying amount	Total	Less than 1 year	Less than 2 year	Less than 5 year	More than 5 years	
Financial liabilities	₩ 6,018,717	₩ 6,298,294	₩ 3,408,752	₩ 1,365,549	₩ 1,507,388	₩ 16,605	

The amounts of financial liabilities by remaining maturity included in above represent undiscounted contractual nominal cash flows (including interest expenses), assuming the earliest period in which the Group can be required to pay, and therefore differ from the financial liabilities recognized in the consolidated statements of financial position. In addition to the above financial liabilities, the maximum amount of the guarantee that can be borne by the Group's financial guarantee contracts as of the end of the reporting period is as follows in note 33.

(4) Capital Risk

The Group's objectives when managing capital are to safeguard the Group's ability to continue as a going concern, so the Group can continue to provide returns for shareholders and benefits for other stakeholders, and to maintain an optimal capital structure to reduce the cost of capital.

In order to maintain or adjust the capital structure, the Group may adjust the amount of dividends paid to shareholders, return capital to shareholders, issue new shares or sell assets to reduce debt.

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Consistent with others in the industry, the Group monitors capital on the basis of the gearing ratio. This ratio is calculated as total debt divided by total equity.

Gearing ratios as at December 31, 2021 and 2020, are as follows:

<i>(in millions of Korean won)</i>	December 31, 2021		December 31, 2020	
Debt	₩	3,412,466	₩	7,537,888
Equity		1,369,824		4,488,999
Debt-to-equity ratio		249.12%		167.92%

5. Restricted Financial Instruments

Details of restricted financial instruments as at December 31, 2021 and 2020, are as follows:

<i>(in millions of Korean won)</i>	December 31, 2021		December 31, 2020		Description
Short-term financial instruments	₩	54,785	₩	55,497	Win-win Growth Fund, Restricted deposit and others
Long-term financial instruments		1,289		583	Pledged for borrowings, Bank transaction deposits and others
Total	₩	56,074	₩	56,080	

6. Short-term and Long-term Investment Securities

(1) Short-term and long-term investment securities as at December 31, 2021 and 2020, are as follows:

<i>(in millions of Korean won)</i>	December 31, 2021	
Short-term Investment securities:		
Financial Assets at Amortized Cost	₩	22
Financial assets at fair value through profit or loss		8
Subtotal	₩	30
Long-term Investment securities:		
Financial Assets at Amortized Cost	₩	15,326
Financial assets at fair value through other comprehensive income		935
Financial assets at fair value through profit or loss		2,818
Subtotal	₩	19,079

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(in millions of Korean won)

December 31, 2020

Short-term Investment securities:		
Financial Assets at Amortized Cost	₩	99,803
Financial assets at fair value through profit or loss		11,358
Subtotal	₩	111,161
Long-term Investment securities:		
Financial Assets at Amortized Cost	₩	15,332
Financial assets at fair value through other comprehensive income		6,376
Financial assets at fair value through profit or loss		18,740
Subtotal	₩	40,448

(2) Short-term and long-term investment securities comprise the following investments at December 31, 2021 and 2020:

(in millions of Korean won)

December 31, 2021

Current Financial Assets at Amortized Cost:		
Government bonds and public bonds	₩	22
Debt Securities		-
Subtotal	₩	22
Non-current Financial Assets at Amortized Cost:		
Government bonds and public bonds	₩	71
Debt Securities		15,255
Subtotal	₩	15,326
Non-current Financial assets at fair value through other comprehensive income:		
Investments in non-listed company	₩	935
Current Financial assets at fair value through profit or loss:		
Financial assets held for trading	₩	8
Beneficiary certificates		-
	₩	8
Non-current Financial assets at fair value through profit or loss:		
Beneficiary certificates	₩	2,271
Investments in funds		547
Subtotal	₩	2,818

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(in millions of Korean won)

December 31, 2020

Current Financial Assets at Amortized Cost:

Government bonds and public bonds	₩	23
Debt Securities		99,780
Subtotal	₩	99,803

Non-current Financial Assets at Amortized Cost:

Government bonds and public bonds	₩	77
Debt Securities		15,255
Subtotal	₩	15,332

Non-current Financial assets at fair value through other comprehensive income:

Investments in non-listed company	₩	6,376
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Current Financial assets at fair value through profit or loss:

Financial assets held for trading	₩	7,784
Beneficiary certificates		3,574
	₩	11,358

Non-current Financial assets at fair value through profit or loss:

Beneficiary certificates	₩	18,089
Investments in non-listed company		651
Subtotal	₩	18,740

(3) Change in financial assets at fair value for the year ended December 31, 2021 and 2020, are as follows:

(in millions of
Korean won)

		2021							
	Beginning balance	Acquisition	Disposal	Valuation	Others	Spin-off	Ending balance		
Financial assets at fair value through other comprehensive income	₩ 6,376	₩ 559	₩ (2,676)	₩ 1,559	₩ 202	₩ (5,085)	₩ 935		
Financial assets at fair value through profit or loss	30,098	5,788	(12,087)	14,743	798	(36,514)	2,826		
Total	₩ 36,474	₩ 6,347	₩ (14,763)	₩ 16,302	₩ 1,000	₩ (41,599)	₩ 3,761		

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(in millions of
Korean won)

	2020					
	Beginning balance	Acquisition	Disposal	Valuation	Others	Ending balance
Financial assets at fair value through other comprehensive income	₩ 937	₩ 5,900	₩ (1)	₩ -	₩ (460)	₩ 6,376
Financial assets at fair value through profit or loss	20,933	11,785	(3,224)	(695)	1,299	30,098
Total	₩ 21,870	₩ 17,685	₩ (3,225)	₩ (695)	₩ 839	₩ 36,474

7. Trade and Other Receivables

(1) Trade and other receivables as at December 31, 2021 and 2020, consist of the following:

(in millions of Korean won)

	December 31, 2021		
	Gross amount ¹	Provision for impairment	Carrying amount
Current:			
Trade receivables	₩ 656,389	₩ (103,801)	₩ 552,588
Financial lease receivables	763,831	(10,192)	753,639
Other receivables	100,617	(53,629)	46,988
Accrued income	4,876	-	4,876
Short-term loans	1	-	1
Total	₩ 1,525,714	₩ (167,622)	₩ 1,358,092
Non-current:			
Long-term trade receivables	₩ 7,829	₩ -	₩ 7,829
Long-term other receivables	4,213	(4,213)	-
Total	₩ 12,042	₩ (4,213)	₩ 7,829

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December 31, 2021 and 2020

(in millions of Korean won)

	December 31, 2020		
	Gross amount ¹	Provision for impairment	Carrying amount
Current:			
Trade receivables	₩ 821,500	₩ (215,442)	₩ 606,058
Financial lease receivables	655,100	(8,192)	646,908
Other receivables	126,122	(52,301)	73,821
Accrued income	5,321	-	5,321
Short-term loans	26,173	-	26,173
Total	₩ 1,634,216	₩ (275,935)	₩ 1,358,281
Non-current:			
Long-term trade receivables	₩ 4,969	₩ -	₩ 4,969
Long-term other receivables	4,148	(4,148)	-
Total	₩ 9,117	₩ (4,148)	₩ 4,969

¹ The Group recognizes the transfer of trade receivable as collateralized borrowing for those that do not meet the requirements for the elimination of financial instruments (Note 17).

(2) Changes in provision for impairment of loans and receivables for the years ended December 31, 2021 and 2020, are as follows:

(in millions of Korean won)

	2021				
	Beginning balance	Provision for (reversal of) allowance	Spin-off	Others ¹	Ending balance
Trade receivables	₩ 215,442	₩ 4,762	₩ (10,988)	₩ (105,415)	₩ 103,801
Financial lease receivables	8,192	757	-	1,243	10,192
Other receivables	52,301	505	(1)	824	53,629
Short-term loans	-	(86)	-	86	-
Long-term other receivables	4,148	65	-	-	4,213
Total	₩ 280,083	₩ 6,003	₩ (10,989)	₩ (103,262)	₩ 171,835

¹ Includes gain or loss arising from changes in foreign exchange rates.

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(in millions of Korean won)

		2020			
	Beginning balance	Provision for (reversal of) allowance	Write off and Others ¹	Ending balance	
Trade receivables	₩ 294,999	₩ (5,114)	₩ (74,443)	₩ 215,442	
Financial lease receivables	10,192	(2,330)	330	8,192	
Other receivables	46,463	6,906	(1,068)	52,301	
Short-term loans	15,113	-	(15,113)	-	
Long-term other receivables	5,703	(1,555)	-	4,148	
Total	₩ 372,470	₩ (2,093)	₩ (90,294)	₩ 280,083	

¹ Includes gain or loss arising from changes in foreign exchange rates.

(3) Gross investment in finance lease and present value of minimum lease payments as at December 31, 2021 and 2020, are as follows:

(in millions of Korean won)

	December 31, 2021	December 31, 2020
Within one year	₩ 536,530	₩ 429,520
Later than one year but not later than five years	244,444	237,571
Total	₩ 780,974	₩ 667,091
Present value of discount	(17,144)	(11,991)
Net investment in a lease	₩ 763,830	₩ 655,100

In relation to the above lease, there is no unguaranteed residual value as at December 31, 2021. And there are no contingent rental payments incurred during the year ended December 31, 2021.

(4) Gain or loss related to finance lease for the years ended at December 31, 2021 and 2020, is as follows:

(in millions of Korean won)

	2021	2020
Interest income from finance lease	₩ 16,561	₩ 18,258
Commissions received from finance lease	44,524	36,493
Total	₩ 61,085	₩ 54,751

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8. Inventories

Inventories as at December 31, 2021 and 2020, are as follows:

(in millions of Korean won)

	December 31, 2021			December 31, 2020		
	Acquisition cost	Valuation allowance	Carrying amount	Acquisition cost	Valuation allowance	Carrying amount
Merchandise	₩ 217,862	₩ (18,656)	₩ 199,206	₩ 236,072	₩ (22,990)	₩ 213,082
Finished goods	332,619	(12,315)	320,304	521,429	(36,079)	485,350
Semi-finished goods	68,174	(562)	67,612	99,577	(514)	99,063
Work in progress	43,015	-	43,015	76,887	-	76,887
Raw materials	251,572	(6,941)	244,631	480,190	(19,319)	460,871
Supplies	2,191	(2)	2,189	2,074	(21)	2,053
Materials in transit	200,627	-	200,627	252,602	-	252,602
Total	₩ 1,116,060	₩ (38,476)	₩ 1,077,584	₩ 1,668,831	₩ (78,923)	₩ 1,589,908

Inventories recognized as cost of goods sold during the year ended December 31, 2021, amounted to ₩ 3,434,924 million (2020: ₩ 2,958,904 million). Loss on valuation of inventories added to cost of goods sold amounted to ₩ 2,130 million for the same period (2020: deducted ₩ 4,594 million).

9. Derivative Instruments

(1) Details of derivative instruments are as follows:

Purpose	Type of derivative instruments	Description
Cash flow hedge	Foreign currency forward	A contract to avoid cash flow risk arising from forecasted sales in foreign currencies and forecasted expenses in foreign currencies related to the introduction of foreign materials.
	Foreign currency swap	A contract to pay fixed interest rate in Korean Won and receive fixed interest rate in foreign currency on future interest and principal payment date to avoid the risk of cash flow fluctuations due to exchange rate fluctuations

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(2) Details of valuation of derivative instruments as at December 31, 2021 and 2020, are as follows:

(in thousands of foreign currencies and millions of Korean won)

		December 31, 2021					
		Buy		Sell		Derivative assets (liabilities)	Other comprehensive income (loss) ¹
		Currency	Amount	Currency	Amount		
Foreign currency forward	KRW		103,569	EUR	75,700	₩ 1,065	₩ 1,065
	JPY		2,600,000	KRW	27,186	(347)	(347)
	KRW		372,896	USD	315,000	(1,186)	(1,186)
	Total					₩ (468)	₩ (468)

¹ The amounts are not adjusted for deferred income tax effect.

(in thousands of foreign currencies and millions of Korean won)

		December 31, 2020					
		Buy		Sell		Derivative assets (liabilities)	Other comprehensive income (loss) ¹
		Currency	Amount	Currency	Amount		
Foreign currency forward	KRW		40,575	EUR	30,000	₩ 389	₩ 389
	JPY		750,000	KRW	8,037	(127)	(127)
	EUR		8,296	GBP	7,467	(67)	(3)
	Subtotal					₩ 195	₩ 259
Foreign currency swap	USD		600,000	KRW	703,460	₩ (43,774)	₩ 6,536
	Subtotal					₩ (43,774)	₩ 6,536
	Total					₩ (43,579)	₩ 6,795

¹ The amounts are not adjusted for deferred income tax effect.

Derivative instruments are classified as non-current assets (liabilities) if their remaining maturities exceed 12 months from the end of the reporting period; otherwise, they are classified as current assets (liabilities).

There is no gain or loss relating to the ineffective portion that shall be recognized in profit or loss in applying cash flow hedge.

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10. Financial Instruments by Category

(1) Fair value of financial assets and liabilities by category as at December 31, 2021 and 2020, are as follows:

(in millions of Korean won)

Financial assets	December 31, 2021					
	Financial assets at amortized cost	Financial assets at fair value through other comprehensive income	Financial assets at fair value through profit or loss	Other financial assets ¹	Total	Fair value
Cash and cash equivalents	₩ 545,383	₩ -	₩ -	₩ -	₩ 545,383	₩ 545,383
Short-term financial instruments	78,617	-	-	-	78,617	78,617
Short-term investment securities	22	-	8	-	30	30
Trade and other receivables	1,337,687	20,405	-	-	1,358,092	1,358,092
Short-term derivative assets	-	-	-	1,886	1,886	1,886
Long-term financial instruments	1,289	-	-	-	1,289	1,289
Long-term investment securities	15,326	935	2,818	-	19,079	19,079
Long-term trade and other receivables	7,829	-	-	-	7,829	7,829
Other non-current assets	38,250	-	-	-	38,250	38,250
Total	₩ 2,024,403	₩ 21,340	₩ 2,826	₩ 1,886	₩ 2,050,455	₩ 2,050,455

¹ Other financial assets include derivatives designated as hedging instruments, which are not subject to financial instruments by category.

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(in millions of Korean won)

Financial liabilities	December 31, 2021					
	Financial liabilities at amortized cost		Other financial liabilities ¹		Total	Fair value
Trade and other payables	₩	949,708	₩	-	₩ 949,708	₩ 949,708
Borrowings and bonds		1,759,700		-	1,759,700	1,759,700
Short-term derivative liabilities		-		2,355	2,355	2,355
Other current liabilities		49,101		-	49,101	49,101
Other non-current payables		4		-	4	4
Other non-current liabilities		5,922		-	5,922	5,922
Financial guarantee liabilities		-		3,799	3,799	3,799
Long-term and short-term lease liabilities		-		24,792	24,792	24,792
Total	₩	2,764,435	₩	30,946	₩ 2,795,381	₩ 2,795,381

¹ Other financial liabilities include derivatives designated as hedging instruments, financial guarantee liabilities and lease liabilities which are not subject to financial instruments by category.

(in millions of Korean won)

Financial assets	December 31, 2020					
	Financial assets at amortized cost	Financial assets at fair value through other comprehensive income	Financial assets at fair value through profit or loss	Other financial assets ¹	Total	Fair value
Cash and cash equivalents	₩ 1,663,459	₩ -	₩ -	₩ -	₩ 1,663,459	₩ 1,663,459
Short-term financial instruments	139,940	-	-	-	139,940	139,940
Short-term investment securities	99,803	-	11,358	-	111,161	111,161
Trade and other receivables	1,328,871	29,410	-	-	1,358,281	1,358,281
Short-term derivative assets	-	-	-	416	416	416
Long-term financial instruments	583	-	-	-	583	583
Long-term investment securities	15,332	6,376	18,740	-	40,448	40,448
Long-term trade and other receivables	4,969	-	-	-	4,969	4,969
Other non-current assets	42,256	-	-	-	42,256	42,256

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Total	₩ 3,295,213	₩ 35,786	₩ 30,098	₩ 416	₩ 3,361,513	₩ 3,361,513
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¹ Other financial assets include derivatives designated as hedging instruments, which are not subject to financial instruments by category.

(in millions of Korean won)

Financial liabilities	December 31, 2020			
	Financial liabilities at amortized cost	Other financial liabilities ¹	Total	Fair value
Trade and other payables	₩ 1,600,710	₩ -	₩ 1,600,710	₩ 1,600,710
Borrowings and bonds	4,289,140	-	4,289,140	4,289,140
Long-term and short-term derivative liabilities	-	43,995	43,995	43,995
Other current liabilities	39,620	-	39,620	39,620
Other non-current payables	6	-	6	6
Other non-current liabilities	32,264	-	32,264	32,264
Financial guarantee liabilities	-	3,520	3,520	3,520
Long-term and short-term lease liabilities	-	77,399	77,399	77,399
Total	₩ 5,961,740	₩ 124,914	₩ 6,086,654	₩ 6,086,654

¹ Other financial liabilities include derivatives designated as hedging instruments, financial guarantee liabilities and lease liabilities which are not subject to financial instruments by category.

(2) Fair value hierarchy classifications of the financial instruments that are measured at fair value as at December 31, 2021 and 2020, are as follows:

(in millions of
Korean won)

	December 31, 2021			
	Level 1	Level 2	Level 3	Total
Financial assets at fair value:				
Financial assets at fair value through other comprehensive income	₩ -	₩ 20,405	₩ 935	₩ 21,340
Financial assets at fair value through profit or loss	8	-	2,818	2,826
Other financial assets	-	1,886	-	1,886
Total	₩ 8	₩ 22,291	₩ 3,753	₩ 26,052
Financial liabilities at fair value:				
Other financial liabilities	₩ -	₩ 2,355	₩ -	₩ 2,355

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	December 31, 2020			
	Level 1	Level 2	Level 3	Total
Financial assets at fair value:				
Financial assets at fair value through other comprehensive income	₩ -	₩ 29,410	₩ 6,376	₩ 35,786
Financial assets at fair value through profit or loss	7,784	3,574	18,740	30,098
Other financial assets	-	416	-	416
Total	₩ 7,784	₩ 33,400	₩ 25,116	₩ 66,300

Financial liabilities at fair value:

Other financial liabilities	₩ -	₩ 43,995	₩ -	₩ 43,995
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The defined levels of the above fair value hierarchy classifications of the financial instruments that are measured at fair value, are as follows:

Classification	Description
Level 1	Quoted prices (unadjusted) in active markets for identical assets or liabilities
Level 2	All inputs other than quoted prices included in level 1 that are observable (either directly that is, prices, or indirectly that is, derived from prices) for the asset or liability
Level 3	Unobservable inputs for the asset or liability

- Level 1: The fair value of financial instruments traded in active markets (such as publicly traded derivatives and equity securities) is based on quoted market prices at the end of the reporting period. The quoted market price used for financial assets held by the Group is the current bid price. These instruments are included in level 1.

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

- Level 3: If one or more of the significant inputs is not based on observable market data, the instrument is included in level 3. This is the case for unlisted equity securities.

(3) Valuation technique and inputs used in the fair value measurements for hedge derivatives (categorized within Level 2 of the fair value hierarchy) as at December 31, 2021, are as follows:

Valuation technique	Observable Inputs	Description
Present value technique	Forward exchange rate	Based on forward exchange rate disclosed on the market of which remaining period to the maturity equals to that of the forward contract. If there is not any forward exchange rate disclosed under the same conditions stated above, it is calculated by using interpolation method.
	Discount rate	Measured based on the yield curve derived from the weighted average borrowing rate at the end of the reporting period.

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(4) Changes in level 3 for recurring fair value measurements for the year ended December 31, 2021, are as follows:

(in millions of Korean won)

		(in millions of Korean won)													
		Beginning balance		Total comprehensive income				Purchases (Issues)		Sales (Settlements)		Others ¹		Ending balance	
				Profit or loss		Other comprehensive income									
Financial assets at fair value through other comprehensive income		₩	6,376	₩	-	₩	1,559	₩	559	₩	(2,676)	₩	(4,883)	₩	935
Financial assets at fair value through profit or loss			18,740		5,889		-		5,779		(936)		(26,654)		2,818
Total		₩	25,116	₩	5,889	₩	1,559	₩	6,338	₩	(3,612)	₩	(31,537)	₩	3,753

¹ Changes due to spin-off and exchange differences.

(5) Net gains or losses on each category of financial instruments for the years ended December 31, 2021 and 2020, are as follows:

(in millions of Korean won)

	2021						
	Profit or loss						
	Interest income (expense)	Dividend income	Loss on valuation	Impairment loss (reversal)	Gain (loss) on disposal	Other	
Financial assets:							
Financial assets at amortized cost	₩ 7,827	₩ -	₩ -	₩ (7,029)	₩ (7,514)	₩ -	-
Financial assets at fair value through profit or loss	395	160	(89)	-	-	-	-
Total	₩ 8,222	₩ 160	₩ (89)	₩ (7,029)	₩ (7,514)	₩ -	-
Financial liabilities:							
Financial liabilities at amortized cost	₩ (91,969)	₩ -	₩ -	₩ -	₩ -	₩ (1,270)	-
Other financial liabilities	(2,360)	-	-	-	-	(559)	-
Total	₩ (94,329)	₩ -	₩ -	₩ -	₩ -	₩ (1,829)	-

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	2020					
	Profit or loss					
	Interest income (expense)	Gain on valuation	Impairment reversal	Gain(loss) on disposal	Other	
Financial assets:						
Financial assets at amortized cost	₩ 8,216	₩ -	₩ 4,898	₩ (5,491)	₩	-
Financial assets at fair value through profit or loss	453	355	-	2,325		-
Total	₩ 8,669	₩ 355	₩ 4,898	₩ (3,166)	₩	-
Financial liabilities:						
Financial liabilities at amortized cost	₩ (102,455)	₩ -	₩ -	₩ (23,136)	₩	(77)
Other financial liabilities	(860)	-	-	-		(1,446)
Total	₩ (103,315)	₩ -	₩ -	₩ (23,136)	₩	(1,523)

Among the financial instruments above, the loss of ₩ 730 million from derivatives designated as a cash flow hedge was recognized as other comprehensive income(before tax) for the year ended December 31, 2021 (2020: loss of ₩ 3,825 million) (Note 9).

In addition, foreign exchange differences, either realized or not, related to foreign currency transactions (other than derivative contracts) mostly resulted from loans and receivables and financial liabilities measured at amortized cost.

11. Interests in Associates and Joint ventures

(1) Set out below are the associates and joint ventures of the Group as at December 31, 2021 that are material to the Group.

Name of entity	Type of business	Percentage of ownership (%)	Location	Date of financial statements
Joint ventures:				
Tianjin Lovol Doosan Engine Co., Ltd.	Manufacturing and Sales	50.00	China	December 31
Doosan Infracore Liaoning Machinery Sales Co., Ltd	Sales of excavator	43.00	China	December 31

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(2) Details of investments in associates and joint ventures as at December 31, 2021 and 2020, are summarized as follows:

(in millions of Korean won)

Name of entity	Percentage of ownership (%)	Proportionate share of											
		Acquisition cost		Carrying amount		net assets							
		December	December	December	December	December	December						
		31, 2021	31, 2020	31, 2021	31, 2020	31, 2021	31, 2020						
Associates:													
Doosan Cuvex Co., Ltd.	-	₩	-	₩	68,059	₩	-	₩	67,867	₩	-	₩	66,024
DBC Co., Ltd.	-		-		53,066		-		51,752		-		51,051
Others			5,333		13,033		-		7,072		-		7,072
Subtotal		₩	5,333	₩	134,128	₩	-	₩	126,691	₩	-	₩	124,147
Joint ventures:													
Tianjin Lovol Doosan Engine Co., Ltd.	50.00	₩	31,767	₩	28,163	₩	-	₩	16,327	₩	20,383	₩	18,546
Doosan Infracore Liaoning Machinery Sales Co., Ltd	43.00		718		718		394		202		461		397
Subtotal			32,485		28,881		394		16,529		20,844		18,943
Total		₩	37,818	₩	163,009	₩	394	₩	143,220	₩	20,844	₩	143,090

(3) Changes in investment in associates and joint ventures for the years ended December 31, 2021 and 2020, are as follows:

(in millions of

Korean won)

in millions of Korean won)		2021													
Name of entity	Valuation method	Beginning balance		Acquisition		Share of profit (loss)		Equity method impairment		Spin-off		Others		Ending balance	
Doosan Cuvex Co., Ltd. ¹	Equity method	₩	67,867	₩	-	₩	1,013	₩	-	₩	(68,880)	₩	-	₩	-
DBC Co., Ltd.	Equity method		51,752		-		27,403		-		(79,155)		-		-
Tianjin Lovol Doosan Engine Co., Ltd. ²	Equity method		16,327		3,604		(3,534)		(18,471)		-		2,074		-
Doosan Infracore Liaoning Machinery Sales Co., Ltd	Equity method		202		-		160		-				32		394
Others	Equity method, fair value through profit or loss method		7,072		-		(69)		-		(7,275)		272		-
Total		₩	143,220	₩	3,604	₩	24,973	₩	(18,471)	₩	(155,310)	₩	2,378	₩	394

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¹ For the year ended December 31, 2021, it was spun off.

² For the year ended December 31, 2021, the Group acquired additional share of ₩ 3,604 million and ₩ 18,471 million of carrying amount is recognized as impairment loss.

(in millions of
Korean won)

2020									
Name of entity	Valuation method	Beginning balance	Acquisition	Share of profit (loss)	Share of associates' changes in retained earnings	Disposal	Others	Ending balance	
Doosan Cuvex Co., Ltd. ¹	Equity method	₩ 30,683	₩ 35,991	₩ 1,148	₩ 45	₩ -	₩ -	₩ 67,867	
DBC Co., Ltd.	Equity method	52,221	-	(468)	(1)	-	-	51,752	
Tianjin Lovol Doosan Engine Co., Ltd. ²	Equity method	17,787	2,523	(4,217)	-	-	234	16,327	
Doosan Infracore Liaoning Machinery Sales Co., Ltd	Equity method	107	-	96	-	-	(1)	202	
Others	Equity method, fair value through profit or loss method	2,181	7,670	283	-	(2,223)	(839)	7,072	
Total		₩ 102,979	₩ 46,184	₩ (3,158)	₩ 44	₩ (2,223)	₩ (606)	₩ 143,220	

¹ Doosan Cuvex Co., Ltd. participated in the capital increase and acquired 6.85% of the shares for ₩ 35,991 million for the year ended December 31, 2020.

² The Group acquired additional shares of Tianjin Lovol Doosan Engine Co., Ltd. for ₩ 2,523 million, and there are no changes in percentage of ownership for the year ended December 31, 2020.

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(4) The tables below provide summarized financial information for investment in major associates and joint ventures.

(in millions of
Korean won)

Name of entity	December 31, 2021						December 31, 2020			
	Total assets	Total liabilities	Sales	Profit (loss) for the year	Total comprehensive income		Total assets	Total liabilities		
Tianjin Lovol Doosan Engine Co., Ltd.	₩ 48,848	₩ 8,081	₩ 5,411	₩ (8,644)	₩ (8,644)		₩ 44,048	₩ 6,957		
Doosan Infracore Liaoning Machinery Sales Co., Ltd	2,064	992	18,016	39	39		2,537	1,613		

(5) The tables below provide a reconciliation of the summarized financial information presented to the carrying amount of its interest in the joint venture or associate.

(in millions of Korean won)

	December 31, 2021						
	Net assets at the end of the year (a)	Group's share in % (b)	Group's share in KRW(a*b)	Adjustments		Carrying amount	
				Intergroup transaction	Others		
Tianjin Lovol Doosan Engine Co., Ltd.	₩ 40,767	50.00	₩ 20,383	₩ (1,912)	₩ (18,471)	₩ -	
Doosan Infracore Liaoning Machinery Sales Co., Ltd	1,072	43.00	461	(67)	-	394	

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12. Property, Plant and Equipment

(1) Changes in property, plant and equipment for the years ended December 31, 2021 and 2020, are as follows:

(in millions of Korean

2021

won)

won)																Construction		
	Land		Buildings		Structures		Machinery		Vehicles		Tools		Equipment		in progress		Total	
Opening net book																		
amount	₩	780,598	₩	405,908	₩	37,100	₩	429,204	₩	4,127	₩	76,689	₩	20,808	₩	97,078	₩	1,851,512
Acquisitions / Capital																		
expenditure		-		3,535		2,061		19,240		729		33,560		6,849		58,416		124,390
Net gain on																		
revaluation		4,326		-		-		-		-		-		-		-		4,326
Transfers		-		16,430		1,116		25,776		629		94		5,333		(75,066)		(25,688)
Disposals		-		(4)		(46)		(2,177)		(292)		(49)		(1,289)		(765)		(4,622)
Depreciation		-		(14,937)		(3,317)		(70,611)		(1,242)		(26,488)		(6,247)		-		(122,842)
Spin-off		(133,388)		(209,319)		(411)		(265,616)		(1,219)		-		(14,043)		(65,564)		(689,560)
Impairment loss		(1,267)		-		-		-		-		-		-		-		(1,267)
Others		1,361		8,762		704		11,052		314		932		801		2,360		26,286
Closing net book																		
amount	₩	651,630	₩	210,375	₩	37,207	₩	146,868	₩	3,046	₩	84,738	₩	12,212	₩	16,459	₩	1,162,535
Acquisition cost	₩	402,061	₩	419,129	₩	90,532	₩	694,138	₩	10,806	₩	347,847	₩	68,163	₩	16,459	₩	2,049,135
Accumulated																		
depreciation (include																		
accumulated																		
impairment losses)		(1,510)		(205,020)		(53,325)		(547,270)		(7,760)		(263,109)		(55,841)		-		(1,133,835)
Accumulated gain on																		
revaluation		251,079		-		-		-		-		-		-		-		251,079
Government grants		-		(3,734)		-		-		-		-		(110)		-		(3,844)

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(in millions of Korean

2020

won)

	Land	Buildings	Structures	Machinery	Vehicles	Tools	Equipment	Construction in progress	Total
Opening net book									
amount	₩ 784,400	₩ 415,714	₩ 42,945	₩ 414,530	₩ 3,318	₩ 71,534	₩ 18,095	₩ 120,920	₩ 1,871,456
Acquisitions / Capital									
expenditure	-	16,586	1,808	113,439	2,165	32,886	9,126	34,018	210,028
Transfers	-	12,543	(4,463)	24,225	82	(4,092)	1,503	(54,842)	(25,044)
Disposals	-	(5,012)	(145)	(1,453)	(290)	(18)	(174)	(434)	(7,526)
Classified as assets									
held for sale ¹	-	(8,876)	-	-	-	-	(2)	-	(8,878)
Depreciation	-	(20,616)	(3,239)	(109,007)	(1,134)	(23,707)	(7,381)	-	(165,084)
Others	(3,802)	(4,431)	194	(12,530)	(14)	86	(359)	(2,584)	(23,440)
Closing net book									
amount	₩ 780,598	₩ 405,908	₩ 37,100	₩ 429,204	₩ 4,127	₩ 76,689	₩ 20,808	₩ 97,078	₩ 1,851,512
Acquisition cost	₩ 490,195	₩ 704,282	₩ 91,082	₩ 1,224,895	₩ 13,625	₩ 313,178	₩ 80,240	₩ 97,618	₩ 3,015,115
Accumulated									
depreciation (include									
accumulated									
impairment losses)	(5,929)	(294,507)	(53,982)	(794,076)	(9,498)	(236,489)	(59,432)	-	(1,453,913)
Accumulated gain on									
revaluation	296,332	-	-	-	-	-	-	-	296,332
Government grants	-	(3,867)	-	(1,615)	-	-	-	(540)	(6,022)

¹ The Group has entered into a sales contract for buildings owned by Doosan Bobcat China Co., Ltd. and classifies the assets as held for sale.

Land, after initial recognition, is measured using a revaluation model. As at December 31, 2021, the carrying amount of land would be ₩ 402,061 million if measured based on a cost model.

Certain land, buildings and machinery are pledged as collaterals as at December 31, 2021, in connection with the borrowings from Korea Development Bank and others. Also, certain property, plant and equipment are pledged as collaterals in relation to the Group's private bonds as at December 31, 2021 (Note 34).

(2) The Group revalued its land assets as follows:

For the year ended December 31, 2013, the Group initially remeasured all land assets using fair value at the date of the revaluation. As at December 31, 2021, the fair values of land assets are determined from appraisal that is undertaken by independently qualified valuers, Mirae & Saehan Appraisal Co., Ltd. ("Mirae & Saehan") and others on September 23, 2021. Mirae & Saehan and others are members of Korea Association of Property Appraisers and comprise certified professionals that have a significant amount of industry experience.

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Fair value of a land is determined by reference to Officially Assessed Reference Land Price ("OARLP"), announced by the Ministry of Land, Infrastructure, and Transport, and recent market transactions of similar and recently sold parcels nearby the subject land in order to derive an indication of the most probable sales price (or value) of the land.

(3) Fair value measurements of land asset by fair value hierarchy level as at December 31, 2021, are as follows:

(in millions of Korean won)

Type	Level 1	Level 2	Level 3	Total
Land	₩ -	₩ -	₩ 651,630	₩ 651,630

(4) Valuation methodologies and inputs used for fair value measurements of land assets are as follows:

Valuation methodology	Significant inputs that are not based on observable market	Correlation between unobservable inputs and fair value arguments
Officially Assessed Reference Land Price	Fluctuation rate of land price and others	Fair value increases (decreases) if rate of land price increases (decreases)
OARLP of similar parcels nearby the subject land, reflating corrections necessary for differences between the subject and the comparable	Parcel conditions and others Land conditions affecting the sales price and others	Fair value increases (decrease) if corrections of parcel conditions and others increase (decrease) Fair value increases (decreases) if correction of land conditions affecting the sales price increases (decreases)

(5) The effect of applying revaluation model to land for the year ended December 31, 2021, is as follows:

(in millions of Korean won)

Beginning balance	Revaluation	Impairment loss	Spin-off	Others	Ending balance
₩ 780,598	₩ 4,326	₩ (1,267)	₩ (133,388)	₩ 1,361	₩ 651,630

(6) Borrowing costs added to the cost of property, plant and equipment for the years ended December 31, 2021 and 2020, are as follows:

(in millions of Korean won)

	2021	2020
Borrowing costs added to the cost of property, plant and equipment	₩ -	₩ 42
Interest rate (%)	-	3.97%

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(7) Classification of depreciation expenses for the years ended December 31, 2021 and 2020, is as follows:

<i>(in millions of Korean won)</i>	2021		2020	
Cost of goods sold	₩	69,487	₩	70,321
Selling and administrative expenses		7,017		5,895
Research and development expenses, etc.		12,729		15,033
Profit from continuing operations		33,609		73,835
Total	₩	122,842	₩	165,084

13. Intangible Assets

(1) Changes in intangible assets for the years ended December 31, 2021 and 2020, are as follows:

(in millions of Korean won)	2021										
	Goodwill		Industrial rights		Development cost		Greenhouse Gas Emission Rights		Other Intangible Assets		Total
Beginning balance	₩	2,960,633	₩	1,121,903	₩	285,341	₩	3,000	₩	109,797	₩ 4,480,674
Additions – internal development		-		-		27,704		-		-	27,704
Acquisitions		-		-		-		-		10,732	10,732
Transfers		-		769		314		-		10,306	11,389
Disposals		-		(12)		-		(3,000)		-	(3,012)
Amortization		-		(742)		(49,489)		-		(19,585)	(69,816)
Impairment loss		-		-		(16,578)		-		-	(16,578)
Reversal of impairment loss		-		-		-		-		1,454	1,454
Spin-off		(3,034,296)		(1,147,484)		(146,721)		-		(60,572)	(4,389,073)
Others		76,473		29,132		4,357		-		1,964	111,926
Ending balance	₩	2,810	₩	3,566	₩	104,928	₩	-	₩	54,096	₩ 165,400
Acquisition cost	₩	38,872	₩	13,592	₩	627,995	₩	-	₩	377,766	₩ 1,058,225
Accumulated amortization		-		(10,026)		(403,637)		-		(298,803)	(712,466)
Accumulated impairment loss		(36,062)		-		(119,430)		-		(24,867)	(180,359)

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(in millions of Korean won)

	2020					
	Goodwill	Industrial rights	Development cost	Greenhouse Gas Emission Rights	Other Intangible Assets	Total
Beginning balance	₩ 3,025,412	₩ 1,154,180	₩ 275,254	₩ 2,200	₩ 105,322	₩ 4,562,368
Additions – internal development	-	-	76,903	-	-	76,903
Acquisitions	-	-	-	3,000	17,621	20,621
Transfers	-	1,362	(328)	-	16,346	17,380
Disposals	-	-	-	(2,200)	(2,152)	(4,352)
Amortization	-	(984)	(54,057)	-	(29,651)	(84,692)
Impairment loss	-	-	(6,471)	-	-	(6,471)
Reversal of impairment loss	-	-	-	-	4,539	4,539
Others	(64,779)	(32,655)	(5,960)	-	(2,228)	(105,622)
Ending balance	₩ 2,960,633	₩ 1,121,903	₩ 285,341	₩ 3,000	₩ 109,797	₩ 4,480,674
Acquisition cost	₩ 2,994,866	₩ 1,283,819	₩ 981,707	₩ 3,000	₩ 507,603	₩ 5,770,995
Accumulated amortization	-	(161,916)	(589,011)	-	(372,675)	(1,123,602)
Accumulated impairment loss	(34,233)	-	(107,355)	-	(25,131)	(166,719)

The aggregated carrying amount of goodwill and others with indefinite useful lives in other intangible assets item is ₩ 12,520 million and ₩ 4,092,051 million as at December 31, 2021 and 2020, respectively.

(2) Greenhouse Gas Emission Rights

1) The quantities of emission permits which are allocated free of charge for the 3rd planning period (2021~2025) are as follows:

(in tCO ₂ -eq)	2021	2022	2023	2024	2025	Total
Allocation with nil consideration	106,677	101,677	101,677	100,725	100,725	511,481

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2) Changes in emission permits quantities and the carrying amounts for the years ended December 31, 2021 and 2020, are as follows:

(in tCO ₂ -eq, in millions of Korean WON)	2021															
	Total		2020		2021		2022		2023		2024		2025			
	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
At January 1	671,645	₩ 3,000	165,164	₩ 3,000	101,677	₩ -	101,677	₩ -	101,677	₩ -	100,725	₩ -	100,725	₩ -		
Allocation with nil consideration	(875)	-	(875)	-	-	-	-	-	-	-	-	-	-	-		
(Allocation Cancellation)																
Carrying forward	-	-	(5,000)	-	5,000	-	-	-	-	-	-	-	-	-		
Disposal	(87,846)	(2,635)	(87,846)	(2,635)	-	-	-	-	-	-	-	-	-	-		
Surrendered to the government	(71,443)	(365)	(71,443)	(365)	-	-	-	-	-	-	-	-	-	-		
At December 31	511,481	₩ -	-	₩ -	106,677	₩ -	101,677	₩ -	101,677	₩ -	100,725	₩ -	100,725	₩ -		

(in tCO ₂ -eq, in millions of Korean won)	2020															
	Total		2019		2020		2021		2022		2023		2024		2025	
	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
At January 1	259,124	₩ 2,200	187,062	₩ 2,200	72,062	₩ -	-	₩ -	-	₩ -	-	₩ -	-	₩ -	-	₩ -
Allocation with nil consideration	505,718	-	(763)	-	-	-	-	-	-	-	-	-	-	-	-	-
(Allocation Cancellation)					-		101,677		101,677		101,677		100,725		100,725	
Borrowing	-	-	6,898	-	(6,898)	-	-	-	-	-	-	-	-	-	-	-
Purchase	100,000	3,000	-	-	100,000	3,000	-	-	-	-	-	-	-	-	-	-
Disposal	(100,000)	(2,200)	(100,000)	(2,200)	-	-	-	-	-	-	-	-	-	-	-	-
Surrendered to the government	(93,197))	-	(93,197)	-	-	-	-	-	-	-	-	-	-	-	-	-
At December 31	671,645	₩ 3,000	-	₩ -	165,164	₩ 3,000	101,677	₩ -	101,677	₩ -	101,677	₩ -	100,725	₩ -	100,725	₩ -

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3) Details of emission obligations for the years ended December 31, 2021 and 2020, are as follows:

<i>(in millions of Korean won)</i>	2021¹		2020	
At January 1	₩	1,327	₩	144
Increase		-		1,327
Decrease		(1,327)		(144)
At December 31	₩	-	₩	1,327

¹ As at December 31, 2021, emission obligations are estimated at 106,354 tons (tCO₂-eq).

(3) Carrying amount and remaining amortization period of each significant development project as at December 31, 2021, is as follows:

<i>(in millions of Korean won)</i>	Name of development asset	Carrying amount		Remaining amortization period ¹
Development costs in development	Development project for Engine (Construction machinery), etc.	₩	18,339	-
Amortized development costs	Development project for Stage 5 Construction machinery), etc.		54,913	5-58 months
	Development project for Stage 5 Engine), etc.		27,730	3-40 months

¹ Remaining amortization period is presented only when amortization was begun. Otherwise, remaining amortization period is presented as "-".

(4) Impairment losses on intangible assets for the year ended December 31, 2021, is as follows:

(in millions of Korean won)

Related account	Separate asset	Acquisition cost		After amortization Book value		Impairment loss		Carrying amount		Recoverable amount valuation method	
						2021	Accumulated				
Development costs	Development of marine engine ¹	₩	3,943	₩	1,968	₩	1,221	₩	1,221	₩	747
	Development of generator engine ¹		15,859		10,574		3,830		3,830		6,744
	Development of vehicle engine ¹		7,193		6,205		6,205		6,205		-
	Development of industrial engine ¹		6,424		5,322		5,322		5,322		-
		₩	33,419	₩	24,069	₩	16,578	₩	16,578	₩	7,491
											Value in use

¹ Certain part of the carrying amount was recognized as impairment loss due to the decrease in value-in-use compared to the estimation made at the time of development.

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(5) Reversal of impairment losses on intangible assets for the year ended December 31, 2021, is as follows:

(in millions of Korean won)

Related account	Separate asset	Reversal of impairment losses		Carrying amount		Recoverable amount valuation method
Other intangible assets	Golf membership ¹	₩	1,454	₩	9,709	Net fair value

¹ Recoverable amount was estimated to reflect the net fair value of individual assets.

(6) Classification of impairment losses (reversal) for the years ended December 31, 2021 and 2020, is as follows:

(in millions of Korean won)	2021		2020	
Non-operating expenses	₩	16,578	₩	2,802
Non-operating incomes		(1,267)		-
Profit from continuing operations		(187)		(870)
Total	₩	15,124	₩	1,932

(7) Borrowing costs added to the cost of intangible assets for the years ended December 31, 2021 and 2020, are as follows:

(in millions of Korean won)	2021		2020	
Borrowing costs added to the cost of intangible assets	₩	696	₩	1,805
Interest rate (%)		4.16		3.97

(8) Classification of amortization expenses for the years ended December 31, 2021 and 2020, is as follows:

(in millions of Korean won)	2021		2020	
Cost of goods sold	₩	31,959	₩	21,655
Selling and administrative expenses		16,991		19,606
Profit from continuing operations		20,866		43,431
Total	₩	69,816	₩	84,692

(9) The Group recognized total research and development costs of ₩ 139,192 million (2020: ₩ 110,992 million) as expenses in Selling and administration expenses.

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(10) Impairment test of goodwill

The table below summarizes goodwill allocation for each operating segment.

(in millions of Korean won)

Classification	Doosan Infracore Norway AS		Total	
Goodwill	₩	2,810	₩	2,810

The Group 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. The assumptions for the calculation of value-in-use, as at December 31, 2021, are as follows:

Classification	Doosan Infracore Norway AS
Growth rate	1.50%
Discount rate	11.10%

Cash flows beyond that five-year periods have been extrapolated using the fifth-year cash flow. The growth rate does not exceed long-term average growth rate of market, and the discount rates used reflect relevant risks specific to the cash-generating units.

The Group calculated recoverable amount for each cash-generating unit based on value-in-use, and concluded that there was no impairment loss to recognize for the year ended December 31, 2021, since the total carrying amount did not exceed the recoverable amount.

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14. Investment Properties

Changes in investment properties for the years ended December 31, 2021 and 2020, are as follows:

(in millions of Korean won)

	2021			2020		
	Land	Building	Total	Land	Building	Total
Beginning balance	₩ 110,928	₩ 24,599	₩ 135,527	₩ 112,577	₩ 26,253	₩ 138,830
Additions	386	78	464	978	458	1,436
Transfers from the right-of-use assets	-	15,935	15,935	-	-	-
Disposals	(386)	-	(386)	-	(78)	(78)
Depreciation	-	(2,097)	(2,097)	-	(1,399)	(1,399)
Impairment loss	(830)	(481)	(1,311)	(2,651)	(635)	(3,286)
Reversal of impairment loss	96	-	96	136	-	136
Spin-off	(101,204)	(28,363)	(129,567)	-	-	-
Others	4	(7,517)	(7,513)	(112)	-	(112)
Ending balance	₩ 8,994	₩ 2,154	₩ 11,148	₩ 110,928	₩ 24,599	₩ 135,527
Acquisition cost	₩ 26,571	₩ 4,689	₩ 31,260	₩ 127,740	₩ 30,639	₩ 158,379
Accumulated depreciation	-	(1,364)	(1,364)	-	(4,274)	(4,274)
Accumulated impairment losses	(17,577)	(1,171)	(18,748)	(16,812)	(1,766)	(18,578)

Fair value of land in Investment properties as at December 31, 2021 is ₩ 8,994 million. Meanwhile, during the year, profit from continuing operations from investment property is ₩ 1,121 million (2020: ₩ 30 million).

15. Lease

(1) Changes in right-of-use assets for the years ended December 31, 2021 and 2020, are as follows:

(in millions of Korean won)

	2021						
	Land	Buildings	Machinery	Vehicles	Tools	Equipment	Total
Beginning balance	₩ 15,353	₩ 60,631	₩ 587	₩ 8,985	₩ 16	₩ 2,837	₩ 88,409
Acquisition	536	82,789	472	8,594	-	1,703	94,094
Transfers to Investment Properties	-	(15,935)	-	-	-	-	(15,935)
Lease modification	-	(27,439)	-	-	-	-	(27,439)

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Termination of lease agreement	-	(1,008)	-	(2,714)	-	(75)	(3,797)
Depreciation	(1,123)	(18,843)	(332)	(3,575)	(4)	(1,305)	(25,182)
Spin-off	(3,477)	(64,040)	(740)	(5,024)	(19)	(3,110)	(76,410)
Others	1,441	1,557	13	33	7	61	3,112
Ending balance	₩ 12,730	₩ 17,712	₩ -	₩ 6,299	₩ -	₩ 111	₩ 36,852
Acquisition cost	₩ 14,821	₩ 37,180	₩ -	₩ 8,800	₩ -	₩ 331	₩ 61,132
Accumulated depreciation	(2,091)	(19,468)	-	(2,501)	-	(220)	(24,280)

(in millions of Korean won)

2020

	Land	Buildings	Machinery	Vehicles	Tools	Equipment	Total
Beginning balance	₩ 17,810	₩ 63,965	₩ 1,236	₩ 8,576	₩ 19	₩ 4,071	₩ 95,677
Acquisition	1,121	29,396	-	6,905	-	1,721	39,143
Termination of lease agreement	-	(5,395)	-	(233)	-	-	(5,628)
Depreciation	(895)	(26,020)	(658)	(5,817)	(3)	(2,864)	(36,257)
Classified as assets held for sale	(2,887)	-	-	-	-	-	(2,887)
Others	204	(1,315)	9	(446)	-	(91)	(1,639)
Ending balance	₩ 15,353	₩ 60,631	₩ 587	₩ 8,985	₩ 16	₩ 2,837	₩ 88,409
Acquisition cost	₩ 16,751	₩ 97,627	₩ 1,911	₩ 16,926	₩ 27	₩ 7,690	₩ 140,932
Accumulated depreciation	(1,398)	(36,996)	(1,324)	(7,941)	(11)	(4,853)	(52,523)

(2) Changes in lease liabilities for the years ended December 31, 2021 and 2020, are as follows:

(in millions of Korean won)

Lease liabilities

	2021	2020
Beginning balance	₩ 77,399	₩ 79,406
Lease modification	(35,711)	-
Payment for lease liabilities	(31,342)	(38,721)
Acquisition of right-of-use assets ¹	93,671	39,095
Termination of lease agreement	(3,586)	(5,343)
Interest expenses	3,700	4,063
Spin-off	(85,314)	-
Others	5,975	(1,101)
Ending Balance	₩ 24,792	₩ 77,399

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¹ When lease liabilities were newly acquired during the year ended December 31, 2021, the lessee's incremental borrowings rate applied to the measurement was 3.40% to 6.10%.

(3) Classification of depreciation of right-of-use assets for the years ended December 31, 2021 and 2020, is as follows:

<i>(in millions of Korean won)</i>	2021		2020	
Cost of goods sold	₩	1,203	₩	1,341
Selling and administrative expenses		12,037		11,805
Research and development cost, etc.		473		212
Profit and loss from discontinued operation		11,469		22,899
Total	₩	25,182	₩	36,257

(4) Details of the Group's maturity analysis of lease liabilities as at December 31, 2021 and 2020, are as follows:

(in millions of Korean won)	December 31, 2021									
	Nominal cash flows									
	Total		Less than 1 year		Less than 2 years		Less than 5 years		More than 5 years	
Lease liabilities	₩	26,825	₩	14,420	₩	6,332	₩	5,557	₩	516

(in millions of Korean won)		December 31, 2020									
		Nominal cash flows									
		Total		Less than 1 year		Less than 2 years		Less than 5 years		More than 5 years	
Lease liabilities		₩	86,171	₩	27,576	₩	19,474	₩	86,171	₩	11,575

(5) Expenditures on short-term leases or leases of low-value assets for the years ended December 31, 2021 and 2020, are as follows:

<i>(in millions of Korean won)</i>	2021		2020	
Cost of goods sold	₩	421	₩	100
Selling and administrative expenses		2,317		3,402
Research and development cost, etc.		63		59
Profit and loss from discontinued operation		1,428		2,836
Total	₩	4,229	₩	6,397

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(6) The consolidated statements of profit or loss shows the following amounts relating to leases:

<i>(in millions of Korean won)</i>	2021	2020
Depreciation of right-of-use assets		
Land	₩ 1,079	₩ 915
Buildings	10,528	10,008
Vehicles	2,046	2,366
Equipment	60	69
Total	₩ 13,713	₩ 13,358
Interest expense relating to lease liabilities	₩ 2,360	₩ 860
Expense relating to short-term leases and leases of low-value assets	2,801	3,561
Profit and loss from discontinued operation	14,236	28,938

(7) The total cash outflow for lease for the years ended December 31, 2021 and 2020, is as follows:

<i>(in millions of Korean won)</i>	2021	2020
Lease liabilities	₩ 31,342	₩ 38,721
Expense relating to short-term leases and leases of low-value assets	4,229	6,397
Total	₩ 35,571	₩ 45,118

16. Trade and Other Payables

Trade and other payables as at December 31, 2021 and 2020, are as follows:

<i>(in millions of Korean won)</i>	December 31, 2021	December 31, 2020
Current :		
Trade payables	₩ 641,999	₩ 1,019,128
Other payables	159,426	246,541
Accrued expenses	148,283	335,041
Total	₩ 949,708	₩ 1,600,710
Non-current :		
Other payables	₩ 4	₩ 6

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17. Borrowings and Bonds

(1) Details of carrying amount of bonds as at December 31, 2021 and 2020, are as follows:

(in millions of Korean won)

Category	Annual interest rate (%) as at December 31, 2021	December 31, 2021	December 31, 2020
Public bonds	3.30~4.90	₩ 746,000	₩ 1,710,200
Private bonds	3.60~4.95	380,100	576,100
Convertible bonds	2.81~2.87	10,526	33,900
Bond with warrant	2.00	99,999	100,526
Subtotal		₩ 1,236,625	₩ 2,420,726
Less: present value of discount on bonds		(2,198)	(16,901)
Less: present value of discount on convertible bonds		(37)	(188)
Less: present value of discount on bonds with warrant		(227)	(602)
Add: Redemption Premium on convertible bonds		722	2,326
Add: Redemption Premium on bonds with warrant		15,421	15,499
Conversion right adjustment		(585)	(2,985)
Adjustment on bonds with warrants		(3,585)	(9,482)
Subtotal		₩ 9,511	₩ (12,333)
Subtotal after deduction		₩ 1,246,136	₩ 2,408,393
Less: current portion(including present value of discount)		(741,412)	(612,593)
Total		₩ 504,724	₩ 1,795,800

(2) Details of carrying amount of long-term and short-term borrowings as at December 31, 2021 and 2020, are as follows:

1) Short-term borrowings

(in millions of Korean won)

Category	Creditor	Annual interest rate (%) as at December 31, 2020	December 31, 2021	December 31, 2020
Borrowings in Korean Won	Korea Exim Bank and others	-	₩ -	₩ 516,994
Borrowings in foreign currencies	Korea Development Bank and others	2.42~4.20, 3M Libor+2.36,	438,204	343,444
Usance	Nonghyup Bank and others	0.25~0.80	7,332	62,296
Transferred receivables ¹	Hana Bank and others	-	22,687	8,106
Total			₩ 468,223	₩ 930,840

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¹ Financial liabilities related to transferred trade receivables that do not meet the derecognition criteria amounted to ₩ 22,687 million and ₩ 8,106 million as at December 31, 2021 and 2020, respectively. Trade receivables are pledged as collaterals for these liabilities.

2) Long-term borrowings

(in thousands of foreign currencies and millions of Korean won)

Category	Creditor	Annual interest rate (%) as at December 31, 2021	December 31, 2021	December 31, 2020
Borrowings in Korean Won	Korea Development Bank	2.97	₩ 20,000	₩ 24,000
	KB Kookmin Bank	3.50	10,000	-
	Korea Development Bank and others	-	-	160,000
	HSBC	-	-	30,000
	Subtotal		30,000	214,000
Borrowings in foreign currencies	Industrial and Commercial Bank of China	4.45	CNY 70,000	CNY 70,000
	Innovasjon Norge, etc.	2.90~4.25	NOK 17,149	NOK 23,008
	US multiple institutions of investors and banks	-	-	USD 643,563
	BNP Paribas	-	-	USD 20,035
	Bank of New York	-	-	USD 4,250
	Chilean Government	-	-	USD 1,694
	Cinda Financial Leasing Co., Ltd	-	-	CNY 5,322
			USD -	USD 669,542
			CNY 70,000	CNY 75,322
			NOK 17,149	NOK 23,008
	Korean won equivalent		₩ 45,341	₩ 958,006
	Less: present value of discount		-	(8,100)
	Subtotal		₩ 45,341	₩ 949,906
	Less: current portion		(38,766)	(80,918)
	Total		₩ 6,575	₩ 868,988

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(3) Detailed terms of bonds with warrants as at December 31, 2021 are as follows:

1) Details of changes and issuance conditions of bonds with warrants and convertible bonds issued by the Group as at December 31, 2021 are as follows:

Type	Date of issue	Maturity date	Coupon rate(%)	YTM(%)	Exercisable period	Initial Exercise price	Exercise price after adjustments	Issuing price
The 31st Bonds with warrants	2017-08-01	2022-08-01	2.00%	4.75%	From one month after date of issue to one month before maturity	₩ 8,030 per share	₩ 5,660 per share	₩ 500,000 million

① Early redemption clause

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

② Maturity redemption

The coupon rate for the bond is 2.0% and for bonds not converted until maturity, 115.4175% of the remaining principal amount will be paid on August 1, 2022 with a yield to maturity rate of 4.75% compounded quarterly.

③ Calculation of exercise price

The exercise price will be adjusted when there is an increase in paid-in capital through issuance of shares at a price lower than the market price, stock dividends, or capitalization of reserves, before exercising the stock warrants or when there is an issuance of stock purchase warrants or debt securities with warrants. The exercise price of stock warrants was adjusted to ₩7,620 from October 31, 2018, ₩7,170 from April 30, 2019, ₩6,430 from July 31, 2019, ₩5,660 from December 16, 2021.

2) Details of bonds with warrants as at December 31, 2021 are as follows:

(in millions of Korean won)

Type	Beginning balance	Exercise/ Amortization	Ending balance
Bonds with warrant	₩ 100,526	₩ (527)	₩ 99,999
Redemption Premium on bonds with warrant	15,499	(78)	15,421
Present value of discount	(602)	375	(227)
Stock warrants adjustment	(9,482)	5,897	(3,585)
Carrying amount	₩ 105,941	₩ 5,667	₩ 111,608
Compensation for stock warrants(other capital surplus)	₩ 35,942	₩ (32,607)	₩ 3,335

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Due to the exertion of stock warrant, as at December 31, 2021, 74.42% of the outstanding balance of 31st warrant were exercised and 1.24% of the principal amount of the bonds was paid. The cumulative number of shares issued as a result of the exercise of stock warrants for 31st warrants is 17,912,319.

3) Details of changes and issuance conditions of convertible bonds issued by the Group as at December 31, 2021, are as follows:

Type	Date of issue	Maturity date	Coupon rate(%)	YTM(%)	Exercisable period	Initial Exercise price	Exercise price after adjustments	Issuing price
The 65th Private Convertible Bonds	2020-06-08	2023-06-08	2.87%	4.82%	From one month after date of issue to one month before maturity	₩ 6,291 per share	₩ 5,536 per share	₩ 745 million

¹ For the above convertible bonds, the total principal amount and the number of convertible shares changed on July 1, 2021, according to the spin-off and merger between the Group and DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO.,LTD.

① Early redemption clause

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

② Maturity redemption

106.2537% of the remaining principal amount will be paid on June 8, 2023, at maturity date.

③ Calculation of the exercise price

The exercise price will be adjusted when there is an increase in paid-in capital, issuance of shares without consideration through issuance of shares at a price lower than the market price, stock dividends, or capitalization of reserves, before exercising the stock warrants or convertible bonds. The exercise price of stock warrants was adjusted to ₩5,536 from December 16, 2021.

Type	Date of issue	Maturity date	Coupon rate(%)	YTM(%)	Exercisable period	Initial Exercise price	Exercise price after adjustments	Issuing price
The 69th Private Convertible Bonds	2020-08-03	2023-08-03	2.81%	4.96%	From one month after date of issue to one month before maturity	₩ 7,421 per share	₩ 6,530 per share	₩ 9,781 million

¹ For the above convertible bonds, the total principal amount and the number of convertible shares changed on July 1, 2021, according to the spin-off and merger between the Group and DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO.,LTD.

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① Early redemption clause

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

② Maturity redemption

106.9085% of the remaining principal amount will be paid on August 3, 2023, at maturity date.

③ Calculation of the exercise price

The exercise price will be adjusted when there is an increase in paid-in capital, issuance of shares without consideration through issuance of shares at a price lower than the market price, stock dividends, or capitalization of reserves, before exercising the stock warrants or convertible bonds. The exercise price of stock warrants was adjusted to ₩ 6,530 from December 16, 2021

4) Details of convertible bonds as at December 31, 2021, are as follows:

(in millions of Korean won)

	Beginning balance	Exercise/ Amortization	Spin-off	Ending balance
Convertible bonds	₩ 33,900	₩ -	₩ (23,374)	₩ 10,526
Redemption premium on convertible bonds	2,326	-	(1,604)	722
Present value of discount	(188)	45	106	(37)
Conversion right adjustment	(2,985)	712	1,688	(585)
Carrying amount	₩ 33,053	₩ 757	₩ (23,184)	₩ 10,626
Compensation for conversion right (other capital surplus)	₩ 836	₩ -	₩ (576)	₩ 260

18. Net Defined Benefit Liabilities

(1) Details of net defined benefit liabilities recognized in the statements of financial position as at December 31, 2021 and 2020, are as follows:

(in millions of Korean won)

	December 31, 2021	December 31, 2020
Present value of defined benefit obligations	₩ 233,156	₩ 1,056,969
Fair value of plan assets ¹	(219,874)	(617,988)
Net defined benefit liabilities	₩ 13,282	₩ 438,981

¹ The contributions to the National Pension Fund of ₩ 122 million are included in the fair value of plan assets as at December 31, 2021 (2020: ₩ 141 million).

(2) Profit and loss recognized for the years ended December 31, 2021 and 2020, are as follows:

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(in millions of Korean won)

	2021	2020
Current service cost	₩ 30,821	₩ 40,326
Net interest cost	6,545	14,511
Total	₩ 37,366	₩ 54,837

(3) Classification of post-employment benefits for the years ended December 31, 2021 and 2020, is as follows:

(in millions of Korean won)

	2021	2020
Cost of goods sold	₩ 9,602	₩ 9,887
Selling and administrative expenses	7,192	8,097
Research and development expenses, etc.	6,021	6,043
Profit and loss from discontinued operation	14,551	30,810
Total	₩ 37,366	₩ 54,837

(4) Changes in the defined benefit obligations for the years ended December 31, 2021 and 2020, are as follows:

(in millions of Korean won)

	2021	2020
Beginning balance	₩ 1,056,969	₩ 1,058,837
Current service cost	34,215	45,127
Past service cost and gains or losses on settlements	(3,394)	(4,801)
Transfer in	1,990	421
Transfer out	(3,914)	(1,732)
Interest expense	15,659	30,370
Remeasurements:		
Actuarial gain from change in demographic assumptions	-	(3,043)
Actuarial loss from change in financial assumptions	(14,064)	95,141
Actuarial loss (gain) from others	(14,399)	(13,055)
Contributions from employees	-	3,068
Payments from plans	(84,052)	(103,800)
Spin-off	(786,707)	-
Exchange differences	30,853	(49,564)
Ending balance	₩ 233,156	₩ 1,056,969

(5) Changes in the fair value of plan assets for the years ended December 31, 2021 and 2020, are as follows:

(in millions of Korean won)

2021 2020

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Beginning balance	₩	617,988	₩	629,499
Expected return on plan assets		9,114		15,859
Transfer in		138		553
Transfer out		(1,204)		(443)
Remeasurements:		(15,070)		60,337
Contributions from employees		-		24
Contributions from employers		38,003		19,469
Payments from plans:		(69,902)		(83,114)
Change in the contributions to the national pension fund		(17)		-
Spin-off		(375,330)		-
Exchange differences		16,154		(24,196)
Ending balance	₩	219,874	₩	617,988

Actual gain or loss on plan assets is recognized as ₩ 5,956 million (loss) and ₩ 76,196 million (gain) for the years ended December 31, 2021 and 2020, respectively. The Group plans to contribute ₩ 18,881 million to the defined benefit plans in 2022.

(6) The significant actuarial assumptions as at December 31, 2021 and 2020, are as follows:

(in percentage, %)	2021	2020
Discount rate	1.30~2.79	1.00~2.60
Salary increase rate	0.00~3.60	0.00~4.20

(7) Plan assets as at December 31, 2021 and 2020 consist of:

(in millions of Korean won)	December 31, 2021	December 31, 2020
Time deposits	₩ 215,108	₩ 188,837
Equity instruments	-	156,705
Debt instruments	-	228,091
Others	4,766	44,355
Total	₩ 219,874	₩ 617,988

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(8) The sensitivity of the defined benefit obligation to changes in the principal assumptions is:

(in millions of Korean won)

	2021		2020	
	Amount	Rate	Amount	Rate
Discount rate:				
1% increase	₩ (21,545)	(9.24%)	₩ (146,024)	(13.82%)
1% decrease	25,324	10.86%	187,663	17.75%
Salary increase rate:				
1% increase	23,921	10.26%	41,973	3.97%
1% decrease	(20,853)	(8.94%)	(27,651)	(2.62%)

(9) The weighted average maturity of the defined benefit obligation is 10.05 years.

19. Provisions

Changes in provision for the years ended December 31, 2021 and 2020, are as follows:

(in millions of Korean won)

	2021							
	Beginning balance	Increases	Decreases	Others	Spin-off	Ending balance	Less: current portion	Non-current portion
Product warranties	₩ 278,315	₩ 108,274	₩ (107,484)	₩ 37,575	₩ (163,763)	₩ 152,917	₩ (115,183)	₩ 37,734
Others	24,911	3,434	(2,679)	2,141	(26,680)	1,127	(1,127)	-
Total	₩ 303,226	₩ 111,708	₩ (110,163)	₩ 39,716	₩ (190,443)	₩ 154,044	₩ (116,310)	₩ 37,734

(in millions of Korean won)

	2020						
	Beginning balance	Increases	Decreases	Others	Ending balance	Less: current portion	Non-current portion
Product warranties	₩ 286,469	₩ 128,462	₩ (133,256)	₩ (3,360)	₩ 278,315	₩ (234,255)	₩ 44,060
Others	2,768	4,957	(3,908)	21,094	24,911	(6,444)	18,467
Total	₩ 289,237	₩ 133,419	₩ (137,164)	₩ 17,734	₩ 303,226	₩ (240,699)	₩ 62,527

The Group recognizes provision by estimating expected expenses in relation to product warranty, defect repair services and others on the basis of the warranty period and historical experience and etc.

The Group classifies product warranties to current portion from the year ended December 31, 2021.

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20. Share Capital and Capital Surplus

Changes in share capital and Capital Surplus for the year ended December 31, 2021, are as follows:

Description	Number of common stocks issued	Share capital	Capital Surplus	Consideration for Stock Warrants	Consideration for convertible rights	Other capital surplus
Beginning balance	215,931,625	₩ 1,079,658	₩ 165,038	₩ 35,942	₩ 836	₩ (35,218)
Exercise of stock warrants	36,274,122	181,371	70,145	(18,358)	-	-
Cancellation of share options	-	-	-	-	-	277
Disposal of treasury shares	-	-	-	-	-	6
Spin-off ¹	(173,896,519)	(869,483)	(161,493)	(12,215)	(576)	-
After spin-off (July 1, 2021)	78,309,228	391,546	73,690	5,369	260	(34,935)
Exercise of stock warrants	4,017,426	8,878	18,048	(2,034)	-	-
Capital reduction without consideration through par value reduction ²	-	(318,097)	-	-	-	-
Capital increase ³	115,107,913	115,108	568,599	-	-	-
Cancellation of share options	-	-	-	-	-	12
Disposal of treasury shares	-	-	-	-	-	(2)
Ending balance	197,434,567	₩ 197,435	₩ 660,337	₩ 3,335	₩ 260	₩ (34,925)

¹ On July 1, 2021, 173,896,519 of common shares have decreased due to spin-off.

² The share capital has decreased by capital reduction without consideration (reduction in par value) on October 12, 2021.

³ On December 16, 2021, 115,107,913 of common shares have increased due to capital increase.

The Parent Company's total number of authorized shares is 400,000,000 shares and the total number of ordinary shares issued is 197,434,567 shares (2020: 215,931,625 shares) with a par value of ₩ 1,000 per share. As at December 31, 2021, the number of non-voting shares under the Commercial Law is 64,835 shares (2020: 505 shares).

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21. Other Components of Equity

(1) Other components of equity as at December 31, 2021 and 2020, consist of:

<i>(in millions of Korean won)</i>	December 31, 2021	December 31, 2020
Treasury share	₩ (1,096)	₩ (2)
Loss on disposal of treasury share	(7,909)	(7,909)
Share options	264	1,168
Other capital adjustments	(1,571,573)	(64,420)
Total	₩ (1,580,314)	₩ (71,163)

(2) Share-based Payments

The Group granted share options number of times to its directors. Methods to grant share options, issuance of new shares, issuance of treasury shares or cash settlement, are decided by the Board of Directors at their meeting to be held on stock exercise date. These share options carry a two-year service vesting condition, subsequent to the resolution made at the shareholders' meeting. The number of granted options as at December 31, 2021, is as follows:

(in Korean won except for share data)

Date of grant	Description	Number of granted options	Exercisable period	Exercisable price	Expected fair value at the date of grant
2012.03.30	8th grant	9,777	2015.03.30~2022.03.29	22,300	11,951
2013.03.29	9th grant	9,340	2016.03.29~2023.03.28	15,700	8,477
2014.03.21	10th grant	10,585	2017.03.21~2024.03.20	13,600	6,436
Total		29,702			

Changes in share option for the year ended December 31, 2021, are as follows:

	Number of common stocks to be issued (in shares)				Valuation amount (in millions of Korean won)			
	Beginning balance	Forfeited	Spin-off	Ending balance	Beginning balance	Decreases	Spin-off	Ending balance
7th grant	11,700	(11,700)	-	-	196	(196)	-	-
8th grant	37,100	(4,841)	(22,482)	9,777	444	(58)	(269)	117
9th grant	33,300	(2,096)	(21,864)	9,340	283	(18)	(185)	80
10th grant	38,300	(2,752)	(24,963)	10,585	246	(18)	(161)	67

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Total	120,400	(21,389)	(69,309)	29,702	1,169	(290)	(615)	264
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There is no expense recognized due to share option granted in prior year. In addition, there is no compensation cost to be recognized for the year ended December 31, 2021, and for prospective period.

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

	Risk-free interest rate ¹	Expected exercisable period	Expected volatility	Expected dividend yield ratio
8th grant	3.80%	6.5 years	57.96%	0.44%
9th grant	2.57%	6.5 years	54.12%	0.21%
10th grant	3.27%	6.5 years	42.29%	0.00%

¹ Risk-free interest rate is based on 5-year and 10-year treasury bond yield rate.

22. Accumulated Other Comprehensive Income

(1) Changes in accumulated other comprehensive income for the years ended December 31, 2021 and 2020, are as follows:

(in millions of Korean won)

	2021					
	Share of other comprehensive income of associates	Exchange differences	Cash flow hedges	Revaluation reserves of property, plant and equipment	Total	
Beginning balance	₩ 2,042	₩ (406,641)	₩ 2,994	₩ 196,130	₩ (205,475)	
Increase	-	485,391	-	-	485,391	
Decrease	(2,042)	-	(3,349)	(29,101)	(34,492)	
Ending balance	₩ -	₩ 78,750	₩ (355)	₩ 167,029	₩ 245,424	

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(in millions of Korean won)

	2020				
	Share of other comprehensive income of associates	Exchange differences	Cash flow hedges	Revaluation reserves of property, plant and equipment	Total
Beginning balance	₩ 2,042	₩ (359,839)	₩ 48	₩ 197,931	₩ (159,818)
Increase	-	-	2,946	-	2,946
Decrease	-	(46,802)	-	(1,801)	(48,603)
Ending balance	₩ 2,042	₩ (406,641)	₩ 2,994	₩ 196,130	₩ (205,475)

(2) Income tax effects directly recognized in accumulated other comprehensive income (loss) as at December 31, 2021 and 2020, are as follows:

(in millions of Korean won)

	December 31, 2021		
	Before tax	Deferred tax assets (liabilities)	After tax
Share of other comprehensive income of associates	₩ -	₩ -	-
Exchange differences	78,750	-	78,750
Unrealized loss on valuation of derivatives	(468)	113	(355)
Gain on revaluation of property, plant and equipment	251,079	(84,050)	167,029
Total	₩ 329,361	₩ (83,937)	₩ 245,424

(in millions of Korean won)

	December 31, 2020		
	Before tax	Deferred tax assets (liabilities)	After tax
Share of other comprehensive income of associates	₩ 2,042	₩ -	2,042
Exchange differences	(406,641)	-	(406,641)
Unrealized loss on valuation of derivatives	6,796	(3,802)	2,994
Gain on revaluation of property, plant and equipment	296,332	(100,202)	196,130
Total	₩ (101,471)	₩ (104,004)	₩ (205,475)

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23. Retained Earnings

(1) Retained earnings as at December 31, 2021 and 2020, consist of:

<i>(in millions of Korean won)</i>	December 31, 2021		December 31, 2020	
Retained earnings before appropriation	₩	1,879,094	₩	1,408,126

(2) The appropriation of retained earnings for the years ended December 31, 2021 and 2020, is as follows:

<i>(in millions of Korean won)</i>	2021		2020	
1. Unappropriated retained earnings carried over from prior year	₩	1,408,126	₩	1,257,868
2. Profit for the year		461,535		148,834
3. Revaluation and disposal of property, plant and equipment		-		1,800
4. Remeasurements of net defined benefit liabilities		7,889		(417)
5. Changes in retained earnings of equity method investment securities		-		41
6. Valuation of equity instruments at fair value		1,544		-
7. Unappropriated retained earnings to be carried forward	₩	1,879,094	₩	1,408,126

24. Segment Information

The Group's operating segments are as follows:

Business segment	Main products
Engines ("EG")	Engine of the commercial cars and buses, engine parts
Construction Equipment ("CE")	Crawler excavator, excavator parts and others
Construction Equipment ("Bobcat") ¹	Compact (Skid Steer Loader, Compact Track Loader, Mini Excavator), Heavy Excavator, and Portable Power

¹ In accordance with a resolution of the shareholders' meeting held on May 13, 2021, the investment business segment among the Group's assets was spun off and merged with Doosan Heavy Industries & Construction Co., Ltd. on July 1, 2021.

Accordingly, the operating results of the investment business segment that are to be transferred to the newly established corporation during the year ended December 31, 2021 are presented as discontinued operations and the comparative consolidated statement of profit or loss has been restated(Notes 37, 38).

(1) Profit or loss by each segment for the years ended December 31, 2021 and 2020, are as follows:

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(in millions of Korean won)

		2021			
		Total segment revenue	Inter-segment revenue	Revenue from external customers	Operating profit
EG	₩	1,054,547	₩ (199,797)	₩ 854,750	₩ 47,466
CE		5,207,926	(1,469,011)	3,738,915	217,042
Subtotal		6,262,473	(1,668,808)	4,593,665	264,508
Consolidation adjustments		(1,668,808)	1,668,808	-	-
Total	₩	4,593,665	₩ -	₩ 4,593,665	₩ 264,508

(in millions of Korean won)

		2020			
		Total segment revenue	Inter-segment revenue	Revenue from external customers	Operating profit
EG	₩	861,055	₩ (149,510)	₩ 711,545	₩ 1,871
CE		4,325,840	(1,049,281)	3,276,559	262,574
Subtotal		5,186,895	(1,198,791)	3,988,104	264,445
Consolidation adjustments		(1,198,791)	1,198,791	-	-
Total	₩	3,988,104	₩ -	₩ 3,988,104	₩ 264,445

(2) Segment assets at December 31, 2021 and 2020, are as follows:

(in millions of Korean won)

		December 31, 2021	December 31, 2020
EG	₩	878,254	₩ 837,182
CE		3,154,756	2,995,751
Bobcat		-	6,960,608
Other		2,630,609	4,587,684
Subtotal		6,663,619	15,381,225
Consolidation adjustments		(1,881,329)	(3,354,339)
Total	₩	4,782,290	₩ 12,026,886

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(3) Segment liabilities as at December 31, 2021 and 2020, are as follows:

<i>(in millions of Korean won)</i>		December 31, 2021	December 31, 2020
EG	₩	730,567	₩ 685,399
CE		3,646,839	3,521,561
Bobcat		-	2,886,803
Other		30,906	1,505,656
Subtotal		4,408,312	8,599,419
Consolidation adjustments		(995,846)	(1,061,531)
Total	₩	3,412,466	₩ 7,537,888

(4) The sales information by regional segment for the years ended December 31, 2021 and 2020, is as follows:

<i>(in millions of Korean won)</i>		2021		
		Total segment revenue	Inter-segment revenue	Revenue from external customers
Asia Pacific & Emerging Market	₩	3,666,927	₩ (1,230,315)	₩ 2,436,612
China		1,480,996	(379,625)	1,101,371
Europe & Middle East & Africa		747,198	(57,987)	689,211
North America & Oceania		367,352	(881)	366,471
Subtotal		6,262,473	(1,668,808)	4,593,665
Consolidation adjustments		(1,668,808)	1,668,808	-
Total	₩	4,593,665	₩ -	₩ 4,593,665

<i>(in millions of Korean won)</i>		2020		
		Total segment revenue	Inter-segment revenue	Revenue from external customers
Asia Pacific & Emerging Market	₩	2,750,741	₩ (995,903)	₩ 1,754,838
China		1,632,458	(165,262)	1,467,196
Europe & Middle East & Africa		518,619	(37,174)	481,445
North America & Oceania		285,077	(452)	284,625
Subtotal		5,186,895	(1,198,791)	3,988,104
Consolidation adjustments		(1,198,791)	1,198,791	-
Total	₩	3,988,104	₩ -	₩ 3,988,104

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25. Revenue

The Group has recognized the following amounts relating to revenue in the statement of profit or loss:

<i>(in millions of Korean won)</i>		2021
1. Revenue from contracts with customers		
Type of revenue:		
- Revenue of manufactured products / merchandise	₩	4,467,727
- Other revenue		104,416
Subtotal	₩	4,572,143
Timing of revenue recognition:		
- At a point in time	₩	4,379,926
- Over time		192,217
Subtotal	₩	4,572,143
2. Revenue from other sources		
- Rental income	₩	22,300
- profit or loss from hedge		(778)
Subtotal	₩	21,522
Total	₩	4,593,665
<i>(in millions of Korean won)</i>		2020
1. Revenue from contracts with customers		
Type of revenue:		
- Revenue of manufactured products / merchandise	₩	3,866,319
- Other revenue		102,832
Subtotal	₩	3,969,151
Timing of revenue recognition:		
- At a point in time	₩	3,812,540
- Over time		156,611
Subtotal	₩	3,969,151
2. Revenue from other sources		
- Rental income	₩	21,346
- profit or loss from hedge		(2,393)
Subtotal	₩	18,953
Total	₩	3,988,104

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(2) Assets and Liabilities related to Contracts with Customers

The Group has recognized the following assets and liabilities related to contracts with customers for the years ended December 31, 2021 and 2020, are as follows:

<i>(in millions of Korean won)</i>	December 31, 2021		December 31, 2020	
Refund liabilities	₩	5,787	₩	11,360
Product warranties/Incentive and others		151,495		365,180
Shipping•insurance service		8,826		3,022
Total	₩	166,108	₩	379,562

26. Breakdown of Expenses by Nature

Breakdown of Expenses by Nature for the years ended December 31, 2021 and 2020, are as follows:

<i>(in millions of Korean won)</i>	2021		2020	
Purchases of inventories (raw materials and merchandise)	₩	3,073,703	₩	2,442,535
Changes in inventories		(123,961)		55,423
Employee benefits expenses		406,628		407,231
Depreciation and other amortization		152,626		145,024
Other expenses		820,161		673,446
Total	₩	4,329,157	₩	3,723,659

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27. Selling and Administrative Expenses

Selling and administrative expenses for the years ended December 31, 2021 and 2020, are as follows:

<i>(in millions of Korean won)</i>	2021		2020	
Salaries	₩	115,876	₩	148,409
Post-employment benefits		7,192		8,886
Employee benefits		32,127		34,271
Printing		2,091		2,900
Freight and custody		2,727		1,486
Communications		3,652		5,455
Utilities		2,938		3,182
Maintenance		3,821		3,340
Insurance		6,288		3,386
Depreciation		8,137		5,964
Amortization		16,991		19,606
Research and development		139,192		110,992
Advertising expenses		38,812		35,774
Sales commission		95,091		80,554
Taxes and dues		7,337		7,115
Travel expenses		7,071		5,934
Commission expenses		74,621		61,832
Education and training expenses		4,332		5,352
Reversal of bad debt expenses		6,544		(10,242)
Right of use asset depreciation		12,037		11,805
Others		35,453		31,588
Total	₩	622,330	₩	577,589

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28. Finance Income and Expenses

Finance income and expenses for the years ended December 31, 2021 and 2020, are as follows:

(in millions of Korean won)

	2021	2020
Finance income:		
Interest income	₩ 8,222	₩ 8,669
Gain on dividends	160	-
Gain on foreign currency transactions	72,896	67,468
Gain on foreign currency translations	37,704	39,339
Gain on derivative transactions	-	858
Financial guarantee income	-	182
Subtotal	₩ 118,982	₩ 116,516
Finance expenses:		
Interest expenses	₩ (94,329)	₩ (103,315)
Loss on foreign currency transactions	(35,733)	(60,001)
Loss on foreign currency translations	(28,645)	(56,053)
Loss on derivative transactions	-	(2,112)
Loss on repayment of bonds	-	(23,136)
Financial guarantee expenses	(559)	(1,629)
Other finance expenses	(1,270)	(77)
Subtotal	₩ (160,536)	₩ (246,323)
Total	₩ (41,554)	₩ (129,807)

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29. Other non-operating Income and Expenses

Other non-operating income and expenses for the years ended December 31, 2021 and 2020, are as follows:

<i>(in millions of Korean won)</i>	2021		2020	
Other non-operating income:				
Gain on valuation of long-term investment securities	₩	2	₩	393
Gain on disposal of long-term investment securities		-		1,467
Gain on disposal of property, plant and equipment		851		1,192
Gain on disposal of intangible assets		766		745
Gain on disposal of investment properties		20		-
Reversal of impairment loss on investment properties		96		-
Reversal of impairment loss on intangible assets		1,267		-
Others		7,738		6,940
Subtotal	₩	10,740	₩	10,737
Other non-operating expenses:				
Loss on disposal of trade receivables	₩	(7,514)	₩	(5,491)
Loss on valuation of short-term investment securities		(2)		-
Loss on valuation of long-term investment securities		(90)		(38)
Impairment loss on other receivables		(485)		(5,344)
Loss on disposal of property, plant and equipment		(188)		(292)
Loss on disposal of intangible assets		(1,325)		-
Loss on disposal of investment properties		-		(25)
Impairment loss on property, plant and equipment		(1,267)		-
Impairment loss on intangible assets		(16,578)		(2,802)
Impairment loss on investment properties		(1,311)		(3,149)
Donations		(7,333)		(9,120)
Others		(1,742)		(2,614)
Subtotal	₩	(37,835)	₩	(28,875)
Total	₩	(27,095)	₩	(18,138)

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30. Income Tax Expense

(1) Income tax expense for the years ended December 31, 2021 and 2020, consists of:

<i>(in millions of Korean won)</i>	2021		2020	
Current tax:	₩	(12,846)	₩	107,259
Deferred tax		66,513		29,610
Total income tax expense	₩	53,667	₩	136,869
Deferred tax charged directly to equity ¹		8,763		26,312
Income tax expense	₩	62,430	₩	163,181

¹ Tax effects on taxable profit amounting to ₩ 444,290 million due to spin-off for the year ended December 31, 2021 are included and it was recognized as other components of equity (Note 37).

(2) The Group offsets deferred tax assets and deferred tax liabilities if the Group has a legally enforceable right to set off current tax assets against current tax liabilities and the deferred tax assets and the deferred tax liabilities relate to income taxes levied by the same taxation authority. Changes in deferred tax assets and liabilities for the years ended December 31, 2021 and 2020, are as follows:

<i>(in millions of Korean won)</i>	2021			
	Beginning	Spin-off	Increases (Decreases)	Ending
Advances from government	₩ 1,138	₩ -	₩ (123)	₩ 1,015
Allowance for doubtful accounts	33,160	-	852	34,012
Provision for product warranties	73,983	(38,475)	877	36,385
Net defined benefit liabilities	105,864	(96,391)	(6,328)	3,145
Investment in associates	(14,765)	-	5,007	(9,758)
Provision for temporary depreciation	(3,715)	-	345	(3,370)
Gain on revaluation of land	(121,823)	-	16,549	(105,274)
Derivative assets(liabilities)	(1,645)	-	1,758	113
Unrealized profit of inventories	11,862	3,710	(4,986)	10,586
Others	(199,506)	373,288	(80,464)	93,318
Total	₩ (115,447)	₩ 242,132	₩ (66,513)	₩ 60,172

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	2020		
	Beginning	Increases (Decreases)	Ending
Advances from government	₩ 1,069	₩ 69	₩ 1,138
Allowance for doubtful accounts	67,975	(34,815)	33,160
Provision for product warranties	53,086	20,897	73,983
Net defined benefit liabilities	100,569	5,295	105,864
Investment in associates	(18,191)	3,426	(14,765)
Provision for temporary depreciation	(3,715)	-	(3,715)
Gain on revaluation of land	(123,603)	1,780	(121,823)
Derivative assets(liabilities)	(742)	(903)	(1,645)
Unrealized profit of inventories	11,921	(59)	11,862
Others	(174,206)	(25,300)	(199,506)
Total	₩ (85,837)	₩ (29,610)	₩ (115,447)

(3) Temporary differences which have not been recognized as deferred tax assets as at December 31, 2021 and 2020, are as follows (except for investments in subsidiaries and associates):

(in millions of Korean won)

	December 31, 2021	December 31, 2020
Tax loss carryforwards	₩ 289,224	₩ 1,054,801
Deductible temporary differences	218,447	275,375
Tax credits carryover	-	22,208

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

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

(in millions of Korean won)

	December 31, 2021	December 31, 2020
Subsidiaries	₩ 224,217	₩ (516,430)

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(5) The tax on the Group's profit before tax differs from the theoretical amount that would arise using the weighted average tax rate applicable to profits of the consolidated entities as follows:

<i>(in millions of Korean won)</i>		2021	2020
Profit before income tax expense	₩	174,014	₩ 448,255
Tax at domestic tax rates applicable to profits in the respective countries	₩	20,251	₩ 160,607
Adjustments:			
Non-temporary difference		10,530	(7,186)
Effect of change in recognition of deferred income tax		59,741	(3,893)
Tax credits		(16,343)	(15,980)
Additional income tax (refunds)		(1,039)	40
Others		(10,710)	29,593
Income tax expense	₩	62,430	₩ 163,181
Average effective tax rate (Income tax expense / Profit before income tax)		- ¹	36.4%

¹ Effective tax rate is not calculated due to the tax benefit for years ended December 31, 2021

31. Earnings per Share

(1) Basic earnings per share

Basic earnings per share is calculated by dividing the profit attributable to owners of the Group by the weighted average number of ordinary shares outstanding during the financial year excluding treasury shares.

Basic earnings per share attributable to owners of the Group for the years ended December 31, 2021 and 2020, are computed as follows:

<i>(in Korean won, shares)</i>		2021		
		Discontinued operations	Continuing operations	Total
Profit attributable to the ordinary equity holders of the Parent Company	₩	355,598,127,558	₩ 105,937,204,496	₩ 461,535,332,054
Weighted average number of ordinary shares outstanding ^(*)		79,353,685	79,353,685	79,353,685
Basic earnings per share	₩	4,481	₩ 1,335	₩ 5,816

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(in Korean won, shares)

	2020					
	Discontinued operations			Continuing operations		Total
Profit attributable to the ordinary equity holders of the Parent Company	₩	110,591,812,563	₩	38,242,326,129	₩	148,834,138,692
Weighted average number of ordinary shares outstanding (*)		65,349,165		65,349,165		65,349,165
Basic earnings per share	₩	1,692	₩	586	₩	2,278

(*) The weighted average number of ordinary shares outstanding is calculated as follows:

(in shares)	2021	2020 ²
Ordinary shares at the beginning ¹	67,046,052	64,633,380
Exercise of stock warrants	7,577,171	715,785
Capital increase	4,730,462	-
Weighted average number of ordinary shares outstanding	79,353,685	65,349,165

¹ Treasury shares are excluded.

² The shares of the Group are merged at the rate of 0.3104974 shares per share on July 1, 2021, the spin-off date. The number of shares for the year ended December 31, 2020, was calculated by reflecting such changes.

(2) Diluted earnings per share

Diluted earnings per share for the years ended December 31, 2021 and 2020, are computed as follows.

(in Korean won, shares)

	2021					
	Discontinued operations			Continuing operations		Total
Profit attributable to ordinary shares before adjustment	₩	355,598,127,558	₩	105,937,204,496	₩	461,535,332,054
Adjustment:		545,700,864		480,659,559		1,026,360,423
Profit attributable to ordinary shares after adjustment		356,143,828,422		106,417,864,055		462,561,692,477
Weighted average number of ordinary shares outstanding after adjustment (*)		86,686,202		86,686,202		86,686,202
Diluted earnings per share	₩	4,108	₩	1,228	₩	5,336

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(in Korean won, shares)

	2020		
	Discontinued operations	Continuing operations	Total
Profit attributable to ordinary shares before adjustment	₩ 110,591,812,563	₩ 38,242,326,129	₩ 148,834,138,692
Adjustment:	457,172,613	205,874,362	663,046,975
Profit attributable to ordinary shares after adjustment	111,048,985,176	38,448,200,491	149,497,185,667
Weighted average number of ordinary shares outstanding after adjustment (*)	66,061,058	66,061,058	66,061,058
Diluted earnings per share	₩ 1,681	₩ 582	₩ 2,263

(*) The details of weighted-average number of ordinary shares outstanding after adjustment used to calculate diluted earnings per share are as follows:

(in shares)	2021	2020
Ordinary shares at the beginning	79,353,685	65,349,165
Exercise of stock warrants	5,896,092	101,146
Convertible bonds	1,436,425	610,747
Weighted average number of Ordinary shares outstanding	<u>86,686,202</u>	<u>66,061,058</u>

Share options that could be used to dilute basic earnings per share in the future, which were not considered in the calculation of diluted earnings per share due to an anti-dilutive effect for the years ended December 31, 2021 and 2020, are as follows:

(in shares)	2021	2020 ¹
Potential ordinary shares	29,702	37,384

¹ Potential ordinary shares for the year ended December 31, 2020 were calculated by reflecting changes in the number of shares through share consolidation.

32. Dividends

The Group did not pay any dividends for the year ended December 31, 2021.

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33. Commitments and Contingencies

(1) As at December 31, 2021, the Group is involved in pending lawsuits as a defendant with total claims amounting to ₩ 11,741 million. The outcome of the lawsuit and its effects cannot be reasonably estimated as at December 31, 2021.

(2) In November 2015, an external investor who owned a 20% of interest in Doosan Infracore China Co., Ltd., a subsidiary of the Parent company, filed a lawsuit claiming partial payment of stock purchase price while requesting the purchase of his interest to the Parent company in accordance with a share purchase agreement. On February 21, 2018, the Seoul High Court overturned the 1st ruling and recognized the Company's breach of duty and ruled the Parent company to pay the claim amount of ₩ 10 billion. However, on January 14, 2021, the Supreme Court (Case No. 2018 다223054) accepted the Parent company's allegation that there was an error in the judicial decision of the verdict in the first trial, reversed the initial ruling and remanded the case back to the Seoul High Court.

The Parent company acquired the remaining shares on October 29, 2021 through agreement with an external investor and the external investor canceled DICC lawsuit and others. Also, the external investor decided not to make any claims to the Group in the future in relation to the DICC lawsuit and subsequent disputes and legal proceedings arising from or raised on essentially the same and similar facts with the lawsuit.

(3) As at December 31, 2021, the Group has entered into bank general loan agreements amounting to ₩ 1,043,347 million with various financial institutions.

(4) Among our long-term investment securities, subordinated bonds (Carrying amount: ₩ 15,255 million) are pledged as collateral to KODIT 2020 15th Securitization Specialty Co., Ltd and others in relation to bonds.

(5) The financial liabilities related to the transferred receivables that the Group continues to recognize because the Group substantially retains all of the risks and rewards of ownership as at December 31, 2021, amount to ₩ 22,687 million.

(6) As at December 31, 2021, guarantees provided by the Group for third parties are as follows:

(in thousands of foreign currencies and millions of Korean won)

Guarantor	Beneficiary	Guaranteed amount	Korean won equivalent
Doosan Infracore China Co., Ltd.	End User	CNY 1,115,669	₩ 207,804

Meanwhile, as at December 31, 2021, the Group entered into agreements with various banks for performance guarantees of USD 696 thousand regarding exports, and with Seoul Guarantee Insurance Company and Machinery Financial Cooperative for performance and warranty guarantees of ₩ 12,191 million in total. Regarding guarantees provided by Machinery Financial Cooperative, equity investment of ₩ 100 million in Machinery Financial Cooperative is also pledged as a collateral.

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(7) Other commitments and contingencies

The Group terminated the lease contract of the Doosan Bundang Center with DBC Co., Ltd. in January 2021 and entered into a new lease contract with Bundang Doosan Tower REIT Co., Ltd.

34. Pledged Assets

The Group's assets pledged as collaterals for long-term and short-term borrowings as at December 31, 2020, are as follows:

(in thousand of USD, DM and NOK, in millions of Korean won)

Pledgee	Collateralized asset	Amount of Borrowings		Collateralized amount	
Korea Development Bank	Land, buildings and machinery ¹	KRW	20,000	KRW	371,112
		USD	15,000	USD	95,025
			-	DM	84,000
Korea Exim Bank	Inventories	KRW	-	KRW	273,000
Innovation Norge and others	Buildings and machinery etc	NOK	17,567	NOK	333,674

¹ The Parent Company's rights to property insurance benefits are pledged as collaterals to the Korea Development Bank.

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35. Related Party Transactions

The Group's related party disclosures for the years ended December 31, 2021 and 2020, are as follows:

(1) Nature of relationship

Relationship	December 31, 2021	
	Name	
	Before change of parent company ¹	After change of parent company ²
Ultimate parent	Doosan Corporation	HYUNDAI HEAVY INDUSTRIES HOLDINGS CO., LTD.
Next most senior parent	Doosan Heavy Industries and Construction Co., Ltd.	Hyundai Genuine Co., Ltd.
Joint ventures and associates	Tianjin Lovol Doosan Engine Company Ltd. and others	Tianjin Lovol Doosan Engine Company Ltd. and others
Other related parties ³	Doosan Bobcat Inc. and its subsidiaries, D20 Capital, LLC, Doosan Cuvex Co., Ltd., DBC Co., Ltd., Doosan Construction & Engineering Co., Ltd., Oricom Inc., Doosan Bears Inc. and others	KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD., Hyundai Oil Bank Co., Ltd., Hyundai Construction Equipment Co., Ltd. and others

¹ Doosan Bobcat Inc. and its subsidiaries and D20 Capital, LLC and others were changed from subsidiaries to other related parties due to the spin-off on July 1, 2021. Doosan Cuvex Co., Ltd. and DBC Co., Ltd. and others were changed from joint ventures and associates to other related parties.

² The scope of related parties was changed according to the change of the parent company on August 19, 2021.

³ Other related parties include entities which belong to a large enterprise group in accordance with the Monopoly Regulation and Fair Trade Act, although the entities are not the related party of the Group in accordance with Korean IFRS 1024.

Relationship	December 31, 2020
	Name
Ultimate parent	Doosan Corporation
Next most senior parent	Doosan Heavy Industries and Construction Co., Ltd.
Joint ventures and associates	Doosan Cuvex Co., Ltd., DBC Co., Ltd. Tianjin Lovol Doosan Engine Company Ltd., Ltd. and others
Other related parties ¹	Doosan Construction & Engineering Co., Ltd., Oricom Inc., Doosan Bears Inc. and others

¹ Other related parties include entities which belong to a large enterprise group in accordance with the Monopoly Regulation and Fair Trade Act, although the entities are not the related party of the Group in accordance with Korean IFRS 1024.

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(2) Significant transactions with related parties for the years ended December 31, 2021 and 2020, are as follows

(in millions of Korean won)

(in millions of Korean won)

		2021													
Type	Name of entity	Disposal of property, plant and equipment and intangible assets				Acquisition of property, plant and equipment and intangible assets				Acquisition Right of use asset					
		Sales					Purchases		Other expenses						
Ultimate parent	Doosan Corporation	₩	27,930	₩	60	₩	1	₩	44	₩	2,843	₩	31,422	₩	-
	HYUNDAI HEAVY INDUSTRIES HOLDINGS CO.,LTD.		-		-		-		-		-		2,094		-
Next most senior parent	Doosan Heavy Industries and Construction Co., Ltd.		452		628		-		-		-		-		-
	Hyundai Genuine Co., Ltd.		-		-		-		-		-		599		-
Joint ventures and associates	Doosan Infracore Liaoning Machinery Sales Co., Ltd		17,767		-		-		-		-		-		-
	Tianjin Lovol Doosan Engine Company Ltd.		2,449		-		-		5,137		-		630		-
	KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO.,LTD		-		-		-		-		-		255		-
Other related parties ¹	Hyundai Oil Bank Co.,Ltd.		-		-		-		279		-		4		-
	Hyundai Construction Equipment Co., Ltd.		-		-		-		-		-		64		-
	HYUNDAI HEAVY INDUSTRIES BRASIL IND		-		42		-		-		-		-		-
	Clark Equipment Co.		20,015		-		-		719		-		265		-
	Doosan Bobcat EMEA s.r.o		3,598		-		-		488		-		201		-
	Doosan Bobcat Inc. and its other subsidiaries		5,808		-		-		218		-		109		-
	Doosan Bears Inc.		-		-		-		-		-		15,142		-
	Doosan Digital Innovation America LLC		-		-		3		-		-		22,837		1,426
	Bundang Doosan Tower tenants committee		-		-		-		-		-		2,263		71,403
	Doosan Cuvex Co., Ltd.		73		10		-		250		-		6,802		-
	CHUNG-ANG UNIVERSITY		-		-		-		-		-		5,924		-
	Doosan Business Research Institute		152		-		-		-		-		4,834		-
	Other related parties related to Doosan Corporation		631		-		462		-		420		7,093		-
	Total	₩	78,875	₩	740	₩	466	₩	7,135	₩	3,263	₩	100,538	₩	72,829

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¹ Doosan Bobcat Inc. and its subsidiaries and D20 Capital, LLC and others were changed from subsidiaries to other related parties due to the spin-off and merger on July 1, 2021. Doosan Cuvex Co., Ltd. and DBC Co., Ltd. and others were changed from joint ventures and associates to other related parties.

The above information of Doosan Corporation and its subsidiaries includes the transaction amount before the change of parent company, and the information of HYUNDAI HEAVY INDUSTRIES HOLDINGS CO.,LTD. and its subsidiaries includes the transaction amount after the change of parent company.

(in millions of
Korean won)

(in millions of Korean won)

	2020											
Relationship	Sales	Disposal of property, plant and equipment and intangible assets	Other income	Purchases	Acquisition of property, plant and equipment and intangible assets	Other expenses	Acquisition Right of use asset					
Ultimate parent	₩ 64,289	₩ 499	₩ 260	₩ 67,898	₩ 8,445	₩ 49,497	₩ 2,193					
Next most senior parent	1,731	-	24	-	-	-	-					
Joint ventures and associates	26,333	-	793	576	77	11,494	-					
Others	4,200	-	1,600	109,136	2,215	91,897	145					
Total	₩ 96,553	₩ 499	₩ 2,677	₩ 177,610	₩ 10,737	₩ 152,888	₩ 2,338					

(3) Outstanding balances of significant receivables and payables for related parties as at December 31, 2021 and 2020, are as follows:

(in millions of Korean won)

Type	Name of entity	2021		
		Trade receivables	Trade payables	Other payables
Ultimate parent	HYUNDAI HEAVY INDUSTRIES HOLDINGS CO.,LTD.	₩ -	₩ -	₩ 33
Next most senior parent	Hyundai Genuine Co., Ltd.	-	-	659
Joint ventures and associates	Tianjin Lovol Doosan Engine Company Ltd.	1,511	939	-
	Doosan Infracore Liaoning Machinery Sales Co., Ltd	729	-	15
Other related parties	KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO.,LTD	-	-	4
	Hyundai Oil Bank Co.,Ltd.	-	280	1

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		Total		₩ 2,240		₩ 1,219		₩ 712	
(in millions of Korean won)		2020							
		Trade receivables	Other receivables	Loans		Trade payables	Other payables		Lease liabilities
Ultimate parent	₩	24,052	₩ 5,068	₩ -	₩ 5,564	₩ 8,309	₩ 1,872		
Next most senior parent		538	11	-	-	763	-		
Joint ventures and associates		3,539	11,018	-	69	698	-		
Others		64	18,190	26,112	62,366	4,305	966		
	₩	28,193	₩ 34,287	₩ 26,112	₩ 67,999	₩ 14,075	₩ 2,838		

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(5) During 2021, Hyundai Genuine Co., Ltd., the immediate parent company, made contribution of ₩ 18,009 million through the exercise of stock warrants.

(6) Hyundai Genuine Co., Ltd., the immediate parent company, made capital contribution of ₩ 228,740 million in capital increases of the Group.

(7) The Group purchased 20% shares of Doosan Infracore China Co., Ltd., a key subsidiary of the Group from non-controlling shareholder Odin 2 LLC (Note 33).

(8) The Group's lease contracts with related parties amount to ₩ 72,829 million (2020: ₩ 2,338 million), and lease payments to related parties amount to ₩ 4,807 million (2020: ₩ 6,823 million).

The Group's lease contracts with related parties amount was made before the change of the parent company.

(9) Details of collaterals provided by and provided to the related parties as at December 31, 2021 are described in Note 33 and 34.

(10) The Group defines key management personnel including registered officer who have the authority and responsibility for planning, operation and control. Compensation to the key management personnel of the Group for the years ended December 31, 2021 and 2020, is as follows:

<i>(in millions of Korean won)</i>		2021	2020
Employee benefits	₩	2,615	₩ 6,142
Post-employment benefits		175	459
Total	₩	<u>2,790</u>	<u>₩ 6,601</u>

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36. Consolidated Statements of Cash Flows

(1) Details of adjustments, and changes in operating assets and liabilities in the consolidated statement of cash flows for the years ended December 31, 2021 and 2020, are as follows:

<i>(in millions of Korean won)</i>		2021		2020
Adjustments:				
1. Income tax expense	₩	(57,522)	₩	163,181
2. Finance income		(58,520)		(50,565)
3. Finance expenses		178,220		238,687
4. Post-employment benefits (defined benefit plan)		37,366		54,837
5. Bad debt expenses		5,519		(7,444)
6. Other bad debt expenses		484		5,351
7. Depreciation		122,842		165,084
8. Amortization		69,816		84,692
9. Investment properties depreciation		2,097		1,399
10. Right of use asset depreciation		25,182		36,257
11. Gain on disposal of property, plant and equipment		(859)		(1,336)
12. Gain on disposal of intangible assets		(766)		(745)
13. Loss on disposal of property, plant and equipment		190		342
14. Loss on disposal of intangible assets		1,325		20
15. Reversal of impairment loss on investment properties		(96)		(136)
16. Gain on disposal of investment properties		(20)		-
17. Loss on disposal of investment properties		-		25
18. Impairment loss on property, plant and equipment		1,267		-
19. Impairment loss on intangible assets		16,578		6,471
20. Reversal of impairment loss on intangible assets		(1,454)		(4,538)
21. Impairment loss on investment properties		1,311		3,286
22. Gain on valuation of short-term investment securities		(8,856)		(1,516)
23. Loss on valuation of short-term investment securities		2		1,496
24. Gain on valuation of long-term investment securities		(5,990)		(2,654)
25. Loss on valuation of long-term investment securities		101		60
26. Loss on disposal of long-term financial assets		1		2,045
27. Loss(Gain) on equity method investments		(6,503)		3,158
28. Dividend income		(448)		(560)
29. Others		8,277		14,749
Total	₩	329,544	₩	711,646

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<i>(in millions of Korean won)</i>		2021		2020
Changes in operating assets and liabilities:				
1. Changes in trade receivables	₩	(157,504)	₩	224,503
2. Changes in other receivables		(3,913)		14,042
3. Changes in derivative assets		23		260
4. Changes in inventories		(270,922)		263,734
5. Changes in other current assets		(67,693)		11,849
6. Changes in other non-current assets		5,945		1,434
7. Changes in trade payables		54,867		(151,662)
8. Changes in other payables		(30,088)		(38,210)
9. Changes in derivative liabilities		(11)		(271)
10. Changes in provisions		17,510		(23,820)
11. Changes in other current liabilities		9,750		8,007
12. Payment of defined benefit obligations (defined benefit plan)		(84,052)		(100,732)
13. Transferred out to affiliates		(858)		(1,420)
14. Changes in plan assets		31,916		63,620
15. Changes in other non-current liabilities		11,188		17,822
Total	₩	(483,842)	₩	289,156

(2) Significant non-cash transactions for the years ended December 31, 2021 and 2020, are as follows:

<i>(in millions of Korean won)</i>		2021		2020
Payments of non-trade payables related to acquisition of property, plant and equipment and intangible assets	₩	5,951	₩	(10,358)
Net assets related to spin-off		2,311,848		-
Tax effects related to spin-off		(237,176)		-
Reclassification of other non-current assets related to acquisition of the shares of Doosan Infracore China Co., Ltd.		10,000		-

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(3) Changes in liabilities arising from financial activities for the years ended December 31, 2021 and 2020, are as follows:

(in millions of Korean won)

	2021											
	Beginning balance		Cash flows		Non-cash variances				Ending balance			
					Changes in exchange rates	Changes in fair value		Others ¹				
Short-term borrowings	₩	930,840	₩	(362,226)	₩	(393)	₩	-	₩	(99,998)	₩	468,223
Long-term borrowings												
(including current portion of long-term borrowings)		949,907		500,515		43,663		1,875		(1,450,619)		45,341
Bonds (including current portion of bonds)		2,269,399		(182,903)		37,517		4,847		(1,004,958)		1,123,902
Bonds with warrants												
(including current portion of bonds with warrants)		105,942		-		-		6,229		(563)		111,608
Convertible bonds		33,053		-		-		757		(23,184)		10,626
Lease liabilities		77,399		(27,642)		5,257		-		(30,222)		24,792
Liabilities to avoid risks arising from bonds		43,774		-		(25,200)		(845)		(17,729)		-
Total	₩	4,410,314	₩	(72,256)	₩	60,844	₩	12,863	₩	(2,627,273)	₩	1,784,492

¹ These changes are from spin-off and others.

(in millions of Korean won)

	2020											
	Beginning balance		Cash flows		Non-cash variances					Ending balance		
					Changes in exchange rates		Changes in fair value		Others			
Short-term borrowings	₩	591,083	₩	345,269	₩	(5,512)	₩	-	₩	-	₩	930,840
Long-term borrowings												
(including current portion of long-term borrowings)		1,372,384		(387,669)		(43,729)		4,786		4,135		949,907
Bonds (including current portion of bonds)		1,447,080		867,896		(52,650)		7,073		-		2,269,399
Bonds with warrants												
(including current portion of bonds with warrants)		492,992		(428,519)		-		18,550		22,919		105,942
Convertible bonds		-		32,581		-		472		-		33,053
Lease liabilities		79,406		(34,658)		(863)		-		33,514		77,399
Liabilities to avoid risks arising from bonds		(12,770)		25,050		37,978		(8,450)		1,966		43,774
Total	₩	3,970,175	₩	419,950	₩	(64,776)	₩	22,431	₩	62,534	₩	4,410,314

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37. Spin-off

In accordance with a resolution of the shareholders' meeting held on May 13, 2021, the investment business segment among the Group's assets was spun off and merged with Doosan Heavy Industries & Construction Co., Ltd. on July 1, 2021, the spin-off date.

(1) Details of spin-off and merger ratio are as follows:

Category	Existing corporation	Newly established corporation
Entity name	Hyundai Doosan Infracore Co.,Ltd.	Doosan Heavy Industries and Construction Co., Ltd.
Spin-off ratio	0.3104974	0.6895026
Merger ratio	-	0.6845412
Spin-off and merger ratio	-	0.4719929

(2) Details of assets and liabilities transferred to newly established corporation are as follows:

(in millions of Korean won)

	Carrying amount		Carrying amount
Cash and cash equivalents	₩ 1,783,888	Trade and other payables	₩ 810,193
Trade and other receivables	248,215	Short-term borrowings	100,000
Long-term and short-term investment securities	140,004	Current portion of bonds	1,637
		Current portion of long-term borrowings	125,495
Inventories	846,238	Long-term borrowings	1,311,488
Associates	155,310	Bonds	1,026,590
Property, plant and equipment	689,560	Non-current derivative liabilities	17,729
Intangible assets	4,389,073	Net defined benefit liabilities	411,377
Investment properties	129,567	Other liabilities	825,609
Other assets	343,999		
Total of spin-off assets	₩ 8,725,854	Total of spin-off liabilities	₩ 4,630,118

Accumulated other comprehensive income related to the spin-off is as follows:

(in millions of Korean won)

	Amount
Share of other comprehensive income of associates	₩ 2,042
Exchange differences	(342,699)
Gain on valuation of derivatives designated as a cash flow hedge	3,125
Gain on revaluation of property, plant and equipment	32,301
Total	₩ (305,231)

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Since the same corporation has control over the Group before and after spin-off, when the assets and liabilities transferred to the newly established corporation through spin-off was derecognized from the Group's financial statements, it was measured as the carrying amount before spin-off, and the differences between the carrying amount and the decrease in share capital and capital surplus were recognized as other components of equity.

(3) The operating results of the investment business segment that are to be transferred to the newly established corporation during the year ended December 31, 2021 are presented as discontinued operations and the comparative consolidated statement of profit or loss has been restated.

38. Discontinued Operation

(1) Details of the discontinued operation for the year ended December 31, 2021, are as follows:

Category	2021
Discontinued operation	Business segments of Doosan Bobcat Co., Ltd. and others
Major operation	Manufacturing and sales of small construction equipment and others
Method of discontinuance	Spin-off

(2) Profit and loss from discontinued operation for the years ended December 31, 2021 and 2020, are as follows:

(in millions of Korean won)	2021		2020	
Revenue	₩	2,335,874	₩	3,946,000
Cost of goods sold		1,751,839		3,059,826
Selling and administrative expenses		231,886		492,020
Operating profit		352,149		394,154
Non-operating income or expense		(15,849)		(58,561)
Profit before income tax		336,300		335,593
Income tax expense (benefit)		(119,952)		103,769
Profit from discontinued operations	₩	456,252	₩	231,824

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(3) Cash flows from discontinued operations for the years ended December 31, 2021 and 2020, are as follows:

<i>(in millions of Korean won)</i>	2021	2020
Net cash inflow from operating activities	₩ 419,750	₩ 780,898
Net cash outflow from investing activities	(128,509)	(382,383)
Net cash outflow from financing activities	489,599	259,905
Effects of exchange rate changes	<u>(27,600)</u>	<u>(45,336)</u>
Net increase in cash generated from discontinued operations	<u>₩ 753,240</u>	<u>₩ 613,084</u>