



DOOSAN CORPORATION

Financial Statements

For the Years Ended December 31, 2023 and 2022

With the independent auditor's report

Doosan Corp.

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Independent auditor's report
(English Translation of a Report Originally Issued in Korean)

**The Shareholders and Board of Directors
Doosan Corporation**

Opinion

We have audited the separate financial statements of Doosan Corporation (the "Company"), which comprise the separate statements of financial position as of December 31, 2023 and 2022, and the separate statements of income or loss, separate statements of comprehensive income or loss, separate statements of changes in equity and separate statements of cash flows for each of the two years in the period ended December 31, 2023, and the notes to the separate financial statements, including material accounting policy information.

In our opinion, the accompanying separate financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2023 and 2022, and its financial performance and its cash flows for each of the two years in the period ended December 31, 2023 in accordance with International Financial Reporting Standards as adopted by the Republic of Korea ("KIFRS").

We have audited the Company's internal control over financial reporting ("ICFR") as of December 31, 2023 based on the Conceptual Framework for Design and Operation of ICFR established by the Operating Committee of ICFR in Korea, in accordance with Korean Standards on Auditing ("KSA"), and our report dated March 20, 2024 expressed an unqualified opinion thereon.

Basis for opinion

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

Key audit matter

A key audit matter is the matter that, in our professional judgment, was of most significance in our audit of the separate financial statements of the current period. This matter was addressed in the context of our audit of the separate financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on this matter.

Impairment test on investments in subsidiaries

As described in Note 11 to the separate financial statements, the Company conducted an impairment test on investments in Doosan Enerbility Co., Ltd., its subsidiary, as of December 31, 2023, and no impairment loss was recognized as a result of the impairment test. In order to determine the recoverable amount of investments in subsidiaries, the Company estimated the fair value less costs of disposal.

As of December 31, 2023, the carrying amount of investments in Doosan Enerbility Co., Ltd. is ₩2,536,311 million, accounting for 51.6% of its total assets. In addition, recoverable amounts may vary depending on the inputs requiring management's judgement, and accordingly may have significant impact on the separate financial statements of the Company. Therefore, we identified the estimation of recoverable amount of investments in Doosan Enerbility Co., Ltd. as a key audit matter.

The main audit procedures we have performed for this key audit matter are as follows:

- We obtained understanding for and assessed internal controls related to impairment testing of investment in subsidiary.
- We made inquiry and conducted inspection on the valuation model used by management.
- We assessed management's experts who participated in estimating the value in use based on their qualification and independence.
- We evaluated key assumptions utilized by management of the Company for calculating recoverable amount by comparing them with external benchmarks by engaging auditor's valuation experts.
- We conducted independent recalculation to verify the accuracy of the recoverable amount presented by the Company.

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

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

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

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

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

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

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

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

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

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

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

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

The engagement partner on the audit resulting in this independent auditor's report is Jee hoon Kim.



March 20, 2024

This audit report is effective as of March 20, 2024, the independent auditor's report date. Accordingly, certain material subsequent events or circumstances may have occurred during the period from the date of the independent auditor's report to the time this report is used. Such events and circumstances could significantly affect the accompanying separate financial statements and may result in modifications to this report.

Doosan Corporation

Separate financial statements
for each of the two years in the period ended December 31, 2023

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

Hong Sung Moon
Chief Executive Officer
Doosan Corporation

Doosan Corporation
Separate statements of financial position
as of December 31, 2023 and 2022
(Korean won)

	Notes	2023	2022
Assets			
Current assets:			
Cash and cash equivalents	4,10,34	₩ 232,028,406,521	₩ 381,777,404,797
Short-term financial instruments	4,5,10,32	34,566,896,213	48,456,002,193
Short-term investment securities	4,6,10	2,756,808,705	11,068,808,705
Trade receivables	4,7,10,24,33	187,457,248,466	155,195,629,816
Other receivables	4,7,10,24,33	19,363,726,428	32,715,208,302
Due from customers for contract work	24	860,596,146	-
Current derivative assets	4,9,10	1,117,637,557	4,614,805,731
Inventories	8	109,015,837,743	115,308,038,690
Other current assets		38,803,983,601	42,704,528,463
Total current assets		625,971,141,380	791,840,426,697
Non-current assets:			
Long-term financial instruments	4,5,10	19,278,406,683	11,445,539,635
Long-term investment securities	4,6,10,33	22,562,054,562	122,973,729,774
Investments in subsidiaries, joint ventures and associates	11	3,507,620,200,418	3,413,334,032,276
Property, plant and equipment	12,32	270,551,049,070	254,410,534,212
Intangible assets	13	68,656,597,098	62,603,181,138
Investment properties	14,32	301,845,164,680	306,362,451,910
Long-term other receivables	4,7,10,33	17,519,066,501	5,621,627,051
Deposits	4,10,33	38,135,191,308	40,454,779,092
Deferred tax assets	29	38,713,825,537	-
Other non-current assets		3,765,042,300	3,765,042,300
Total non-current assets		4,288,646,598,157	4,220,970,917,388
Total assets		₩ 4,914,617,739,537	₩ 5,012,811,344,085

(Continued)

Doosan Corporation
Separate statements of financial position
as of December 31, 2023 and 2022 (cont'd)
(Korean won)

	Notes	2023	2022
Liabilities			
Current liabilities:			
Trade payables	4,10,33	₩ 137,980,139,400	₩ 105,452,532,107
Other payables	4,10,33	85,633,649,402	67,544,463,550
Due to customers for contract work	24	4,293,280,076	2,794,587,094
Short-term borrowings	4,10,15	228,000,000,000	175,000,000,000
Current portion of bonds	4,10,15	102,964,481,730	153,836,456,220
Current portion of long-term borrowings	4,10,15	451,381,080,862	-
Current portion of long-term asset-backed loans	4,10,15	86,370,697,549	88,380,095,656
Current lease liabilities	4,10,16	28,650,571,274	28,195,562,004
Derivative liabilities	9,10		
Current provisions	18	1,458,231,985	1,949,631,415
Current tax liabilities	29	11,200,192,307	89,707,425,373
Other current liabilities		71,166,095,143	67,090,051,024
Total current liabilities		1,209,098,419,728	779,950,804,443
Non-current liabilities:			
Long-term other payables	4,10	12,844,654,565	14,653,822,377
Bonds	4,10,15	132,713,164,715	177,634,508,673
Long-term borrowings	4,10,15	132,436,901,504	418,301,422,707
Long-term asset-backed loans	4,10,15	21,592,674,387	108,020,116,913
Non-current lease liabilities	4,10,16	185,452,658,288	210,314,598,930
Net defined benefit liabilities	17	25,345,034,777	9,303,066,642
Derivative liabilities	9,10	74,830,492,295	-
Non-current provisions	18	2,839,702,036	8,858,237,517
Deferred tax liabilities	29	-	9,983,557,589
Other non-current liabilities		87,260,707,363	92,274,274,795
Total non-current liabilities		675,315,989,930	1,049,343,606,143
Total liabilities		1,884,414,409,658	1,829,294,410,586
Equity			
Share capital	1,19	123,738,105,000	123,738,105,000
Capital surplus	19,20	794,292,277,510	794,035,947,562
Other equity items	21	(1,140,873,124,265)	(1,146,547,169,797)
Accumulated other comprehensive income	22	20,761,415,079	23,811,508,578
Retained earnings	23	3,232,284,656,555	3,388,478,542,156
Total equity		3,030,203,329,879	3,183,516,933,499
Total liabilities and equity		₩ 4,914,617,739,537	₩ 5,012,811,344,085

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

Doosan Corporation
Separate statements of profit or loss
for each of the two years in the period ended December 31, 2023
(Korean won)

	Notes	2023	2022
Sales			
Merchandise and finished goods	24,33 ₩	699,661,998,237	₩ 828,252,858,234
Construction	24	1,581,903,164	3,985,412,906
Others	24,33	263,113,881,580	229,229,067,452
Dividend	24,33	22,695,398,874	15,727,774,403
		987,053,181,855	1,077,195,112,995
Cost of sales			
Merchandise and finished goods	25,33	538,358,381,418	604,038,371,330
Construction	25	1,188,698,613	2,941,605,040
Others	25,33	190,843,236,559	172,432,941,635
Selling and administrative expenses	25,26,33	232,076,141,045	225,421,042,431
		962,466,457,635	1,004,833,960,436
Operating profit		24,586,724,220	72,361,152,559
Finance income	10,27	32,090,691,952	72,728,391,413
Finance expenses	10,27	102,801,685,989	111,052,924,812
Other non-operating income	28	15,619,941,055	252,688,918,029
Other non-operating expenses	28	129,270,622,266	86,046,379,135
Profit(Loss) before income tax expenses		(159,774,951,028)	200,679,158,054
Income tax expenses (benefit)	29	(47,901,732,167)	25,212,757,238
Profit (Loss) for the year		₩ (111,873,218,861)	₩ 175,466,400,816
Earnings per share attributable to the equity holders of the Company	30		
Basic earnings (losses) per ordinary share	₩	(6,295)	₩ 9,848
Diluted earnings(losses) per ordinary share	₩	(6,245)	₩ 9,898
Basic earnings(losses) per old-type preferred share	₩	(6,245)	₩ 9,898
Diluted earnings(losses) per old-type preferred share	₩	(6,245)	₩ 9,898

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

Doosan Corporation

Separate statements of comprehensive income or loss

for each of the two years in the period ended December 31, 2023

(Korean won)

	Notes	2023	2022
Profit for the year		₩ 175,466,400,816	₩ 410,821,650,850
Other comprehensive income	22		
Items not to be subsequently reclassified to profit or loss			
Remeasurements of net defined benefit liabilities	17	3,440,667,833	(4,380,682,389)
Land revaluation surplus	12	(754,653,160)	2,418,961,806
Gain (Loss) on valuation of financial assets (designated) at fair value through OCI	6	(12,723,243,440)	5,146,082,779
Items to be subsequently reclassified to profit or loss			
Gain (Loss) on valuation of derivatives designated as hedges	9	4,386,800,471	(1,007,003,703)
Total other comprehensive income		(5,650,428,296)	2,177,358,493
Total comprehensive income for the year		₩ 169,815,972,520	₩ 412,999,009,343

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

Doosan Corporation
Separate statements of changes in equity
for each of the two years in the period end
(Korean won)

As of January 1, 2022	
Total comprehensive income:	
Profit for the year	
Remeasurements of net defined benefit liabilities	
Land revaluation surplus	
Loss on valuation of financial assets (designated) at fair value through other comprehensive income	
Loss on valuation of derivatives designated	
Subtotal	
Transactions with shareholders directly reflected in shareholders' equity and others:	
Cancellation of stock options	
Shared-based payment transaction	
Payment of dividends	
Reclassification of accumulated other comprehensive income to retained earnings	
Subtotal	
As of December 31, 2022	
As of January 1, 2023	
Total comprehensive income:	
Loss for the year	
Remeasurements of net defined benefit liabilities	
Land revaluation surplus	
Loss on valuation of financial assets (designated) at fair value through OCI	
Loss on valuation of derivatives designated	
Subtotal	
Transactions with shareholders directly reflected in shareholders' equity and others:	
Cancellation of stock options	
Shared-based payment transaction	
Payment of dividends	
Subtotal	
As of December 31, 2023	

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

Doosan Corporation
Separate statements of cash flows
for each of the two years in the period ended December 31, 2023
(Korean won)

	Notes	2023	2022
Cash flows from operating activities			
Cash generated from operating activities:	34		
Profit (Loss) for the year		₩ (111,873,218,861)	₩ 175,466,400,816
Adjustments		174,201,444,594	(61,256,357,575)
Changes in operating assets and liabilities		17,306,448,948	103,689,221,455
		<u>79,634,674,681</u>	<u>217,899,264,696</u>
Interest received		11,369,726,591	20,399,455,365
Interest paid		(72,957,941,522)	(77,333,100,268)
Dividends received		22,334,251,447	16,363,826,581
Income tax paid		(75,835,115,089)	(278,894,719,999)
Net cash flows used in operating activities		<u>(35,454,403,892)</u>	<u>(101,565,273,625)</u>
Cash flows from investing activities			
Cash inflows from investing activities:			
Decrease in short-term financial instruments		16,880,362,189	501,195,894,887
Decrease in short-term investment securities		10,236,059,643	-
Disposal of long-term investment securities		1,860,904,109	3,335,872,543
Disposal of investment in subsidiaries and associates		-	719,037,864,931
Disposal of property, plant and equipment		470,091,235	2,434,054,367
Disposal of intangible assets		6,801,958,144	2,655,969,373
Disposal of Investment properties		71,604,000	-
Decrease in long-term loans		517,008,303	721,970,855
Increase in government grants		2,216,095,118	815,826,878
Cash inflows from other investing activities		958,637,427	55,391,992,351
		<u>40,012,720,168</u>	<u>1,285,589,446,185</u>
Cash outflows from investing activities:			
Increase in short-term financial instruments		2,172,600,002	14,705,095,891
Acquisition of long-term financial instruments		8,350,200,000	200,000,000
Acquisition of long-term investment securities		1,469,814,633	5,032,464,925
Acquisition of investments in subsidiaries and associates		30,359,187,943	503,206,841,697
Acquisition of property, plant and equipment		60,013,397,883	58,723,393,915
Acquisition of intangible assets		11,240,209,439	14,838,467,431
Increase in long-term loans		9,313,400,000	720,027,760
Cash outflows from other investing activities		-	3,230,134,860
		<u>(122,918,809,900)</u>	<u>(600,656,426,479)</u>
Net cash flows provided by investing activities		<u>(82,906,089,732)</u>	<u>684,933,019,706</u>
Cash flows from financing activities			
Cash inflows from financing activities:			
Increase in short-term borrowings		495,913,460,050	1,187,000,000,000
Issuance of bonds		92,696,899,902	109,569,252,177
Increase in long-term borrowings		164,000,000,000	417,460,000,000
Increase in long-term asset-backed loans		-	196,148,150,000
		<u>752,610,359,952</u>	<u>1,910,177,402,177</u>
Cash outflows from financing activities:			
Repayment of short-term borrowings		443,000,000,000	1,680,399,166,468
Repayment of current long-term asset-backed loans		88,764,120,000	66,103,172,827
Repayment of long-term asset-backed loans		-	16,439,713,327
Repayment of bonds		189,056,095,890	335,793,972,602
Repayment of lease liabilities		29,036,759,506	27,631,629,463
Payment of dividends		35,772,341,000	35,772,341,000
		<u>(785,629,316,396)</u>	<u>(2,162,139,995,687)</u>
Net cash flows used in financing activities		<u>(33,018,956,444)</u>	<u>(251,962,593,510)</u>
Effect of exchange rate changes on cash and cash equivalents		1,630,451,792	1,310,249,500
Net increase (decrease) in cash and cash equivalents		(149,748,998,276)	332,715,402,071
Cash and cash equivalents, beginning of the year		381,777,404,797	49,062,002,726
Cash and cash equivalents, end of the year		<u>₩ 232,028,406,521</u>	<u>₩ 381,777,404,797</u>

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

1. General

Doosan Corporation (the "Company") was incorporated on December 18, 1933, under the name of Sohwa-Kirin Beer, Ltd. to manufacture and sell beer. The Company has changed its name to Dongyang Beer, Ltd. in February 1948 and again to OB Beer, Ltd. in February 1996 and finally to Doosan Corporation on September 1, 1998.

Since June 1973, the Company's shares have been listed in the Korea Exchange. After several capital issues, the Company's share capital as of December 31, 2023, is ₩123,738 million, including ₩24,447 million of preferred shares.

The Company's ordinary shares as of December 31, 2023 are owned as follows:

	Number of ordinary shares owned	Ownership percentage (%)
Related parties	6,587,589	39.87
Treasury stocks	3,000,866	18.16
Others	6,935,380	41.97
	<u>16,523,835</u>	<u>100.00</u>

In addition, 31.89% of preferred shares are owned by the largest shareholder and others and 55.59% of preferred shares are owned by others.

2. Summary of significant accounting policies

2.1 Basis of preparation

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

Significant accounting policies applied in the preparation of the separate financial statements are described below. Significant accounting policies applied in the preparation of the separate financial statements for the year ended December 31, 2023 are the same as those adopted in the preparation of the separate financial statements for the year ended December 31, 2022, except for the effects related to the adoption of the standards or interpretations described below.

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

2.2 Changes of accounting policies and disclosure

2.2.1 New and amended standards and interpretations

The company applied for the first-time certain standards and amendments, which are effective for annual periods beginning on or after January 1, 2023.

Amendments to KIFRS 1117 – Insurance Contracts

KIFRS 1117 Insurance Contracts is a comprehensive new accounting standard for insurance contracts covering recognition and measurement, presentation and disclosure. KIFRS 1117 replaces KIFRS 1104 *Insurance Contracts*. KIFRS 1117 applies to all types of insurance contracts (i.e., life, non-life, direct insurance and re-insurance), regardless of the type of entities that issue them as well as to certain guarantees and financial instruments with discretionary participation features; a few scope exceptions will apply. The overall objective of KIFRS 1117 is to provide a comprehensive accounting model for insurance contracts that is more useful and consistent for insurers, covering all relevant accounting aspects. KIFRS 1117 is based on a general model, supplemented by:

- a specific adaptation for contracts with direct participation features (the variable fee approach); and
- a simplified approach mainly for short-duration contracts (the premium allocation approach).

These amendments have no impact on the financial statements of the Company.

Amendments to KIFRS 1008 – Definition of Accounting Estimates

The amendments to KIFRS 1008 clarify the distinction between changes in accounting estimates, changes in accounting policies and the correction of errors. They also clarify how entities use measurement techniques and inputs to develop accounting estimates. These amendments have no material impact on the financial statements of the Company.

Amendments to KIFRS 1001 – Disclosure of Accounting Policies

The amendments to KIFRS 1001 Making Materiality Judgements provide guidance and examples to help entities apply materiality judgements to accounting policy disclosures. The amendments aim to help entities provide accounting policy disclosures that are more useful by replacing the requirement for entities to disclose their 'significant' accounting policies with a requirement to disclose their 'material' accounting policies and adding guidance on how entities apply the concept of materiality in making decisions about accounting policy disclosures.

These amendments have no impact on the financial statements of the Company.

Amendments to KIFRS 1012 – Deferred Tax related to Assets and Liabilities arising from a Single Transaction

The amendments to KIFRS 1012 Income Tax narrow the scope of the initial recognition exception, so that it no longer applies to transactions that give rise to equal taxable and deductible temporary differences such as leases and decommissioning liabilities.

These amendments have no impact on the financial statements of the Company.

Amendments to KIFRS 1012 – International Tax Reform—Pillar Two Model Rules

The amendments to KIFRS 1012 have been introduced in response to the OECD's BEPS Pillar Two Model Rules and include:

- a mandatory temporary exception to the recognition and disclosure of deferred taxes arising from the jurisdictional implementation of the Pillar Two Model Rules; and
- disclosure requirements for affected entities to help users of the financial statements better understand an entity's exposure to Pillar Two income taxes arising from that legislation, particularly before its effective date. Disclosure of the mandatory disclosure rules for deferred tax exceptions and the application of the exceptions will take effect immediately. The remaining disclosure requirements apply for the fiscal year beginning on or after January 1, 2023, but not for the interim period ending on or before December 31, 2023.

These amendments have no impact on the financial statements of the Company.(see note 35).

2.2.2 Standards issued but not yet effective

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

Amendments to KIFRS 1116 – *Lease Liability in a Sale and Leaseback*

The amendments to KIFRS 1116 specify the requirements that a seller-lessee uses in measuring the lease liability arising in a sale and leaseback transaction, to ensure the seller-lessee does not recognise any amount of the gain or loss that relates to the right of use it retains.

The amendments are effective for annual reporting periods beginning on or after January 1, 2024 and must be applied retrospectively to sale and leaseback transactions entered into after the date of initial application of KIFRS 1116. Earlier application is permitted and that fact must be disclosed.

The amendments are not expected to have no material impact on the Company.

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

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

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

In addition, a requirement has been introduced to require disclosure when a liability arising from a loan agreement is classified as non-current and the entity's right to defer settlement is contingent on compliance with future covenants within twelve months.

The amendments are effective for annual reporting periods beginning on or after January 1, 2024 and must be applied retrospectively. The Company is currently assessing the impact the amendments will have on current practice and whether existing loan agreements may require renegotiation.

Amendments to KIFRS 1007 and KIFRS 1107 – *Supplier Finance Arrangements*

The amendments to KIFRS 1007 Statement of Cash Flows and KIFRS 1107 Financial Instruments: Disclosures clarify the characteristics of supplier finance arrangements and require additional disclosure of such arrangements. The disclosure requirements in the amendments are intended to assist users of financial statements in understanding the effects of supplier finance arrangements on an entity's liabilities, cash flows and exposure to liquidity risk.

The amendments will be effective for annual reporting periods beginning on or after January 1, 2024. Early adoption is permitted but will need to be disclosed.

The amendments are not expected to have no material impact on the Company.

2.3 Investments in subsidiaries, joint ventures and associates

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

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

2.4 Investment in joint operation

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

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

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

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

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

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

2.5 Operating segments

The Company's operating segments are disclosed in a manner consistent with the business segment reporting provided to the chief operating decision-maker, and the information is disclosed in Consolidated Financial statement Note 24 in accordance with KIFRS 1108 *Operating Segments*.

2.6 Goodwill

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

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

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

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

2.7 Assets held for sale and Discontinued operation

2.7.1 Assets held for sale

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

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

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

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

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

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

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

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

2.7.3 Discontinued operation

Disposal entity is a discontinued operation if:

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

The Company excludes the profit or loss from the results of the continuing operation and displays the profit or loss as a single amount in the income statement.

2.8 Revenue from contracts with customers

2.8.1 Identifying performance obligations

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

2.8.2 Variable consideration

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

2.8.3 Allocation of the transaction price

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

2.9 Lease

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

The Company as a lessee

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

2.9.1 Right-of-use assets

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

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

The right-of-use assets are also subject to damage and the relevant accounting policy is described in Note 2.19.

2.9.2 Lease liabilities

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

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

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

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

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

The Company as lessor

The Company classifies leases that do not transfer most of the risks and compensation for the ownership of underlying assets as operating leases. Lease revenues are recognized based on straight-line method through the lease term and it can be classified as sales in the statements of profit or loss depending on the nature of the business. The direct cost of lease opening borne in the course of an operating lease is added to the carrying amount of the underlying asset and recognized as an expense over the lease period on the same basis as the lease income. Conditional rent is recognized as revenue at the time the rent is received.

2.10 Foreign currencies

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

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

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

- Exchange differences on foreign currency borrowings relating to assets under construction for future productive use, which are included in the cost of those assets when they are regarded as an adjustment to interest costs on those foreign currency borrowings
- Exchange differences on transactions entered into in order to hedge certain foreign currency risks (See Note 2.24 below for hedging accounting policies)
- Exchange differences on monetary items forming part of the net investment in the foreign operation.

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

2.11 Borrowing costs

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

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

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

2.12 Retirement benefit costs and termination benefits

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

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

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

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

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

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

2.13 Share-based payment transactions of the Company

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

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

2.14 Taxation

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

2.14.1 Current tax

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

2.14.2 Deferred tax

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

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

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

2.14.3 Current and deferred taxes for the year

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

2.15 Government grants

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

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

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

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

2.16 Property, plant and equipment

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

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

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

	Estimated useful lives (in years)
Buildings	5–50
Structures	2–30
Machinery	2–15
Other property, plant and equipment	2–10

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

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

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

2.17 Investment properties

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

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

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

2.18 Intangible assets

2.18.1 Intangible assets acquired separately

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

2.18.2 Internally generated intangible assets – Research and development costs

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

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

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

2.18.3 Intangible assets acquired in a business combination

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

2.18.4 Derecognition of intangible assets

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

2.18.5 Amortization of intangible assets

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

	Estimated useful lives (in years)
Development costs	5–10
Industrial rights	5–10
Other intangible assets	4–15

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

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

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

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

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

2.20 Inventories

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

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

2.21 Provisions

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

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

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

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

2.22 Financial instruments

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

2.22.1 Financial assets

[Initial recognition and measurement]

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

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

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

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

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

[Subsequent measurement]

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

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

Financial assets at amortized cost (debt instruments)

The Company measures financial assets at amortized cost if both of the following conditions are met:

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

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

2.22.1 Financial assets (cont'd)

Financial assets at fair value through OCI (debt instruments)

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

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

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

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

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

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

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

Financial assets at fair value through profit or loss

Financial assets at fair value through profit or loss include financial assets held for trading and financial assets designated upon initial recognition at fair value through profit or loss. Financial assets are classified as held for trading if they are acquired for the purpose of selling or repurchasing in the near term. Derivatives, including separated embedded derivatives, are also classified as held for trading unless they are designated as effective hedging instruments. Financial assets with cash flows that are not solely payments of principal and interest are classified and measured at fair value through profit or loss, irrespective of the business model. Notwithstanding the criteria for debt instruments to be classified at amortized cost or at fair value through OCI, as described above, debt instruments may be designated at fair value through profit or loss on initial recognition if doing so eliminates, or significantly reduces, an accounting mismatch.

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

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

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

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

2.22.1 Financial assets (cont'd)

[Derecognition]

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

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

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

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

[Impairment of financial assets]

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

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

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

2.22.2 Financial liabilities

[Initial recognition and measurement]

Financial liabilities are classified, at initial recognition, as financial liabilities at fair value through profit or loss, financial liabilities as subsequently measured at amortized cost, or as derivatives designated as hedging instruments in an effective hedge, as appropriate.

All financial liabilities are recognized initially at fair value and, in the case of loans and borrowings and payables, net of directly attributable transaction costs.

[Subsequent measurement]

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

Financial liabilities at fair value through profit or loss

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

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

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

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

Financial liabilities as subsequently measured at amortized cost

After initial recognition, interest-bearing loans and borrowings are subsequently measured at amortized cost using the EIR method. Gains and losses are recognized in profit or loss when the liabilities are derecognized as well as through the EIR amortization process.

Amortized cost is calculated by taking into account any discount or premium on acquisition and fees or costs that are an integral part of the EIR.

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

[Derecognition]

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

2.22.3 Offsetting of financial instruments

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

2.22.4 Financial guarantee liabilities

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

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

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

2.23 Equity instruments

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

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

2.24 Derivative financial instruments and hedge accounting

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

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

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

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

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

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

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

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

Fair value hedges

The change in the fair value of a hedging derivative is recognized in the statements of profit or loss. However, any changes in the fair value of a hedging derivative of equity instrument that the Company elects to present in OCI are recognized in OCI. The change in the fair value of the hedged item attributable to the risk hedged is recorded as part of the carrying value of the hedged item and is also recognized in the statements of profit or loss.

For fair value hedges relating to items carried at amortized cost, any adjustment to carrying value is amortized through profit or loss over the remaining term of the hedge using the EIR method. EIR amortization may begin as soon as an adjustment exists and no later than when the hedged item ceases to be adjusted for changes in its fair value attributable to the risk being hedged.

If the hedged item is derecognized, the unamortized fair value is recognized immediately in profit or loss.

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

Cash flow hedges

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

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

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

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

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

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

Hedges of a net investment in a foreign operation

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

2.25 Fair value

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

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

2.26 Approval of separate financial statements

The separate financial statements of the Company were approved by the Board of Directors on February 26, 2024 and will be finalized at the annual general meeting of shareholders on March 28, 2024.

3. Significant accounting judgements and key sources of estimation uncertainties

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

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

3.1 Revenue recognition

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

3.2 Impairment of goodwill

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

3.3 Defined benefit liabilities

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

3.4 Provisions

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

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

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

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

3.6 Deferred tax

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

3.7 Special taxation for investment and facilitation of mutually beneficial cooperation

In accordance with the *Special Taxation for Investment and Facilitation of Mutually Beneficial Cooperation*, if a certain portion of taxable income of each fiscal year is not utilized for investment and salary increase purpose, the Company is obliged to pay additional income taxes calculated by the same Act. As a result, as the Company reflects the tax consequences for investment and promotion of collaborative cooperation when measuring the income tax in the same period, the income tax to be borne by the Company in the future may vary depending on the level of investment, wage increase and mutually-beneficial cooperation in each year.

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

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

3.9 Leases – Estimating the incremental borrowing rate

When the Company cannot readily determine the interest rate implicit in the lease, it uses its incremental borrowing rate ("IBR") to measure lease liabilities. The IBR is the rate of interest that the Company would have to pay to borrow over a similar term, and with a similar security, the funds necessary to obtain an asset of a similar value to the right-of-use asset in a similar economic environment. So the incremental borrowing interest rate is observable if there is no rate or if it needs to be adjusted to reflect the terms of the lease (for example, if the lease agreement is not our functional currency), it will reflect what the company 'should pay'.

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

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

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

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

3.11 Lease classification – Company as lessor

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

3.12 Fair value

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

4. Financial risk management

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

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

4.1 Market risk

4.1.1 Foreign currency risk

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

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

The carrying amount of the Company's monetary assets and liabilities denominated in foreign currencies other than the Company's functional currency as of December 31, 2023 and 2022 is as follows (Korean won in millions):

	December 31, 2023					
	USD	EUR	JPY	GBP	Others	Total
Assets	₩ 218,381	₩ 1,320	₩ 9,214	₩ 4,401	₩ 4,225	₩ 237,541
Liabilities	(78,320)	(2)	(1,746)	(230)	(50)	(80,348)
	<u>₩ 140,061</u>	<u>₩ 1,318</u>	<u>₩ 7,468</u>	<u>₩ 4,171</u>	<u>₩ 4,175</u>	<u>₩ 157,193</u>

	December 31, 2022					
	USD	EUR	JPY	GBP	Others	Total
Assets	₩ 170,424	₩ 64	₩ 2,400	₩ 9,889	₩ 16,192	₩ 198,969
Liabilities	(63,073)	-	(955)	-	(18)	(64,046)
	<u>₩ 107,351</u>	<u>₩ 64</u>	<u>₩ 1,445</u>	<u>₩ 9,889</u>	<u>₩ 16,174</u>	<u>₩ 134,923</u>

A sensitivity analysis on the Company's profit before income tax expenses assuming a 10% increase and decrease in currency exchange rates for the years ended December 31, 2023 and 2022 is as follows (Korean won in millions):

	Impact on profit before income tax expenses	
	2023	2022
10% Increase	₩ 15,719	₩ 13,492
10% Decrease	(15,719)	(13,492)

The above-mentioned sensitivity analysis is based on monetary assets and liabilities denominated in foreign currencies other than the Company's functional currency as of December 31, 2023 and 2022.

4.1.2 Interest rate risk

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

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

The carrying amount of the Company's financial assets and liabilities with floating interest rates exposed to interest rate risk as of December 31, 2023 and 2022 is as follows (Korean won in millions):

	December 31, 2023	December 31, 2022
Financial assets	₩ 193,112	₩ 175,117
Financial liabilities	(429,500)	(209,000)
	<u>₩ (236,388)</u>	<u>₩ (33,883)</u>

A sensitivity analysis on the Company's profit before income tax expenses assuming a 1% increase and decrease in interest rates for the years ended December 31, 2023 and 2022 is as follows (Korean won in millions):

	Impact on profit before income tax expenses 2023	2022
1% Increase	₩ (2,364)	₩ (339)
1% Decrease	2,364	339

4.1.3 Price risk

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

4.2 Credit risk

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

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

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

The carrying amount of the financial assets exposed to credit risk as of December 31, 2023, and 2022 is as follows (Korean won in millions). The carrying amount indicates the maximum exposure to credit risk.

	December 31, 2023
Cash and cash equivalents	₩ 232,028
Short-term and long-term financial instruments	53,845
Trade and other receivables	224,340
Deposits	38,135
Short-term and long-term investment securities (excluding equity securities):	
Financial assets at fair value through profit or loss	13,782
Derivative assets	1,118
	₩ 563,248
	December 31, 2022
Cash and cash equivalents	₩ 381,777
Short-term and long-term financial instruments	59,902
Trade and other receivables	193,532
Deposits	40,455
Short-term and long-term investment securities (excluding equity securities):	
Financial assets at fair value through profit or loss	14,505
Derivative assets	4,615
	₩ 694,786

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

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4.2 Credit risk (cont'd)

Details of trade receivables exposed to credit risk, presented using forecast model, as of December 31, 2023 and 2022 are as follows (Korean won in millions):

December 31, 2023								
Trade receivables								
	Individually assessed trade receivables (*1)	Trade receivables assessed for impairment on a collective basis (*2)					Subtotal	Total
		Within due	Less than 3 months	3-6 months	6-12 months	More than 12 months		
Book value	₩ 122,656	₩ 78,471	₩ 2,639	₩ 185	₩ 436	₩ 120	₩ 81,851	₩ 204,507
Expected credit loss rate	13.81%	0.01%	0.04%	0.54%	2.52%	76.67%		
Expected credit loss	₩ 16,936	₩ 9	₩ 1	₩ 1	₩ 11	₩ 92	₩ 114	₩ 17,050

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

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

December 31, 2022								
Trade receivables								
	Individually assessed trade receivables (*1)	Trade receivables assessed for impairment on a collective basis (*2)					Subtotal	Total
		Within due	Less than 3 months	3-6 months	6-12 months	More than 12 months		
Book value	₩ 102,447	₩ 63,741	₩ 3,409	₩ 1,543	₩ 1,385	₩ 99	₩ 70,177	₩ 172,624
Expected credit loss rate	16.90%	0.00%	0.03%	0.29%	1.80%	82.82%		
Expected credit loss	₩ 17,312	₩ 3	₩ 1	₩ 5	₩ 25	₩ 82	₩ 116	₩ 17,428

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

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

4.3 Liquidity risk

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

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

A summary of the Company's non-derivative liabilities maturity as of December 31, 2023 and 2022 is as follows (Korean won in millions):

		December 31, 2023					
		Nominal cash flows according to contract					
	Book value	Total	Less than 1 year	1–2 years	2–5 years	More than 5 years	
Financial liabilities	₩ 1,604,643	₩ 1,650,336	₩ 1,124,352	₩ 327,425	₩ 131,788	₩ 66,771	
Interest on financial liabilities	-	42,737	35,517	7,062	158	-	
	₩ 1,604,643	₩ 1,693,073	₩ 1,159,869	₩ 334,487	₩ 131,946	₩ 66,771	
		December 31, 2022					
		Nominal cash flows according to contract					
	Book value	Total	Less than 1 year	1–2 years	2–5 years	More than 5 years	
Financial liabilities	₩ 1,546,437	₩ 1,605,788	₩ 629,850	₩ 695,465	₩ 175,976	₩ 104,497	
Interest on financial liabilities	-	58,852	45,889	12,422	541	-	
	₩ 1,546,437	₩ 1,664,640	₩ 675,739	₩ 707,887	₩ 176,517	₩ 104,497	

The above-mentioned maturity analysis is based on an undiscounted cash flow according to the contract, which differs from the carrying amount of non-derivative liabilities presented in the separate statements of financial position. It also includes the interest expenses on financial liabilities to be paid in the future. Apart from the above-mentioned non-derivative liabilities, as of December 31, 2023, financial guarantee liabilities of the Company are explained in Note 31.

4.4 Capital risk

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

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

Debt-to-equity ratios as of December 31, 2023 and 2022 are as follows (Korean won in millions):

	December 31, 2023	December 31, 2022
Total liabilities	₩ 1,884,414	₩ 1,829,294
Total equity	3,030,203	3,183,517
Debt-to-equity ratio	62.19%	57.46%

5. Restricted financial assets

Details of restricted financial assets as of December 31, 2023 and 2022 are as follows (Korean won in millions):

	December 31, 2023	December 31, 2022	Description
Short-term financial instruments	₩ 34,567	₩ 33,751	Deposits, establishment of the right of pledge and others
Long-term financial instruments	14,278	11,446	Bank transaction deposits, deposits provided for business, establishment of the right of pledge and others
	<u>₩ 48,845</u>	<u>₩ 45,197</u>	

In addition, regarding the securitization of accounts receivable of the Company which is explained in Note 15, the Company entrusted the deposit return receivables for the collection account (hereinafter referred to as the "collection account") opened to KOOKMIN BANK (hereinafter referred to as the "trustee") in order to receive payments related to the goods supply contract. The collection account cannot be paid without the request of the trustee, but if the parent company meets the conditions, such as withholding 1/3 of the payment in the division of beneficiary rights in the trust collection account managed by the trustee every month, the funds can be withdrawn twice a week. As of December 31, 2023 and 2022, the balance of the collection account is ₩13,120 million and ₩4,680 million respectively, in cash and cash equivalents in the statements of financial position.

6. Short-term and long-term investment securities

Short-term and long-term investment securities as of December 31, 2023 and 2022 are as follows (Korean won in millions):

		December 31, 2023	December 31, 2022
Short-term investment securities	Financial assets at fair value through profit or loss	₩ 2,757	₩ 11,069
Long-term investment securities	Financial assets at fair value through OCI	11,037	12,766
	Financial assets at fair value through profit or loss	<u>11,525</u>	<u>110,208</u>
		<u>22,562</u>	<u>122,974</u>
		<u>₩ 25,319</u>	<u>₩ 202,191</u>

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

Details of short-term and long-term investment securities as of December 31, 2023 and 2022 are as follows (Korean won in millions):

			December 31, 2023	December 31, 2022
Financial assets (designated) at fair value through OCI	Marketable equity securities	Preferred shares of Solus Advanced Materials Co., Ltd. and others	₩ 10,802	₩ 9,531
	Non-marketable equity securities	The Kang Won Ilbo and others	235	3,235
			<u>11,037</u>	<u>12,766</u>
Financial assets at fair value through profit or loss	Non-marketable equity securities	TTC House, Inc. and others (*1)	500	106,772
	Contributions	Machinery Financial Cooperative and others	2,942	3,004
	Beneficiary certificates	Pangaea Ventures Fund IV and others	8,083	6,644
	Debt securities	Kodit 2021 the 1st Securitization Specialty Co., Ltd. and others (*2)	2,757	4,857
			<u>14,282</u>	<u>121,277</u>
			<u>₩ 25,319</u>	<u>₩ 134,043</u>

(*1) Although the Company has significant influence on the Board of Directors of the investee with its right to participation, shares acquired are classified as financial assets measured at fair value through profit or loss in accordance with KIFRS 1109, as it is deemed that such preferred shares, in substance, does not currently give the Company any access to gain on the equity investments in the investees.

(*2) Some of debt securities stated above are provided as collateral to Kodit 2021 the 1st Securitization Specialty Co., Ltd. and others as of December 31, 2023. (See Notes 32).

Changes in financial assets at fair value for the years ended December 31, 2023 and 2022 are as follows (Korean won in millions):

	2023				
	Beginning balance	Acquisition	Disposal	Valuation	Ending balance
Financial assets (designated) at fair value through OCI	₩ 12,766	₩ -	₩ -	₩ (1,729)	₩ 11,037
Financial assets at fair value through profit or loss	121,277	1,469	(12,130)	(96,334)	14,282
	<u>₩ 134,043</u>	<u>₩ 1,469</u>	<u>₩ (12,130)</u>	<u>₩ (98,063)</u>	<u>₩ 25,319</u>

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

		2022											
		Beginning balance		Acquisition		Disposal		Valuation		Reversal of Impairment loss		Ending balance	
Financial assets at fair value through OCI (*1)	₩	29,453	₩	1,946	₩	(1,937)	₩	(16,696)	₩	-	₩	12,766	
Financial assets at fair value through profit or loss		172,738		3,086		(1,193)		(53,373)		19		121,277	
	₩	202,191	₩	5,032	₩	(3,130)	₩	(70,069)	₩	19	₩	134,043	

(*1) During the year ended December 31, 2022, the Company disposed of 12,705 1st preferred shares and 87,209 2nd preferred shares in Solus Advanced Materials Co., Ltd. which the Company held. On the date of disposal, the fair value of the 1st and 2nd preferred shares amounted to ₩199 million and ₩1,728 million. The accumulated gain on valuation of financial assets at fair value through OCI of ₩419 million, which was recognized in accumulated other comprehensive income, was reclassified to retained earnings.

Changes in accumulated other comprehensive income of financial assets (designated) at fair value through OCI for the years ended December 31, 2023 and 2022 are as follows (Korean won in millions):

		2023			
		Beginning balance	Valuation	Ending balance	
Equity instruments at fair value through OCI	Accumulated other comprehensive income before income tax	₩ (6,738)	₩ (1,729)	₩	(8,467)
	Income tax effect	1,563	393		1,956
		₩ (5,175)	₩ (1,336)	₩	(6,511)
		2022			
		Beginning balance	Valuation	Disposal	Ending balance
Equity instruments at fair value through OCI	Accumulated other comprehensive income before income tax	₩ 10,511	₩ (16,696)	₩ (553)	₩ (6,738)
	Income tax effect	(2,543)	3,972	134	1,563
		₩ 7,968	₩ (12,724)	₩ (419)	₩ (5,175)

7. Trade and other receivables

Trade and other receivables as of December 31, 2023 and 2022 consist of the following (Korean won in millions):

		December 31, 2023		
		Gross amount	Provision for impairment	Book value
Current:				
Trade receivables	₩	204,507	₩ (17,050))	₩ 187,457
Non-trade receivables		16,893	(2,230)	14,663
Accrued income		2,165	-	2,165
Short-term loans		1,364	(5)	1,359
Current portion of long-term financial lease payments receivables		1,177	-	1,177
	₩	226,106	₩ (19,285)	₩ 206,821
		December 31, 2023		
		Gross amount	Provision for impairment	Book value
Non-current:				
Long-term loans	₩	10,147	₩ -	₩ 10,147
financial lease payments receivables		7,372	-	7,372
	₩	17,519	₩ -	₩ 17,519
		December 31, 2022		
		Gross amount	Provision for impairment	Book value
Current:				
Trade receivables	₩	172,624	₩ (17,428)	₩ 155,196
Non-trade receivables		24,892	(2,119)	22,773
Accrued income		7,928	-	7,928
Short-term loans		1,445	(5)	1,440
Current portion of long-term financial lease receivables		574	-	574
	₩	207,463	₩ (19,552)	₩ 187,911
		December 31, 2022		
		Gross amount	Provision for impairment	Book value
Non-current:				
Long-term loans	₩	1,178	₩ -	₩ 1,178
Financial lease receivables		4,444	-	4,444
	₩	5,622	₩ -	₩ 5,622

7. Trade and other receivables (cont'd)

Changes in allowance for doubtful accounts for the years ended December 31, 2023 and 2022 are as follows (Korean won in millions):

2023					
	Beginning balance	Provision for impaired receivables (reversal)	Write off	Ending balance	
Trade receivables	₩ 17,428	₩ (56)	₩ (322)	₩	17,050
Non-trade receivables	2,119	111	-		2,230
Short-term loans	5	-	-		5
	₩ 19,552	₩ 55	₩ (322)	₩	19,285

2022					
	Beginning balance	Provision for impaired receivables (reversal)	Write off	Ending balance	
Trade receivables	₩ 18,401	₩ (772)	₩ (201)	₩	17,428
Non-trade receivables	1,705	414	-		2,119
Short-term loans	5	-	-		5
	₩ 20,111	₩ (358)	₩ (201)	₩	19,552

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

8. Inventories

Details of inventories as of December 31, 2023 and 2021 are as follows (Korean won in millions):

	December 31, 2023			December 31, 2022		
	Acquisition cost	Valuation allowance	Book value	Acquisition cost	Valuation allowance	Book value
Merchandise	₩ 50	₩ (11)	₩ 39	₩ 70	₩ (31)	₩ 39
Finished goods	25,914	(6,778)	19,136	27,993	(7,517)	20,476
Work in process	24,107	-	24,107	21,694	-	21,694
Raw materials	61,453	(3,022)	58,431	70,678	(2,432)	68,246
Materials in transit	5,211	-	5,211	1,880	-	1,880
Others	2,159	(67)	2,092	3,033	(60)	2,973
	₩ 118,894	₩ (9,878)	₩ 109,016	₩ 125,348	₩ (10,040)	₩ 115,308

The amount of (reversal of) write-down of inventories recognized for the years ended December 31, 2023 and 2022, respectively, amounts to ₩(-)162 million and ₩3,286 million.

9. Derivatives

Overview of derivative contracts are as follows:

Derivative contracts	Purpose	Description
Currency forward contracts	Cash flow hedge	The Company designated the currency forward contracts as hedging instrument to hedge the cash flow risk arising from changes in foreign currency of forecast sales
Put option others	Held for trading	Changes in fair value are recognized in profit or loss

Details of gain (loss) on valuation of derivatives as of December 31, 2023 and 2022 are as follows (Korean won in millions, foreign currency in thousands):

December 31, 2023							
	Buy		Sell		Assets (liabilities)	Gain (loss)	Accumulated other comprehensive income (*1)
	Currency	Amount	Currency	Amount			
Currency forward contracts	KRW	40,264	USD	30,500	₩ 1,118	₩ -	₩ 1,118
Put-option (*2)					(65,258)	(2,204)	-
others (*3)					(9,572)	(9,572)	-
					₩ (73,712)	₩ (11,776)	₩ 1,118

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

(*2) The subsidiary, HyAxiom, Inc., issued convertible preferred shares to external investors during the current, and the Company has entered into a shareholders' agreement with these external investors and granted them put options.

(*3) This is the fair value valuation gain or loss of over-the-counter derivatives contracts that receive the amount settled according to changes in the fair value of the subordinated shareholding interests issued by Sosius-Well to Sea Investment Co., Ltd.

December 31, 2022							
	Buy		Sell		Assets (liabilities)	Gain (loss)	Accumulated other comprehensive income (*1)
	Currency	Amount	Currency	Amount			
Currency forward contracts	KRW	74,541	USD	55,300	₩ 4,615	₩ -	₩ 4,615

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

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10. Financial instruments by category

Categories of financial instruments as of December 31, 2023 and 2022 are as follows (Korean won in millions):

December 31, 2023						
Financial assets	Financial assets at fair value through profit or loss	Financial assets (designated) at fair value through OCI	Derivatives designated as hedging instruments	Financial assets at amortized cost	Book value	Fair value
Cash and cash equivalents	₩ -	₩ -	₩ -	₩ 232,028	₩ 232,028	₩ 232,028
Short-term and long-term financial instruments	-	-	-	53,845	53,845	53,845
Short-term and long-term investment securities	14,282	11,037	-	-	25,319	25,319
Trade and other receivables	-	-	-	224,340	224,340	224,340
Derivative assets	-	-	1,118	-	1,118	1,118
Deposits	-	-	-	38,135	38,135	38,135
	<u>₩ 14,282</u>	<u>₩ 11,037</u>	<u>₩ 1,118</u>	<u>₩ 548,348</u>	<u>₩ 574,785</u>	<u>₩ 574,785</u>

December 31, 2023						
Financial liabilities	Financial liabilities at fair value through profit or loss	Derivatives designated as hedging instruments	Financial guarantee contract	Financial liabilities at amortized cost	Book value	Fair value
Trade and other payables	₩ -	₩ -	₩ 1,377	₩ 235,081	₩ 236,458	₩ 236,458
Borrowings, bonds and asset-backed loans	-	-	-	1,155,459	1,155,459	1,155,459
Lease liabilities	-	-	-	214,103	214,103	214,103
Derivative liabilities	74,380	-	-	-	74,380	74,380
	<u>₩ 74,380</u>	<u>₩ -</u>	<u>₩ 1,377</u>	<u>₩ 1,604,643</u>	<u>₩ 1,680,850</u>	<u>₩ 1,680,850</u>

10. Financial instruments by category (cont'd)

December 31, 2022						
Financial assets	Financial assets at fair value through profit or loss	Financial assets (designated) at fair value through OCI	Derivatives designated as hedging instruments	Financial assets at amortized cost	Book value	Fair value
Cash and cash equivalents	₩ -	₩ -	₩ -	₩ 381,777	₩ 381,777	₩ 381,777
Short-term and long-term financial instruments	-	-	-	59,902	59,902	59,902
Short-term and long-term investment securities	121,277	12,766	-	-	134,043	134,043
Trade and other receivables	-	-	-	193,533	193,533	193,533
Derivative assets	-	-	4,615	-	4,615	4,615
Deposits	-	-	-	40,455	40,455	40,455
	<u>₩ 121,277</u>	<u>₩ 12,766</u>	<u>₩ 4,615</u>	<u>₩ 675,667</u>	<u>₩ 814,325</u>	<u>₩ 814,325</u>

December 31, 2022						
Financial liabilities	Financial liabilities at fair value through profit or loss	Derivatives designated as hedging instruments	Financial guarantee contract	Financial liabilities at amortized cost	Book value	Fair value
Trade and other payables	₩ -	₩ -	₩ 896	₩ 186,755	₩ 187,651	₩ 187,651
Borrowings, bonds and asset-backed loans	-	-	-	1,121,172	1,121,172	1,121,172
Lease liabilities	-	-	-	238,510	238,510	238,510
	<u>₩ -</u>	<u>₩ -</u>	<u>₩ 896</u>	<u>₩ 1,546,437</u>	<u>₩ 1,547,333</u>	<u>₩ 1,547,333</u>

10. Financial instruments by category (cont'd)

Fair value measurements of financial instruments by fair value hierarchy levels as of December 31, 2023 and 2022 are as follows (Korean won in millions):

		December 31, 2023			
		Level 1	Level 2	Level 3	Total
Financial assets at fair value:					
Financial assets at fair value through profit or loss	₩	-	₩	-	₩ 14,282
Financial assets at fair value through OCI		10,802	-	235	11,037
Derivative assets		-	1,118	-	1,118
		10,802	1,118	14,517	26,437
Financial liabilities at fair value:					
Financial liabilities at fair value through profit or loss		-	-	74,830	74,830
Derivative liabilities designated as hedging instruments		-	-	-	-
		-	-	74,830	74,830
	₩	10,802	₩	(60,313)	₩ (48,393)
		December 31, 2022			
		Level 1	Level 2	Level 3	Total
Financial assets at fair value:					
Financial assets at fair value through profit or loss	₩	-	₩	-	₩ 121,277
Financial assets at fair value through OCI		9,531	-	3,235	12,766
Derivative assets designated as hedging instruments		-	4,615	-	4,615
		9,531	4,615	124,512	138,658
Financial liabilities at fair value:					
Financial liabilities at fair value through profit or loss		-	-	-	-
Derivative liabilities designated as hedging instruments		-	-	-	-
	₩	9,531	₩	124,512	₩ 138,658

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

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

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

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

10. Financial instruments by category (cont'd)

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

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

Comprehensive income (loss) by categories of financial instruments for the years ended December 31, 2023 and 2022 is as follows (Korean won in millions):

		2023												
		Profit or loss												
						Reversal of impairment (Impairment loss))				Other comprehensiv e income (*1)				
		Interest	Dividends	Financial guarantee	Valuation			Disposal	Foreign exchange					
Financial assets:														
Financial assets at amortized cost	₩	12,878	₩	-	₩	-	₩	(55)	₩	-	₩	3,788	₩	-
Financial assets at fair value through profit or loss		-	45	-	(96,334)	-	(34)	-	-	-	-	-	-	
Financial assets at fair value through OCI		-	149	-	-	-	-	-	-	-	(1,729)			
	₩	12,878	₩	194	₩	(96,334)	₩	(55)	₩	(34)	₩	3,788	₩	(1,729)
Financial liabilities:														
Financial liabilities at amortized cost	₩	(75,618)	₩	-	₩	-	₩	-	₩	(59)	₩	(917)	₩	-
Financial guarantee contract		-	-	1,129	-	-	-	-	-	-	-	-	-	
	₩	(75,618)	₩	-	₩	1,129	₩	-	₩	(59)	₩	(917)	₩	

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

10. Financial instruments by category (cont'd)

	2022									
	Profit or loss								Other comprehensive income (*1)	
	Interest	Dividends	Financial guarantee	Valuation	Reversal of impairment (Impairment loss)	Disposal	Foreign exchange			
Financial assets:										
Financial assets at amortized cost	₩ 15,059	₩ -	₩ -	₩ -	₩ 358	₩ -	₩ 11,263	₩ -		-
Financial assets at fair value through profit or loss	-	-	-	(53,373)	19	216	-	-		-
Financial assets at fair value through OCI	-	136	-	-	-	(10)	-	-		(16,696)
	<u>₩ 15,059</u>	<u>₩ 136</u>	<u>₩ -</u>	<u>₩ (53,373)</u>	<u>₩ 377</u>	<u>₩ 206</u>	<u>₩ 11,263</u>	<u>₩ (16,696)</u>		
Financial liabilities:										
Financial liabilities at amortized cost	₩ (79,593)	₩ -	₩ -	₩ -	₩ -	₩ (1,185)	₩ (7,674)	₩ -		-
Financial guarantee contract	-	-	2,541	-	-	-	-	-		-
	<u>₩ (79,593)</u>	<u>₩ -</u>	<u>₩ 2,541</u>	<u>₩ -</u>	<u>₩ -</u>	<u>₩ (1,185)</u>	<u>₩ (7,674)</u>	<u>₩ -</u>		

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

Apart from the above financial instruments, comprehensive income (loss) by derivatives for the years ended December 31, 2023 and 2022 is as follows (Korean won in millions):

	2023			2022		
	Profit or loss		Other comprehensive loss (*1)	Profit or loss		Other comprehensive loss (*1)
	Valuation	Disposal		Valuation	Disposal	
Derivatives held for trading	₩ (11,776)	₩ -	₩ -	₩ -	₩ 21,146	₩ -
Derivatives designated as cash flow hedges	-	1,179	(3,497)	-	(16,705)	5,726
	<u>₩ (11,776)</u>	<u>₩ 1,179</u>	<u>₩ (3,497)</u>	<u>₩ -</u>	<u>₩ 4,441</u>	<u>₩ 5,726</u>

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

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11. Investments in subsidiaries, joint ventures and associates

Details of investments in subsidiaries, joint ventures and associates as of December 31, 2023 and 2022 are as follows (Korean won in millions):

	Location	Ownership interests (%)	December 31, 2023	December 31, 2022
Subsidiaries:				
Doosan Enerbility Co., Ltd (*1, 2)	Korea	30.40	₩ 2,536,311	₩ 2,536,311
Oricom, Inc.	Korea	62.83	23,168	23,168
Doosan Bears, Inc.	Korea	100	15,559	15,559
Doosan Digital Innovation America, LLC.	USA	100	4,889	4,889
Doosan Information & Communications Beijing Co., Ltd.	China	100	3,230	3,230
Doosan Digital Innovation Europe Limited	UK	100	4,870	4,870
Doosan Business Research Institute Co., Ltd.	Korea	100	8,000	8,000
Doosan Logistics Solution Co., Ltd.	Korea	100	49,400	49,400
Doosan Portfolio Holdings Co., Ltd. (formerly, Doosan Investment Co., Ltd.) (*3)	Korea	100	280,575	280,575
Doosan Investment Co., Ltd. (*4)	Korea	100	10,000	-
Doosan Shanghai Chemical Materials Co., Ltd.	China	100	-	-
Doosan Electro-Materials Singapore Pte. Ltd.	Singapore	100	-	-
Doosan (Hong Kong) Ltd.	China	100	-	-
Doosan Electro-Materials (Changshu) Co., Ltd.	China	100	45,964	45,964
Doosan Electro-Materials America, LLC	USA	100	8,837	8,837
Doosan Electro-Materials Vietnam Company Limited	Vietnam	100	12,300	12,300
HyAxiom, Inc. (*5)	USA	100	255,460	192,405
Doosan Energy Solutions America, Inc	USA	100	44,442	44,442
Doosan Robotics, Inc. (*6)	Korea	68.19	91,850	86,000
Doosan Mobility Innovation, Inc. (*7)	Korea	100	72,300	72,300
D-Pay 3rd Co., Ltd. (*8)	Korea	-	-	-
Doosan Second Real Estate Securitization Specialty Ltd. (*8)	Korea	-	-	-
			<u>3,467,155</u>	<u>3,388,250</u>
Associates:				
KDDI KOREA Corporation (*9)	Korea	10.76	-	-
PT. SEGARA AKASA	Indonesia	30.02	71	71
Master Professional Investment Type Private Security Investment Trust No.98 (*10,11)	Korea	7.27	15,022	70,000
Versogen, Inc. (*9)	USA	3.52	2,487	2,487
TCC House, Inc. (*12)	Korea	14.29	-	-
SemiFive Inc. (*9, 13)	Korea	4.75	<u>20,359</u>	<u>-</u>
			<u>37,939</u>	<u>22,558</u>
Joint venture:				
Sichuan Kelun-Doosan Biotechnology Company Limited	China	50.00	<u>2,526</u>	<u>2,526</u>
			<u>₩ 3,507,620</u>	<u>₩ 3,413,334</u>

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

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

(*2) Some shares of investments in subsidiaries are provided as collateral to New Star Eneo Ville The 1st Co., Ltd. and others (See Note 32).

(*3) Doosan Investment Co., Ltd., which was established on March 8, 2022, has changed its corporate name to Doosan Portfolio Holdings Co., Ltd. during the year ended December 31, 2023.

(*4) The Company newly established Doosan Investment Co., Ltd. by investing ₩100 million during the year ended December 31, 2023.

(*5) During the year ended December 31, 2023, the subsidiary issued convertible preferred shares to external investors, and the Company has entered into a shareholders' agreement with the external investor, granting a put option on the shares. (see Note 9). Considering the convertible preferred shares, the Company's equity interest as of December 31, 2023 is 86.21%, and the voting rights are 90.82%.

(*6) For the year ended December 31, 2023, the Company's equity interest has changed due to a paid-in capital increase for the subsidiary's listing on the securities market.

(*7) The Company's voting rights are 86.12% considering the convertible redeemable preferred shares with voting rights issued by the subsidiary.

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

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

(*10) The combined equity interests of the subsidiary, Doosan Portfolio Holdings Co., Ltd. (formerly, Doosan Investment Co., Ltd), is 25.45%.

(*11) During the year ended December 31, 2023, impairment losses on the associate have been recognized.

(*12) The Company acquired redeemable convertible preferred shares in TTC House, Inc. during the year ended December 31, 2022, and convertible preferred shares in SiO2 Medical Products, Inc. during the year ended December 31, 2021. Although the Company has significant influence on the Board of Directors of the investees, shares acquired are classified as financial assets measured at fair value through profit or loss in accordance with KIFRS 1109, as the existing ownership, in substance, does not currently give it access to returns associated with ownership interests (See Note 6).

(*13) The Company newly acquired the shares during the year ended December 31, 2023. Meanwhile, the combined ownership interests with the subsidiary, Doosan Tesna Co., Ltd, is 7.12%.

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

Announced market prices of investments in subsidiaries, joint ventures and associates as of December 31, 2023 and 2022 are as follows (Korean won in millions):

	December 31, 2023		December 31, 2022	
	Book value	Fair value	Book value	Fair value
Subsidiaries:				
Doosan Enerbility Co., Ltd.	₩ 2,536,311	₩ 3,095,582	₩ 2,536,311	₩ 2,998,237
Oricom, Inc.	23,168	77,213	23,168	112,284
Doosan Robotics Co., Ltd.	91,850	5,131,620	-	-

The Company determines whether impairment loss is recognized in respect of subsidiaries, joint ventures and associates in accordance with KIFRS 1036 *Impairment of Assets*. The Company determined whether there is any indication of impairment of investment securities as of December 31, 2023. As a result, the Company performed an impairment test by comparing the carrying amount of the investment in Doosan Enerbility Co., Ltd., a subsidiary, with the recoverable amount (the greater of the fair value less costs and value in use).

The carrying amount of investments in Doosan Enerbility Co., Ltd. before impairment test was ₩2,536,311 million as of December 31, 2023.

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

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

A reasonably possible change in a key assumption would cause the change of recoverable amount.

12. Property, plant and equipment

Changes in property, plant and equipment for the years ended December 31, 2023 and 2022 are as follows (Korean won in millions):

	2023					
	Land	Buildings and Structures	Machinery	Others	Construction in progress	Total
January 1	₩ 33,614	₩ 116,277	₩ 40,102	₩ 23,677	₩ 40,741	₩ 254,411
Acquisition/capital expenditure	246	2,210	1,257	6,987	52,099	62,799
Acquisition of government grants	(989)	-	(605)	-	-	(1,594)
Transfers	11,494	5,292	28,642	1,862	(52,108)	(4,818)
Disposal	-	(57)	(362)	(426)	(3,759)	(4,604)
Depreciation	-	(15,688)	(9,149)	(9,056)	-	(33,893)
Asset revaluation	1,228	-	-	-	-	1,228
Reversal of Impairment (loss)	-	(56)	(2,897)	(25)	-	(2,978)
December 31	₩ 45,593	₩ 107,978	₩ 56,988	₩ 23,019	₩ 36,973	₩ 270,551
Acquisition cost	₩ 33,838	₩ 191,874	₩ 249,739	₩ 118,899	₩ 38,022	₩ 632,372
Accumulated depreciation (accumulated impairment losses are included)	-	(83,896)	(191,996)	(95,854)	(1,049)	(372,795)
Government grants	(989)	-	(755)	(26)	-	(1,770)
Accumulated revaluation surplus	12,744	-	-	-	-	12,744

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

	2022					
	Land	Buildings and Structures	Machinery	Others	Construction in progress	Total
January 1	₩ 40,201	₩ 125,643	₩ 41,358	₩ 21,343	₩ 23,841	₩ 252,386
Acquisition/capital expenditure	24	779	2,264	11,489	48,224	62,780
Acquisition of government grants	-	-	(223)	(25)	-	(248)
Transfers (*1)	(4,851)	5,727	7,287	1,626	(23,200)	(13,411)
Disposal	-	(79)	(436)	(1,322)	(5,286)	(7,123)
Depreciation	-	(15,269)	(8,944)	(8,870)	-	(33,083)
Reversal of Impairment (loss)	(1,760)	(524)	(1,204)	(564)	(2,838)	(6,890)
December 31	₩ 33,614	₩ 116,277	₩ 40,102	₩ 23,677	₩ 40,741	₩ 254,411
Acquisition cost	₩ 22,049	₩ 185,729	₩ 225,781	₩ 130,811	₩ 41,789	₩ 606,159
Accumulated depreciation (accumulated impairment losses are included)	-	(69,452)	(185,479)	(107,100)	(1,048)	(363,079)
Government grants	-	-	(200)	(34)	-	(234)
Accumulated revaluation surplus	11,565	-	-	-	-	11,565

(*1) Transfers include some portions of land, buildings and construction-in-progress reclassified to investment properties during the year ended December 31, 2022.

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

Changes in right-of-use assets classified as property, plant and equipment for the years ended December 31, 2023 and 2022 are as follows (Korean won in millions):

	2023				
	Land	Buildings and Structures	Machinery	Others	Total
January 1	₩ -	₩ 74,665	₩ 589	₩ 5,262	₩ 80,516
Acquisition/capital expenditure	-	2,210	-	1,004	3,214
Transfers	-	(2,642)	(589)	(2,690)	(5,921)
Disposal (*1)	-	-	-	(219)	(219)
Depreciation	-	(12,442)	-	(1,004)	(13,446)
December 31	₩ -	₩ 61,791	₩ -	₩ 2,353	₩ 64,144
Acquisition cost	₩ -	₩ 99,154	₩ -	₩ 5,590	₩ 104,744
Accumulated depreciation	-	(37,363)	-	(3,237)	(40,600)

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

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

	2022				
	Land	Buildings and Structures	Machinery	Others	Total
January 1	₩ -	₩ 86,441	₩ 830	₩ 4,960	₩ 92,231
Acquisition/capital expenditure	-	768	173	3,364	4,305
Disposal (*1)	-	(79)	-	(211)	(290)
Depreciation	-	(12,465)	(414)	(2,851)	(15,730)
December 31	₩ -	₩ 74,665	₩ 589	₩ 5,262	₩ 80,516
Acquisition cost	₩ -	₩ 100,498	₩ 4,989	₩ 30,742	₩ 136,229
Accumulated depreciation	-	(25,833)	(4,400)	(25,480)	(55,713)

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

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

The Company recognizes subsequent measurement of the land as revaluation, and the revaluation amount is the fair value of the revaluation date. The fair value of land assets was determined from the appraisal that was undertaken by independently qualified valuers, the First Appraisal & Consulting Co., Ltd ("FACC") and Mirae & Saehan Appraisal Co., Ltd., on October 31, 2023.

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

Other comprehensive income recognized in the statement of comprehensive income related to revaluation model, which the Company applies to measurement of the land is ₩1,219 million as of December 31, 2023. The pre-tax revaluation gain or loss recognized as current income is ₩9,000,000.

In addition, if the land were stated at cost, the land would amount to ₩33,838 million and ₩22,049 million as of December 31, 2023 and 2022, respectively.

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

Fair value measurements of land assets by fair value hierarchy level as of December 31, 2023 and 2022 are as follows (Korean won in millions):

	December 31, 2023			December 31, 2022		
	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3
Land	₩ -	₩ -	₩ 45,593	₩ -	₩ -	₩ 33,614

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

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

Classification of depreciation for the years ended December 31, 2023 and 2022 is as follows (Korean won in millions):

	2023	2022
Cost of sales	₩ 26,436	₩ 25,240
Selling and administrative expenses	7,457	7,843
	<u>₩ 33,893</u>	<u>₩ 33,083</u>

Classification of depreciation for the years ended December 31, 2023 and 2022 incurred in right-of-use assets classified as property, plant and equipment is as follows (Korean won in millions):

	2023	2022
Cost of sales	₩ 8,812	₩ 10,728
Selling and administrative expenses	4,634	5,002
	<u>₩ 13,446</u>	<u>₩ 15,730</u>

13. Intangible assets

Changes in intangible assets for the years ended December 31, 2023 and 2022 are as follows (Korean won in millions):

	2023				
	Goodwill	Industrial rights	Development costs	Other intangible assets	Total
January 1	₩ 8,073	₩ 714	₩ 36,406	₩ 17,410	₩ 62,603
Acquisition/capital expenditure	-	863	9,803	574	11,240
Acquisition of government grants	-	-	(622)	-	(622)
Transfers	-	-	254	2,134	2,388
Disposal	-	(22)	-	(70)	(92)
Amortization	-	(169)	(4,190)	(2,363)	(6,722)
Reversal of impairment(loss)	-	-	-	(138)	(138)
December 31	₩ 8,073	₩ 1,386	₩ 41,651	₩ 17,547	₩ 68,657
Acquisition costs	₩ 8,073	₩ 5,701	₩ 98,002	₩ 66,917	₩ 178,693
Accumulated amortization (accumulated impairment losses are included)	-	(4,315)	(53,482)	(49,359)	(107,156)
Government grants	-	-	(2,869)	(11)	(2,880)

	2022				
	Goodwill	Industrial rights	Development costs	Other intangible assets	Total
January 1	₩ 8,073	₩ 837	₩ 27,645	₩ 16,479	₩ 53,034
Acquisition/capital expenditure	-	175	11,588	3,076	14,839
Acquisition of government grants	-	-	(556)	(12)	(568)
Transfers	-	-	1,122	557	1,679
Disposal	-	(26)	-	(337)	(363)
Amortization	-	(272)	(3,393)	(2,314)	(5,979)
Reversal of impairment(loss)	-	-	-	(39)	(39)
December 31	₩ 8,073	₩ 714	₩ 36,406	₩ 17,410	₩ 62,603
Acquisition costs	₩ 8,073	₩ 5,049	₩ 87,944	₩ 64,514	₩ 165,580
Accumulated amortization (accumulated impairment losses are included)	-	(4,335)	(48,366)	(47,089)	(99,790)
Government grants	-	-	(3,172)	(15)	(3,187)

The carrying amount of membership with indefinite useful lives in other intangible assets is ₩10,865 million and ₩10,935 million as of December 31, 2023 and 2022, respectively.

Meanwhile, expenditure on research and development, which was recognized as expenses, amounted to ₩16,828 million and ₩17,321 million for the years ended December 31, 2023 and 2022, respectively.

13. Intangible assets (cont'd)

Before impairment test, the carrying amount of goodwill was allocated to CGUs as of December 31, 2023 and 2022 are as follows (Korean won in millions):

CGUs	December 31, 2023	December 31, 2022	Description
Digital Innovation BU	₩ 2,015	₩ 2,015	Operation and development of software
Fuel Cell BU	6,058	6,058	Manufacturing and sale of fuel cell
	<u>₩ 8,073</u>	<u>₩ 8,073</u>	

The recoverable amount of CGU is determined based on value in use. The discount rate and the permanent growth rate used in calculating value in use as of December 31, 2023 are as follows:

	Digital Innovation BU	Fuel Cell BG
Discount rate	11.09%	14.75%
Permanent growth rate	0.00%	1.00%

Estimates for value in use calculation are as follows.

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

The result of recoverable amount of the Company calculated based on value in use calculation was not to cause the aggregate carrying amount to exceed the aggregate recoverable amount of the CGUs. Therefore, no impairment loss is recognized based on the impairment test for the year ended December 31, 2023.

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

Classification of amortization for the years ended December 31, 2023 and 2022 is as follows (Korean won in millions):

	2023	2022
Cost of sales	₩ 1,478	₩ 1,397
Selling and administrative expenses	5,244	4,582
	<u>₩ 6,722</u>	<u>₩ 5,979</u>

14. Investment properties

Changes in investment properties for the years ended December 31, 2023 and 2022 are as follows (Korean won in millions):

2023				
	Land	Buildings	Construction in Progress	Total
January 1	₩ 188,763	₩ 109,775	₩ 7,824	₩ 306,362
Acquisition	(22)	(22)	-	(44)
Transfers	-	2,642	-	2,642
Valuation (*1)	9,601	(8,892)	(7,824)	(7,115)
December 31	₩ 198,342	₩ 103,503	₩ -	₩ 301,845

2022				
	Land	Buildings	Construction in Progress	Total
January 1	₩ 178,614	₩ 120,241	₩ -	₩ 298,855
Acquisition	-	-	-	-
Transfers	4,851	-	7,824	12,675
Valuation (*1)	5,298	(10,466)	-	(5,168)
December 31	₩ 188,763	₩ 109,775	₩ 7,824	₩ 306,362

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

Some of the above investment properties, superficies and leasehold interest are established by the tenant on the land. (See Note 31).

In addition, lease income related to investment properties amounted to ₩20,852 million and ₩16,788 million for the years ended December 31, 2023 and 2022, respectively.

Changes in right-of-use assets classified as Investment properties for the years ended December 31, 2023 and 2022 are as follows (Korean won in millions):

	2023	2022
January 1	₩ 108,414	₩ 118,761
Transfers	2,642	-
Valuation (*1)	(8,716)	(10,347)
December 31	₩ 102,340	₩ 108,414

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

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

The Company recognizes subsequent measurement of investment properties using fair value. The fair value of investment properties was determined from the appraisal that was undertaken by independently qualified valuers, the First Appraisal & Consulting Co., Ltd. ("FACC") and Mirae & Saehan Appraisal Co., Ltd., on November 30, 2023.

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

14. Investment properties (cont'd)

Fair value measurements of investment properties by fair value hierarchy level as of December 31, 2023 and 2022 are as follows (Korean won in millions):

	December 31, 2023			December 31, 2022		
	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3
Land	₩ -	₩ -	₩ 198,342	₩ -	₩ -	₩ 188,763
Buildings	-	-	103,503	-	-	109,775
Construction in Progress	-	-	-	-	-	7,824
	₩ -	₩ -	₩ 301,845	₩ -	₩ -	₩ 306,362

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

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

15. Bonds and borrowings

15.1 Bonds

Bonds as of December 31, 2023 and 2022 are as follows (Korean won in millions):

	Annual interest rate (%) (*1)	December 31, 2023	December 31, 2022
The 304	-	₩ -	₩ 35,000
The 305	-	-	80,000
The 306-1	-	-	74,000
The 306-2	3.80	33,000	33,000
The 307-1	3.92	70,000	70,000
The 307-2	4.34	40,000	40,000
The 308	6.12	50,000	-
The 309	5.74	43,000	-
		236,000	332,000
Less: discount on bonds payable		(323)	(529)
		235,677	331,471
Less: reclassification of current portion of long-term bonds		(102,964)	(153,836)
Principal amount of bonds		103,000	154,000
Discount on bonds payable		(36)	(164)
		₩ 132,713	₩ 177,635

(*1) Nominal interest rate

15.2 Short-term borrowings

Short-term borrowings as of December 31, 2023 and 2022 are as follows (Korean won in millions):

	Creditor	Annual interest rate (%)	December 31, 2023	December 31, 2022
General borrowings	Shinhan Bank and others	5.26 ~ 6.13	₩ 228,000	₩ 175,000

15.3 Long-term borrowings

Long-term borrowings as of December 31, 2023 and 2022 are as follows (Korean won in millions):

	Annual interest rate (%)	December 31, 2023	December 31, 2022
Borrowings in Korean won:			
New Star Eneo Ville The 1st Co., Ltd. and others	4.65 ~ 6.49	₩ 585,000	₩ 420,000
Less: present value discounts		(1,182)	(1,699)
		583,818	418,301
Less: reclassification of current portion of long-term borrowings		(451,381)	-
- Principal		451,875	-
- Discount on present value		(494)	-
		₩ 132,437	₩ 418,301

15.4 Asset-backed loans

The Company has transferred some of its future trade receivables to the securitization companies to carry out the asset-backed securitizations (ABS). Details of the long-term asset-backed loans as of December 31, 2023 and 2022 are as follows (Korean won in millions):

	Annual interest rate (%)	December 31, 2023	December 31, 2022
Asset-backed loan:			
D-Pay 3rd Co., Ltd.	4.50 ~ 6.88	₩ 108,350	₩ 197,000
		108,350	197,000
Less: present value discounts		(386)	(600)
		107,964	196,400
Less: reclassification of current portion of long-term asset-backed loan		(86,371)	(88,380)
- Principal		86,680	88,650
- Discount on present value		(309)	(270)
		₩ 21,593	₩ 108,020

With respect to the above asset-backed loan, the carrying amount of the trade receivables and others recognized in the financial statement as of December 31, 2023 and 2022 is ₩40,972 million and ₩29,770 million, respectively, which did not meet the derecognition criteria (See Note 31).

16. Lease

16.1 Right-of-use assets

Changes in right-of-use assets classified as property, plant and equipment and investment properties for the years ended December 31, 2023 and 2022 are described in Notes 12 and 14. The composition of depreciation expenses by accounts arising from right-of-use assets classified as property, plant and equipment for the years ended December 31, 2023 and 2022 is described in Note 12.

16.2 Lease liabilities

Changes in lease liabilities for the years ended December 31, 2023 and 2022 are as follows (Korean won in millions):

	2023		2022	
January 1	₩	238,510	₩	262,132
increase		4,864		4,305
Payment of lease fees		(42,032)		(41,912)
Interest expense		12,996		14,280
Contract cancellation		(235)		(295)
December 31	₩	214,103	₩	238,510

The changes in the above lease liabilities include the changes in the liabilities after the sale and leaseback.

The maturity analysis of lease liabilities as of December 31, 2023 and 2022 are as follows (Korean won in millions):

December 31, 2023					
Nominal cash flows according to contract					
	Total	Less than 1 year	1–2 years	2–5 years	More than 5 years
Lease liabilities	₩ 257,667	₩ 39,886	₩ 39,145	₩ 111,865	₩ 66,771

December 31, 2022					
Nominal cash flows according to contract					
	Total	Less than 1 year	1–2 years	2–5 years	More than 5 years
Lease liabilities	₩ 294,627	₩ 40,765	₩ 38,416	₩ 111,249	₩ 104,197

Classification of expenses for the years ended December 31, 2023 and 2022 incurred in short-term lease and leases of low-value assets that are not included in right-of-use assets are as follows (Korean won in millions):

	2023		2022	
Cost of sales	₩	320	₩	364
Selling and administrative expenses		708		531
	₩	1,028	₩	895

Cash outflows from financing activities due to the repayment of lease liabilities are ₩42,032 million and ₩41,912 million for the years ended December 31, 2023 and 2022, respectively. Cash outflows from operating activities due to short-term and leases of low value fees are ₩1,028 million and ₩895 million for the years ended December 31, 2023 and 2022, respectively. Therefore, the total cash outflow of the lease is ₩43,060 million and ₩42,806 million for the years ended December 31, 2023 and 2022, respectively.

16.3 Financial lease payments receivable

The maturity analysis of lease payments receivable as of December 31, 2023 and 2022 are as follow (Korean won in millions):

		December 31, 2023				
		Nominal cash flows according to contract				
	Total	Less than 1 year	1–2 years	2–5 years	More than 5 years	
Financial lease payments receivable	₩ 9,968	₩ 1,557	₩ 1,557	₩ 4,672	₩ 2,182	

		December 31, 2022				
		Nominal cash flows according to contract				
	Total	Less than 1 year	1–2 years	2–5 years	More than 5 years	
Financial lease payments receivable	₩ 5,991	₩ 799	₩ 799	₩ 2,396	₩ 1,997	

17. Net defined benefit liabilities

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

Details of net defined benefit liabilities as of December 31, 2023 and 2022 are as follows (Korean won in millions):

	December 31, 2023	December 31, 2022
Present value of defined benefit liabilities	₩ 176,811	₩ 162,254
Fair value of plan assets	(151,466)	(152,951)
Net defined benefit liabilities	₩ 25,345	₩ 9,303

Retirement benefits generated by defined benefits retirement pension recognized in the separate statement of profit or loss for the years ended December 31, 2023 and 2022 are as follows (Korean won in millions):

	2023	2022
Current service cost	₩ 15,860	₩ 16,338
Past service cost	-	(660)
Net interest cost	705	955
	₩ 16,565	₩ 16,633

Classification of the retirement benefits generated by defined benefits retirement pension recognized in the statements of profit or loss for the years ended December 31 2023 and 2022 is as follows (Korean won in millions):

	2023	2022
Cost of sales	₩ 7,069	₩ 8,391
Selling and administrative expenses	9,285	8,090
Others	211	152
	₩ 16,565	₩ 16,633

17. Net defined benefit liabilities (cont'd)

Changes in net defined benefit liabilities for the years ended December 31, 2023 and 2022 are as follows (Korean won in millions):

	2023		
	Defined benefit obligations	Plan assets	Net defined benefit liabilities
Beginning balance	₩ 162,254	₩ (152,951)	₩ 9,303
Profit or loss:			
Current service cost	15,860	-	15,860
Past service cost	-	-	-
Interest cost (income)	8,427	(7,722)	705
	24,287	(7,722)	16,565
Remeasurements:			
Interest income on plan assets excluding interest recognized in profit or loss	-	1,049	1,049
Actuarial loss from change in demographic assumptions	176	-	176
Actuarial gain from change in financial assumptions	8,371	-	8,371
Actuarial loss from empirical adjustment	1,463	-	1,463
	10,010	1,049	11,059
Transfer in	1,996	(1,535)	461
Transfer out	(4,714)	3,707	(1,007)
Contributions by employer directly to plan assets	-	(7,540)	(7,540)
Benefit payments	(17,022)	13,526	(3,496)
Ending balance	₩ 176,811	₩ (151,466)	₩ 25,345

	2022		
	Defined benefit obligations	Plan assets	Net defined benefit liabilities
Beginning balance	₩ 165,807	₩ (137,305)	₩ 28,502
Profit or loss:			
Current service cost	16,338	-	16,338
Past service cost	(660)	-	(660)
Interest cost (income)	4,506	(3,551)	955
	20,184	(3,551)	16,633
Remeasurements:			
Interest income on plan assets excluding interest recognized in profit or loss	-	1,348	1,348
Actuarial loss from change in demographic assumptions	7	-	7
Actuarial gain from change in financial assumptions	(23,472)	-	(23,472)
Actuarial loss from empirical adjustment	17,004	-	17,004
	(6,461)	1,348	(5,113)
Transfer in	3,653	(1,694)	1,959
Transfer out	(4,338)	1,390	(2,948)
Contributions by employer directly to plan assets	-	(26,900)	(26,900)
Benefit payments	(16,591)	13,761	(2,830)
Ending balance	₩ 162,254	₩ (152,951)	₩ 9,303

17. Net defined benefit liabilities (cont'd)

Assumptions used for actuarial valuation as of December 31, 2023 and 2022 are as follows:

	December 31, 2023	December 31, 2022
Discount rate (%)	4.12	5.32
Salary growth rate (%):		
Employee	3.8 ~ 5.0	4.0 ~ 5.2
Executive	2.0	1.5

Plan assets as of December 31, 2023 and 2022 are invested in principal-guaranteed fixed-income products.

The sensitivity analysis for the significant actuarial assumptions as of December 31, 2023 and 2022 is as follows (Korean won in millions):

	Impact on defined benefit obligation			
	December 31, 2023		December 31, 2022	
	Amount	Ratio	Amount	Ratio
Discount rate:				
1% increase	₩ (9,214)	(-) 5.21%	₩ (9,264)	(-) 5.71%
1% decrease	10,338	5.85%	10,461	6.45%
Salary growth rate:				
1% increase	10,335	5.85%	10,418	6.42%
1% decrease	(9,382)	(-) 5.31%	(9,399)	(-) 5.79%

The weighted average maturity of the defined benefit obligations as of December 31, 2023 and 2022 is 5.8 years and 6.4 years, respectively. The Company expects to contribute ₩23,149 million for defined benefit plans in 2023.

Regarding the defined contribution retirement benefit plan, the Company paid ₩1,121 million during the current year.

18. Provisions

Changes in provisions for the years ended December 31, 2023 and 2022 are as follows (Korean won in millions):

	2023			
	Provision for product warranties	Provision for restoration	Other provisions	Total
January 1	₩ 4,147	₩ 1,315	₩ 5,346	₩ 10,808
Increase(decrease)	(526)	20	-	(506)
Utilized	(658)	-	(5,346)	(6,004)
Reclassification	-	-	-	-
December 31	₩ 2,963	₩ 1,335	₩ -	₩ 4,298
Current	₩ 1,458	₩ -	₩ -	₩ 1,458
Non-current	1,505	1,335	-	2,840

	2022			
	Provision for product warranties	Provision for restoration	Other provisions	Total
January 1	₩ 4,366	₩ 1,296	₩ 5,744	₩ 11,406
Increase(decrease)	899	19	(1,289)	(371)
Utilized	(1,118)	-	-	(1,118)
Reclassification	-	-	891	891
December 31	₩ 4,147	₩ 1,315	₩ 5,346	₩ 10,808
Current	₩ 1,950	₩ -	₩ -	₩ 1,950
Non-current	2,197	1,315	5,346	8,858

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

19. Share capital and share premium

Changes in share capital and share premium for the years ended December 31, 2023 and 2022 are as follows (Korean won in millions, except for share data):

	Number of shares		Share capital			Share premium
	Ordinary shares	Preferred shares	Ordinary shares	Preferred shares	Total	
Balance as of January 1, 2022	16,523,835	4,889,500	₩ 99,291	₩ 24,447	₩ 123,738	₩ 322,462
Balance as of December 31, 2022	16,523,835	4,889,500	₩ 99,291	₩ 24,447	₩ 123,738	₩ 322,462
Balance as of January 1, 2023	16,523,835	4,889,500	₩ 99,291	₩ 24,447	₩ 123,738	₩ 322,462
Balance as of December 31, 2023	16,523,835	4,889,500	₩ 99,291	₩ 24,447	₩ 123,738	₩ 322,462

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

The number of shares with the voting rights under limitation pursuant to *Commercial Code* of the Republic of Korea is 3,000,866 shares and 3,000,866 shares as of December 31, 2023 and 2022, respectively. The number of shares with the voting rights under limitation pursuant to *Monopoly Regulation and Fair Trade Act* is 510,231 shares and 510,231 shares as of December 31, 2023 and 2022, respectively. In addition, although the preferred shares in the Company do not contain voting right, if there is a resolution at the shareholders' meeting that the Company does not pay a certain dividend to the preferred shareholders, the preferred shares are deemed to have voting rights from the subsequent shareholders' meeting until the end of the shareholders' meeting where shareholders resolute to pay dividends to such preferred shareholders.

20. Capital surplus

Details of capital surplus as of December 31, 2023 and 2022 are as follows (Korean won in millions):

	December 31, 2023	December 31, 2022
Share premium	₩ 322,462	₩ 322,462
Revaluation reserves	277,542	277,542
Other capital surplus	194,288	194,032
	<u>₩ 794,292</u>	<u>₩ 794,036</u>

21. Other equity items

21.1 Other equity items

Other equity items as of December 31, 2023 and 2022 are as follows (Korean won in millions):

	December 31, 2023	December 31, 2022
Treasury stocks	₩ (185,025)	₩ (185,025)
Loss on disposal of treasury stocks	(16,738)	(16,738)
Stock options	9,201	3,527
Loss from capital reduction	(948,311)	(948,311)
	<u>₩ (1,140,873)</u>	<u>₩ (1,146,547)</u>

21.2 Treasury stocks

The Company acquired registered ordinary shares and non-voting preferred shares and recognized them as other capital item for the stabilization of share price. Changes in treasury stocks for the years ended December 31, 2023 and 2022 are as follows (Korean won in millions, except for share data):

	Number of treasury stocks			Book value of treasury stocks		
	Ordinary shares	Preferred shares	Total	Ordinary shares	Preferred shares	Total
Balance as of January 1, 2022	3,000,866	612,104	3,612,970	₩ 171,231	₩ 13,794	₩ 185,025
Balance as of December 31, 2022	3,000,866	612,104	3,612,970	₩ 171,231	₩ 13,794	₩ 185,025
Balance as of January 1, 2023	3,000,866	612,104	3,612,970	₩ 171,231	₩ 13,794	₩ 185,025
Balance as of December 31, 2023	<u>3,000,866</u>	<u>612,104</u>	<u>3,612,970</u>	<u>₩ 171,231</u>	<u>₩ 13,794</u>	<u>₩ 185,025</u>

21.3 Share-based payment

21.3.1 Stock option

The Company granted stock options to its directors several times in the past. Stock options are settled based on the Board of Directors' decision by issuance of new shares, treasury stocks or cash settlement. Vesting condition offers two-year service after the resolution at the shareholders' meeting. The number of granted options as of December 31, 2023 is as follows (Korean won, except for share data):

	Date of grant	Number of granted options	Exercisable period	Exercisable price	Expected fair value at the date of grant
16th	2014.3.28	5, 252	2017.3.28 - 2024.3.27	₩ 134,300	₩ 39,558

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

	Risk-free interest rate	Expected exercisable period	Expected volatility	Expected dividend yield ratio
16th	2.88%	3.60	40.90%	48.00%

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

Changes in stock options for the years ended December 31, 2023 and 2022 are as follows (Korean won in millions, except for share data):

		2023					
	Number of ordinary shares to be issued			Valuation amount			
	Beginning	Forfeited	Ending	Beginning	Forfeited	Ending	
15th	5,252	(5,252)	-	₩ 228	₩ (228)	₩ -	-
16th	5,976	(724)	5,252	236	(28)	208	
	11,228	(5,976)	5,252	₩ 464	₩ (256)	₩ 208	

		2022					
	Number of ordinary shares to be issued			Valuation amount			
	Beginning	Forfeited	Ending	Beginning	Forfeited	Ending	
14th	2,987	(2,987)	-	₩ 190	₩ (190)	₩ -	-
15th	9,600	(4,348)	5,252	416	(188)	228	
16th	11,049	(5,073)	5,976	437	(201)	236	
	23,636	(12,408)	11,228	₩ 1,043	₩ (579)	₩ 464	

The weighted average of remaining contractual life (from December 31, 2023 to maturity) of stock options is 0.2 years.

21.3.2 Restricted Stock unit

During the years ended December 31, 2023 and 2022, the Company granted the Company's executives the Restricted Stock Unit (hereinafter referred to as "RSU") by the resolution of the Board of Directors, and the details are as follows.

	2023	2022
Shares	Doosan Corporation ordinary shares	Doosan Corporation ordinary shares
Total number of granted shares	93,249	83,912
Grant date	2023-03-02	2022-03-08
Fair value on the grant date	₩99,700	₩114,000
Exercise price	₩0	₩0
Vesting conditions	if they have served for three years or more (in case of those retiring after providing two years of service or more, shares are granted in proportion to the number of days of the retiree's tenure for three years on the stock grant date).	

The changes in RSU granted as of December 31, 2023 and 2022 are as follows. (Unit: Number of shares)

	2023	2022
January 1	82,949	-
Granted	93,249	83,912
Cancellation	(2,501)	(963)
January 1	173,697	82,949

The share-based compensation expenses recognized in the consolidated statement of comprehensive income in accordance with the RSU contract of the Company for the years ended December 31, 2023 and 2022 are as follows (Korean won in millions):

	2023	2022
RSU(equity-settled)	₩ 5,930	₩ 3,063

22. Accumulated other comprehensive income

Accumulated other comprehensive income(hereinafter referred to as "AOCI") as of December 31, 2023 and 2022 are as follows (Korean won in millions):

	December 31, 2023	December 31, 2022
Gain(loss) on valuation of derivatives designated as hedges	₩ 858	₩ 3,544
Gain(loss) on valuation of financial assets at fair value through other comprehensive income	(6,511)	(5,175)
Land revaluation surplus	26,414	25,443
	₩ 20,761	₩ 23,812

23. Retained earnings

Retained earnings as of December 31, 2023 and 2022 are as follows (Korean won in millions):

	December 31, 2023	December 31, 2022
Legal reserves	₩ 67,423	₩ 67,423
Unappropriated retained earnings	3,164,862	3,321,056
	<u>₩ 3,232,285</u>	<u>₩ 3,388,479</u>

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

Separate statements of appropriation of retained earnings for the years ended December 31, 2023 and 2022 are as follows (Korean won):

	2023	2022
Unappropriated retained earnings:		
Unappropriated retained earnings carried over from the previous year	₩ 3,285,283,333,656	₩ 3,141,729,197,139
Profit (Loss) for the year	(111,873,218,861)	175,466,400,816
Remeasurements of net defined benefit liabilities	(8,548,325,740)	3,440,667,833
Reclassification from AOCI to retained earnings	-	419,408,868
	<u>3,164,861,789,055</u>	<u>3,321,055,674,656</u>
Appropriation of retained earnings:		
Dividends	<u>(35,772,341,000)</u>	<u>(35,772,341,000)</u>
Unappropriated retained earnings to be carried forward	<u>₩ 3,129,089,448,055</u>	<u>₩ 3,285,283,333,656</u>

Appropriation dates for 2023 and 2022 fiscal years are March 28, 2024 and March 29, 2023, respectively.

Details of dividends for the year ended December 31, 2023 are as follows (Korean won, except for share data and dividend amount):

	2023		
	Old-type preferred shares	New-type preferred shares	Ordinary shares
Par value per share	₩ 5,000	₩ 5,000	₩ 5,000
Year end (planned):			
Number of shares issued	3,996,462	893,038	16,523,835
Number of treasury stocks	564,242	47,862	3,000,866
Shares eligible for dividends	3,432,220	845,176	13,522,969
Number of shares eligible for dividends	3,432,220	845,176	13,522,969
Rate of dividend per par value	41%	40%	40%
Dividend per share	₩ 2,050	₩ 2,000	₩ 2,000
Dividend amount (planned) (Korean won in millions)	₩ 7,036	₩ 1,690	₩ 27,046

23. Retained earnings(cont'd)

Details of dividends paid by the Company for the year ended December 31, 2023 are as follows (Korean won in millions, except for share data):

	Old-type preferred shares	New-type preferred shares	Ordinary shares	Total
Annual dividends for previous year:				
Shares eligible for dividends	3,432,220	845,176	13,522,969	
Number of shares eligible for dividends	3,432,220	845,176	13,522,969	
Dividend per share (Korean won)	₩ 2,050	₩ 2,000	₩ 2,000	
Dividend amount	₩ 7,036	₩ 1,690	₩ 27,046	₩ 35,772

24. Revenues

Details of revenues for the years ended December 31, 2023 and 2022 are as follows (Korean won in millions):

24.1 Disaggregation revenue

	2023	2022
Revenues from contracts with customers:		
Finished goods	₩ 655,877	₩ 796,110
Merchandise	43,785	32,143
Construction	1,582	3,985
Others	240,806	228,814
	942,050	1,061,052
Others:		
Dividend	22,695	15,728
Rental income and others (*1)	22,308	415
	45,003	16,143
	₩ 987,053	₩ 1,077,195

(*1) It includes hedge gains and losses adjusted from sales in accordance with the application of hedge accounting.

24.2 Disaggregation revenues from contracts with customers

	2023	2022
Type of Business:		
Electro-Materials BG	₩ 651,262	₩ 776,155
Digital Innovation BU	182,625	174,297
Others	108,163	110,600
	₩ 942,050	₩ 1,061,052
Timing of revenue recognition:		
Transfer at a point in time	₩ 703,225	₩ 828,368
Transfer over time	238,825	232,684
	₩ 942,050	₩ 1,061,052

24.3 Contract Balances

Receivables, contract assets and liabilities arising from contracts with customers as of December 31, 2023 and 2022 are as follows (Korean won in millions):

	December 31, 2023	December 31, 2022
Receivables in trade and other receivables	₩ 187,457	₩ 155,196
Contract assets (*1)	861	6,048
Contract liabilities (*2)	(10,055)	(6,773)

(*1) Contract assets are included in due from customers for contract work and other receivables in the separate statements of financial position.

(*2) Contract liabilities are included in due to customers for contract work and other current liabilities in the separate statements of financial position.

Contract assets are amounts unbilled that the Company has a right to receive as consideration in exchange for the goods or services transferred to the customer and are transferred to receivables upon billings. Contract liabilities are advances from customers for contracts performed over time and are recognized as revenue as the Company transfers the goods or services to the customer.

The Company recognized assets for the costs it spent to enter into a contract with the customer, such as brokerage fees, which would not have been incurred unless the contract was entered into.

Details of incremental cost of obtaining a contract as of December 31, 2023 and 2022 are as follows (Korean won in millions):

	December 31, 2023	December 31, 2022
Incremental cost of obtaining a contract recognized as an asset as of December 31.	₩ 3,102	₩ 1,856
Amount of amortization recognized as cost of sales for the year ended December 31.	254	689

The incremental cost of obtaining a contract is amortized and recognized as expenses in the same manner as revenue recognized over the progress of the particular contract concerned.

24.3 Contract balances(cont'd)

As a contract that recognizes revenue over time by applying the cost-based input method, changes in the balance of construction contract for the year ended December 31, 2023 and 2022 are as follows (Korean won in millions):

	Project	January 1, 2023	Increase (Decrease)	Recognized construction revenue	December 31, 2023
Fuel Cell BU	Installation of renewable energy system for reconstruction project in Jamsil Jinju Apartment	₩ 12,789	₩ -	₩ 11	₩ 12,800
	Installation of the renewable energy system for the housing redevelopment and renovation project in the Imun 3rd Urban Regeneration Promotion Zone	-	11,100	(732)	10,368
	Installation of a renewable energy system for the Bukahyeon No.2 Urban Regeneration Promotion Zone housing redevelopment project	-	13,200	(861)	12,339
		₩ 12,789	₩ 24,300	₩ (1,582)	₩ 35,507
	Project	January 1, 2022	Increase (Decrease)	Recognized construction revenue	December 31, 2022
Fuel Cell BU	Installation of renewable energy system for reconstruction project in Jamsil Jinju Apartment	₩ -	₩ 16,774	₩ (3,985)	₩ 12,789

Changes in profit or loss in the current and succeeding reporting years and the amount of due from/to customers for contract work (excluding foreign currency translation effect) resulting from changes in total contract revenue and in total estimated contract costs for construction contract in progress as of December 31, 2023 is as follows (Korean won in millions):

	Provision for construction loss	Changes in total contract amount	Changes in total contract cost	Impact on profit (loss) for the current year	Impact on profit (loss) for succeeding year	Changes in due from/to customers for contract work
Fuel Cell BU	₩ -	₩ -	₩ 26	₩ (11)	₩ (15)	₩ (11)

The impacts on profit or loss for the current year and succeeding year are determined based on total estimated contract costs which are estimated based on the circumstances present from the start of the contract to the end of current year. The total contract costs and contract revenue may change in the future.

25. Expenses by nature

Breakdown of expenses by nature for the years ended December 31, 2023 and 2022 are as follows (Korean won in millions):

	2023	2022
Changes in inventories	₩ 6,292	₩ (5,005)
Purchases of raw materials and merchandise	370,197	429,283
Employee benefits expenses	253,136	253,092
Depreciation and amortization	40,615	39,062
Others	292,226	288,402
	<u>₩ 962,466</u>	<u>₩ 1,004,834</u>

26. Selling and administrative expenses

Selling and administrative expenses for the years ended December 31, 2023 and 2022 are as follows (Korean won in millions):

	2023	2022
Salaries	₩ 99,103	₩ 91,696
Retirement benefits	9,479	8,145
Shared-based payment expenses	5,672	2,914
Employee benefits	17,674	15,590
Travel expenses	5,960	5,012
Utility expenses	767	601
Commission expenses	23,254	20,579
Sales commission	2,052	3,091
Taxes and dues	4,210	3,037
Depreciation	7,457	7,843
Advertising expenses	11,373	14,373
Research and development	13,600	15,131
Transportation and storage costs	10,807	15,718
Education and training expenses	3,260	3,488
(Reversal of provision) bad debt expenses	(56)	(773)
Amortization	5,244	4,582
Others	12,220	14,394
	<u>₩ 232,076</u>	<u>₩ 225,421</u>

27. Finance income and expenses

Finance income and expenses for the years ended December 31, 2023 and 2022 are as follows (Korean won in millions):

	2023	2022
Finance income:		
Interest income	₩ 12,878	₩ 15,059
Dividend income	194	136
Gain on foreign currency transaction	13,441	24,281
Gain on foreign currency translation	4,359	9,565
Gain on derivative transactions	-	21,146
Financial guarantee income	1,219	2,541
	<u>32,091</u>	<u>72,728</u>
Finance expenses:		
Interest expense	₩ 75,637	₩ 79,612
Loss on foreign currency transactions	12,257	23,048
Loss on foreign currency translations	2,672	7,209
Loss on Derivative Valuation	11,776	-
Loss on repayment of bonds	59	840
Loss on repayment of borrowings	-	344
Other financial expenses	401	-
	<u>102,802</u>	<u>111,053</u>
Net finance income and expenses	<u>₩ (70,711)</u>	<u>₩ (38,325)</u>

28. Other non-operating income and expenses

Other non-operating income and expenses for the years ended December 31, 2023 and 2022 are as follows (Korean won in millions):

	2023	2022
Other non-operating income:		
Gain on disposal of investment in subsidiaries	₩ -	₩ 228,918
Gain on disposal of investment in associates	-	434
Gain on disposal of property, plant and equipment	665	377
Gain on land revaluation	9	-
Gain on disposal of intangible assets	6	9,044
Gain on disposal of investment properties	49	-
Gain on valuation of investment properties	10,050	5,398
Gain on valuation of long-term investment securities	367	329
Reversal of Impairment loss of long-term investment securities	-	19
Gain on disposal of short-term investment securities	-	216
Others	4,474	7,954
	15,620	252,689
Other non-operating expenses:		
Impairment loss of investment in subsidiaries and associates	₩ 4,978	₩ 3,018
Other bad debt expense	110	414
Loss on disposal of property, plant and equipment	126	457
Loss on disposal of intangible assets	22	26
Loss on disposal of investment properties	22	-
Impairment loss of Property, plant and equipment	2,978	5,457
Impairment loss of intangible assets	138	39
Loss on valuation of investment properties	17,165	10,566
Loss on valuation of short and long term investment securities	96,700	53,702
Loss on disposal of long-term financial assets	34	10
Donations	3,149	4,425
Others	3,849	7,932
	129,271	86,046
Net other non-operating income and expenses	₩ (113,651)	₩ 166,643

29. Income tax expenses

Details of income tax expenses for the years ended December 31, 2023 and 2022 are as follows (Korean won in millions):

	2023	2022
Current income tax charge on profit for the year	₩ (2,672)	₩ 83,941
Deferred tax:		
Origination and reversal of temporary differences	(48,698)	(60,367)
Charged or credited directly to equity	3,468	1,639
Income tax expenses	₩ (47,902)	₩ 25,213

Changes in deferred tax assets and liabilities for the years ended December 31, 2023 and 2022 are as follows (Korean won in millions):

	2023			
	Beginning balance	Changes		Ending balance
		Profit or loss	Equity	
Accrued revenues	₩ (366)	₩ (12)	₩ -	₩ (378)
Write-down of inventories	2,329	(47)	-	2,282
Investment securities	5,274	(5,451)	393	216
Property, plant and equipment and investment properties	(29,390)	64	(249)	(29,575)
Accrued expenses	14,736	572	-	15,308
Defined benefit liabilities	2,842	1,278	2,511	6,631
Others	(5,409)	48,826	813	44,230
	₩ (9,984)	₩ 45,230	₩ 3,468	₩ 38,714

	2022			
	Beginning balance	Changes		Ending balance
		Profit or loss	Equity	
Accrued revenues	₩ (57)	₩ (309)	₩ -	₩ (366)
Write-down of inventories	1,634	695	-	2,329
Investment securities	(4,524)	5,825	3,973	5,274
Property, plant and equipment and investment properties	(30,324)	256	678	(29,390)
Accrued expenses	15,603	(867)	-	14,736
Defined benefit liabilities	7,757	(3,242)	(1,673)	2,842
Others	(60,440)	56,370	(1,339)	(5,409)
	₩ (70,351)	₩ 58,728	₩ 1,639	₩ (9,984)

The Company offsets deferred tax assets and deferred tax liabilities, if the Company has a legally enforceable right to set off current tax assets against current tax liabilities and the deferred tax assets against deferred tax liabilities relating to income taxes levied by the same taxation authority.

Temporary differences, net loss and tax credit carryforwards, which have not been recognized as deferred income tax assets and expired or unused as of December 31, 2023 and 2022 are nil.

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

29. Income tax expenses (cont'd)

Temporary differences from investments in subsidiaries, joint ventures and associates, which are not recognized as deferred tax assets (liabilities), as of December 31, 2023 and 2022 are as follows (Korean won in millions):

	December 31, 2023	December 31, 2022	Remarks
Investments in subsidiaries	₩ (683,873)	₩ (677,814)	Able to control the timing of the reversal of the temporary difference

The aggregate deferred tax relating to items that are charged or credited directly to equity for the years ended December 31, 2023 and 2022 is as follows (Korean won in millions):

	2023	2022
Gain (loss) on valuation of financial assets (designated) at fair value through OCI	₩ 393	₩ 3,973
Gain (loss) on valuation of derivatives	813	(1,339)
Land revaluation surplus	(249)	678
Remeasurements of net defined benefit liabilities	2,511	(1,673)
	₩ 3,468	₩ 1,639

A reconciliation of income tax expenses and accounting profit before income tax expenses for the years ended December 31, 2023 and 2022 is as follows (Korean won in millions):

	2023	2022
Profit before income tax expenses	₩ (159,775)	₩ 200,679
Tax at domestic tax rates applicable to profit	(36,908)	48,102
Adjustments:		
Non-taxable income and non-deductible expenses	35	4,334
Tax credits	(6,110)	(7,357)
Additional income tax and tax paid for previous year	(2,680)	(9,421)
Corporate tax on unappropriated earnings of enterprises	-	8,739
Temporary difference not recognized as deferred income tax	311	(17,353)
Others	(2,550)	(1,831)
Income tax expenses	₩ (47,902)	₩ 25,213
Average effective tax rate (Income tax expenses/Profit before income tax expenses)	-	12.56%

30. Earnings per share

30.1 Basic earnings per share

Basic earnings(losses) per share for the years ended December 31, 2023 and 2022 are as follows (Korean won):

	2023	2022
Basic earnings(losses) per ordinary share	₩ (6,295)	₩ 9,848
Basic earnings(losses) per old-type preferred share (*1)	(6,295)	9,898

(*1) The Company calculated earnings per share for old-type preferred share due to the nature of the share, which does not have preferred right on dividends and liquidation. Therefore, the share is considered as ordinary share, based on KIFRS 1033 *Earnings per share*.

30.1 Basic earnings per share (cont'd)

Profit (Loss) for the year attributable to the ordinary equity holders of the Company for the years ended December 31, 2023 and 2022 are as follows (Korean won):

	2023	2022
Profit (Loss) for the year	₩ (111,873,218,861)	₩ 175,466,400,816
Less: Profit attributable to new-type preferred shares	5,319,980,861	(8,323,141,086)
Less: Profit attributable to old-type preferred shares	21,432,581,158	(33,971,495,637)
Profit(Loss) for the year attributable to the ordinary equity holders of the Company	₩ (85,120,656,842)	₩ 133,171,764,093

The weighted-average number of ordinary shares and old-type preferred shares outstanding used in basic earnings per share calculation for the years ended December 31, 2023 and 2022 is as follows:

	2023		2022	
	Ordinary shares	Old-type preferred shares	Ordinary shares	Old-type preferred shares
Beginning outstanding shares	13,522,969	3,432,220	13,522,969	3,432,220
Weighted-average number of shares outstanding	13,522,969	3,432,220	13,522,969	3,432,220

30.2 Diluted earnings per share

Diluted earnings per share for the years ended December 31, 2023 and 2022 are as follows (Korean won):

	2023		2022
Diluted earnings (losses) per ordinary share	₩ (6,295)	₩	9,848
Diluted earnings (losses) per old-type preferred share	(6,295)		9,898

Diluted profit and lossess for the year attributable to the ordinary equity holders of the Company for the years ended December 31, 2023 and 2022 is as follows (Korean won):

	2023		2022
Profit (Loss) for the year attributable to the ordinary equity holders of the Company	₩ (85,120,656,842)	₩	133,171,764,093
Share-based compensation expense (after income tax)	-		-
Diluted profit (loss) for the year attributable to the ordinary equity holders of the Company	₩ (85,120,656,842)	₩	133,171,764,093

Diluted weighted-average number of ordinary shares outstanding for the years ended December 31, 2023 and 2022 is as follows (unit: shares)

	2023		2022
Weighted-average number of ordinary shares outstanding	13,522,969		13,522,969
Exercise of stock options	-		-
Diluted weighted-average number of ordinary shares outstanding	13,522,969		13,522,969

Due to anti-dilutive effect, the details of potential common shares that could dilute the ordinary earnings or losses per share in the future which was not considered in the calculation of diluted earnings or losses per share for 2023 and 2022 are as follows (unit: shares):

	2023		2022
Restricted Stock Unit (RSU)	173,697		82,949
Stock Option	5,252		11,228

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

30.3 Conditions for preferred shares dividends

	Par value (Korean won)	Number of shares issued
Old-type preferred shares (*1)	₩ 5,000	3,996,462
New-type preferred shares (*2)	₩ 5,000	893,038

(*1) Cash dividends available to ordinary shares plus 1%

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

31. Contingencies and commitments

31.1 Credit lines for borrowings

Credit lines for borrowings of the Company as of December 31, 2023 are as follows (Korean won in millions and foreign currency in thousands):

Description	Financial institutions	Credit line	
Operating borrowings and others	New Star Eneo Ville The 1st Co., Ltd. and others	KRW	1,071,000
Credit bond mortgage limit	Hana Bank and others	KRW	5,400
Facility borrowings and others	Woori Bank and others	KRW	71,600
		USD	20,000
L/C guarantees of payment	Korea Development Bank and others	USD	73,677
Asset-backed loan	D-Pay 3rd Co., Ltd.	KRW	108,350

31.2 Financial covenant

The subscription agreement of unsecured bonds issued by the Company requires the Company to maintain a debt-to-equity ratio below 700%, establish collateral rights within 500% of its own equity and limit disposal of an asset within 100% of total asset stated in the Company's consolidated financial statements. If the Company fails to meet certain requirements mentioned above, an acceleration clause included in the subscription agreement would be invoked for the immediate payment. As of December 31, 2023, the amount of bonds required to meet aforementioned debt covenant is ₩186,000 million.

, ₩50,000 million in private equity bonds issued by the Company, ₩30,000 million in short-term borrowings and ₩108,350 million in asset-backed loans borrowed from China Bank and others is subject to commitment requiring the Company to maintain BBB0 of credit rating during the term of the borrowing agreement. If the Company fails to maintain the credit rating, an acceleration clause included in the borrowing agreement would be invoked.

₩400,000 million long-term loan borrowed from New Star Eneo Ville The 1st Co., Ltd. includes is subject to commitment requiring the Company to maintain a credit rating of BBB- or higher during the term of the borrowing agreement. If the Company fails to maintain the credit rating, an acceleration clause would be invoked. The borrowings are secured by 37,180,000 ordinary shares in Doosan Enerbility Co., Ltd. held by the Company, and additional collateral must be provided in the event of failure to meet the pledged collateral maintenance ratio.

With regards to ₩30,000 million of short-term borrowings from Korea Securities Finance Co., Ltd., 5,000,000 common shares of Doosan Enerbility Co., Ltd., which are held by the Company, are provided as collateral and additional collateral shall be provided if the contractual ratio of security maintenance is not met.

31.3 Discounted trade receivables

In relation to the asset-backed loans, the Company recognizes financial instruments including trade receivables which do not meet the criteria for the derecognition of financial instruments at the carrying amount of ₩40,972 million and ₩29,770 million as of December 31, 2023 and 2022, respectively (see Note 15).

31.4 Litigation in progress

As of December 31, 2023, the Company is currently engaged in a litigation for a claim to return unjust enrichment amounting to ₩23 million, and the outcome therefrom is not estimable as of December 31, 2023.

31.5 Guarantees of payment

Guarantees of payment provided by the Company for subsidiaries as of December 31, 2023 are as follows (Korean won in millions and foreign currency in thousands):

Provided to	Amount		Description
Doosan Logistics Solution Co., Ltd.	KRW	40,000	Financial guarantee and others
	EUR	10,000	Financial guarantee and others
Doosan Electro Materials (Changshu) Co., Ltd.	USD	13,000	Financial guarantee and others
Doosan Electro-Materials Vietnam Company Limited	USD	13,875	Financial guarantee and others
HyAxiom, Inc.	KRW	391,125	Financial guarantee and others
	USD	111,300	Financial guarantee and others
Doosan Energy Solutions America, Inc.	USD	61,092	Financial guarantee and others
DESA Service, LLC	USD	8,821	Financial guarantee and others
D-Pay 3rd Co., Ltd.	KRW	108,350	Financial guarantee and others

In addition to the above, as a result of the spin-off completed in 2019, in accordance with Article 530-9, Paragraph 1 of *the Commercial Act*, the succeeding company after division (the Company) and the newly incorporated company (Doosan Fuel Cell Co., Ltd. and Solus Advanced Materials Co., Ltd.) are obliged to repay in solidarity with respect to the debts to them having incurred before the division.

As a result of the split-off completed in 2021, in accordance with Article 530-9, Paragraph 1 of *the Commercial Act*, both the succeeding company after division (the Company) and the newly incorporated company (Doosan Industrial Vehicle Co., Ltd.) are obliged to repay in solidarity with respect to the debts to them having incurred before the division.

Details of payment guarantees provided by third parties to the Company as of December 31, 2023 are as follows (Korean won in millions and foreign currency in thousands):

Provided to	Amount		Description
Seoul Guarantee Insurance	KRW	45,790	Performance guarantee
Machinery Financial Cooperative (*1)	KRW	10,934	Performance guarantee
Korea Software Financial Cooperative (*1)	KRW	10,081	Performance guarantee
Korea Development Bank	USD	14,677	Debt guarantee
Woori Bank and others	USD	26,168	L/C guarantee of payment

(*1) As of December 31, 2023, the shares of the association held by the Company are provided as collateral.

31.6 Agreement between shareholders

The Company has entered into a contract between investors and shareholders in connection with the issuance of shares in the following subsidiaries as of December 31, 2023. Details are as follows. (Korean won in millions and foreign currency in thousands):

	Doosan Mobility Innovation Inc.	HyAxiom, Inc.(*1)
Outstanding shares	279,670 Redeemable convertible preferred shares	159,922 convertible preference shares
Issue amount	₩29,000 million	USD 159,922 thousand
Investor's put option	In the event of a specific reason, an investor may request the Company to purchase all or part of redeemable convertible preferred shares the investor holds. A purchase request could be made at the higher of the amount of the issuance plus a certain level of return on investment and the appraisal amount of the accounting firm.	In the event of a specific reason, an investor may request the parent company to purchase all or part of the convertible preference shares held by the investor in the amount of KRW calculated by the amount of issuance plus a certain level of return on investment.
Investor's tag-along right	If the majority of Doosan Mobility Innovation Inc. shares held by the Company are sold to a third party, the investor has the right to jointly sell the shares with the Company.	If all or part of shares in HyAxiom Inc. held by the Company are sold to a third party, the investor reserves the right to jointly sell the shares.

(*1) In relation to this, as of December 31, 2023, the non-current derivative valuation liability of KRW 65,258 million is recognized in the separate statement of financial position (see Notes 9 and 11).

31.7 Other commitments

Doosan Property Co., Ltd., a subsidiary, has contracted on selling Bundang Doosan Tower, located in 155, Jeongjail-ro Bundang-gu, Seongnam, Gyeonggi-do to Bundang Doosan Tower REIT Co., Ltd. as of January 8, 2021. As of the same day, the Company agreed to a five-year lease contract with DHI, DBI after the sale of Bundang Doosan Tower. In this regard, the Company has been responsible for a part of Bundang Doosan Tower for five years since the sale. If the Company fails to meet certain conditions, the lease agreement will be extended on the same terms once for 5 years. Meanwhile, Doosan Property Co., Ltd. was absorbed and merged into Doosan Cuvex Co., Ltd., the Company's subsidiary, and was extinguished.

The Company accounts for the aforementioned joint lease contract as joint operation in which the parties jointly control the lease arrangement also and have the right to assets and liabilities of the leased asset in accordance with KIFRS 1111 *Joint Arrangements*. As of December 31, 2023, the Company's ownership interests are 6.7%.

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

The Company sold Doosan Tower, located in 275, Jangchungdan-ro, Jung-gu, Seoul, during the 2020, and has been responsible for leasing offices and shopping malls of Doosan Tower for five years after the sale. Meanwhile, if the lessor notifies the Company for extending the lease term of Doosan Tower within 6 months from the 4th year of the commencement date of the lease term, the Company's liability on lease agreement will be extended on the same terms once for 5 years.

The Company entered into an agreement with the Pangaea Ventures Fund IV, L.P. and others (total amount of investment commitment: USD 10,000 thousand), and the remaining investment commitment is USD 4,156 thousand as of December 31, 2023.

The Company entered into a lease contract for land located in Jungjang-ri, Anmyeon-eup, Taean-gun, Chungcheongnam-do. As of January 25, 2022, the Company has received a total rent of ₩90,000 million from the tenant for a total lease period of 25 years (i.e., a rent until January 25, 2047). The rent is amortized through straight-line method during the lease period and is recognized as rental income in the statements of profit or loss. In this regard, other non-current liabilities (long-term unearned revenues) of ₩79,200 million and other current liabilities (unearned revenues) of ₩3,600 million are recognized for the year ended December 31, 2023. Meanwhile, superficies and leasehold interest are established by the tenant on the land.

The long-term borrowings of ₩255,532 million of Doosan Portfolio Holdings Co., Ltd., a subsidiary, includes financial compliance of matters and conditions for maintaining the LTV ratio. In case of violation of them, Doosan Portfolio Holdings Co., Ltd. shall make early repayment of loans through a paid-in capital increase from the Company or a subordinated loan from the Company or disposal of all or part of the shares in Doosan Tesna Inc. held by Doosan Portfolio Holdings Co., Ltd., or acquire additional shares of Doosan Tesna Inc. and provide them as collateral.

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32. Pledged assets

The Company pledged certain assets as collateral for its financial liabilities as of December 31, 2023, which are as follows (Korean won in millions and foreign currency in thousands):

Institution	Pledged asset	Related accounts	Financial liabilities		Pledged amount	
Korea Development Bank	Fixed deposit, Jeung-pyeong, Ik-san, Gim-cheon plant and others		KRW	59,000	KRW	269,750
Woori Bank	Investment in subsidiaries		KRW	29,000	KRW	40,626
New Star Eneo Ville The 1st Co., Ltd. and others	Investment in subsidiaries (*1)		KRW	400,000	KRW	591,162
Hana Bank and others	Investment in subsidiaries (*2)	Financial instruments, property, plant and equipment and investment in subsidiaries and others	KRW	150,000	KRW	230,923
Korea Securities Finance Corp	Investment in subsidiaries (*1)		KRW	30,000	KRW	63,600
Hana Bank and others	Fixed deposit		KRW	11,686	KRW	11,859
Kookmin Bank	Gim-cheon plant		KRW	-	KRW	4,725
			KRW	-	USD	9,437

(*1) As of December 31, 2023, ₩400,000 million borrowed by the Company from New Star Eneo Ville The 1st Co., Ltd. and ₩30,000 million borrowed from The Korea Securities Finance Corporation shall be provided with additional collateral if the contractual collateral maintenance ratio is not met (See Note 31).

(*2) As of December 31, 2023, the collateral the Company has provided for ₩150,000 million borrowed from KEB Hana Bank and others includes the collateral provided for ₩50,000 million borrowed from Doosan Hana The First Co., Ltd., a Special Purpose Company established for this transaction.

The Company pledged certain assets as collateral for third parties as of December 31, 2023, which are as follows :

As of December 31, 2023, 352,314 common shares of Doosan Enerbility Co., Ltd., held by the Company, have been provided as collateral for a loan agreement of ₩5,000 million concluded between Doosan Logistics Solution Co., Ltd. and Hana Bank Co., Ltd. As of December 31, 2023, the remaining balance of the loan is ₩5,000 million.

33. Related party transactions

The details related to the disclosure of related parties as of December 31, 2022 and 2021 are as follows:

Relationship with the Company	December 31, 2023	December 31, 2022
Subsidiaries	Doosan Enerbility Co., Ltd. and its subsidiaries (*1) Doosan Bobcat Inc. and its subsidiaries (*2) Doosan Industrial Vehicle Co., Ltd. and its subsidiaries Oricom Inc. and its subsidiaries Doosan Bears Inc. Doosan Digital Innovation America, LLC Doosan Information & Communications Beijing Co., Ltd.- Doosan Digital Innovation Europe Limited Doosan Business Research Institute Co., Ltd. Doosan Logistics Solution Co., Ltd. Doosan Portfolio Holdings Co., Ltd. (formerly, Doosan Investment Co., Ltd.) and its subsidiaries Doosan Investment Co., Ltd. Doosan Shanghai Chemical Materials Co., Ltd. Doosan Electro-Materials Singapore Pte. Ltd. Doosan Electro-Materials (Changshu) Co., Ltd. Doosan Electro-Materials America, LLC Doosan Electro-Materials Vietnam Company Ltd. HyAxiom, Inc. and its subsidiaries Doosan Energy Solution America, Inc. and its subsidiaries Doosan Robotics Inc. and its subsidiaries Doosan Mobility Innovation Inc. and its subsidiaries D-Pay 3rd Co., Ltd. Doosan Second Real Estate Securitization Specialty Ltd.	Doosan Enerbility Co., Ltd. and its subsidiaries (*1) Doosan Bobcat Inc. and its subsidiaries (*2) Doosan Industrial Vehicle Co., Ltd. and its subsidiaries Oricom Inc. and its subsidiaries Doosan Bears Inc. Doosan Digital Innovation America, LLC Doosan Information & Communications Beijing Co., Ltd.- Doosan Digital Innovation Europe Limited Doosan Business Research Institute Co., Ltd. Doosan Logistics Solution Co., Ltd. Doosan Portfolio Holdings Co., Ltd. (formerly, Doosan Investment Co., Ltd.) and its subsidiaries - Doosan Shanghai Chemical Materials Co., Ltd. Doosan Electro-Materials Singapore Pte. Ltd. Doosan Electro-Materials (Changshu) Co., Ltd. Doosan Electro-Materials America, LLC Doosan Electro-Materials Vietnam Company Ltd. HyAxiom, Inc. and its subsidiaries Doosan Energy Solution America, Inc. and its subsidiaries Doosan Robotics Inc. and its subsidiaries Doosan Mobility Innovation Inc. and its subsidiaries D-Pay 3rd Co., Ltd. Doosan Second Real Estate Securitization Specialty Ltd.
Associates	KDDI KOREA Corporation PT. SEGARA AKASA Mastern General Private Security Investment Trust No.98 - Versogen, Inc. TTC House, Inc. SemiFive Inc.	KDDI KOREA Corporation PT. SEGARA AKASA Mastern General Private Security Investment Trust No.98 SiO2 Medical Products, Inc. (*3) Versogen, Inc. TTC House, Inc. -
Joint ventures	Sichuan Kelun-Doosan Biotechnology Company Limited	Sichuan Kelun-Doosan Biotechnology Company Limited
Other related parties	Doosan Engineering & Construction Co., Ltd. and its subsidiaries Bundang Doosan Tower REIT Co., Ltd. (*4) Doosan Yonkang Foundation (*4) Wonsang Co., Ltd. (*4) Chung-Ang University and others (*4)	Doosan Engineering & Construction Co., Ltd. and its subsidiaries Bundang Doosan Tower REIT Co., Ltd. (*4) Doosan Yonkang Foundation (*4) Wonsang Co., Ltd. (*4) Chung-Ang University and others (*4)

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33. Related party transactions (cont'd)

(*1) Doosan Bobcat Inc. and its subsidiaries are excluded.

(*2) Doosan Industrial Vehicle Co., Ltd. and its subsidiaries are excluded.

(*3) During the current year, the entity has been excluded from the affiliates due to the loss of significant influence as a result of retirement of shares in the entirety issued by the entity.

(*4) It is not included in the scope of related parties of KIFRS 1024 but includes entities that belong to the same large-scale enterprise group under the *Monopoly Regulation and Fair Trade Act*.

Significant transactions for the years ended December 31, 2023 and 2022, between the Company and related parties are as follows (Korean won in millions):

		2023					
	Related parties	Sales	Other income	Others (disposal of assets, etc.)	Purchases	Other expenses	Others (purchase of assets, etc.)
Subsidiaries	Doosan Enerbility Co., Ltd. and its subsidiaries	₩ 149,754	₩ 50	₩ -	₩ 6,778	₩ 3,870	₩ -
	Doosan Bobcat Inc. and its subsidiaries	46,138	-	-	861	2,385	89
	Doosan Industrial Vehicle Co., Ltd. and its subsidiaries	20,707	-	-	-	-	-
	Others	188,172	4,587	4,476	28,547	13,897	499
		404,771	4,637	4,476	36,186	20,152	588
Associates		-	-	-	76	11,757	-
Other related parties		1,170	12	-	622	7,606	162
		₩ 405,941	₩ 4,649	₩ 4,476	₩ 36,884	₩ 39,515	₩ 750

		2022					
	Related parties	Sales	Other income	Others (disposal of assets, etc.)	Purchases	Other expenses	Others (purchase of assets, etc.)
Subsidiaries	Doosan Enerbility Co., Ltd. and its subsidiaries	₩ 137,003	₩ 5,930	₩ 152,692	₩ 5,621	₩ 3,669	₩ 129
	Doosan Bobcat Inc. and its subsidiaries	6,062	-	-	837	2,413	356
	Doosan Industrial Vehicle Co., Ltd. and its subsidiaries	18,030	39	-	-	-	-
	Others	194,616	3,409	8,477	6,552	15,908	285
		355,711	9,378	161,169	13,010	21,990	770
Associates		1	-	-	60	12,929	-
Other related parties		9,430	15	-	660	6,347	614
		₩ 365,142	₩ 9,393	₩ 161,169	₩ 13,730	₩ 41,266	₩ 1,384

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33. Related party transactions (cont'd)

As of December 31, 2023 and 2022, significant balances related to the transactions between the Company and related parties are as follows (Korean won in millions):

		December 31, 2023					
	Related parties	Trade receivables(*1)	Other receivables	Trade payables	Other payables	Lease liabilities	Asset-backed loan
Subsidiaries	Doosan Enerbility Co., Ltd. and its subsidiaries	₩ 32,921	₩ 4,147	₩ 143	₩ 2,289	₩ -	₩ -
	Doosan Bobcat Inc. and its subsidiaries	10,324	2,833	-	600	856	-
	Doosan Industrial Vehicle Co., Ltd. and its subsidiaries	2,122	-	-	853	-	-
	Others	39,981	22,054	4,206	4,618	-	108,350
		85,348	29,054	4,349	8,360	856	108,350
Associates		-	32,200	-	3,073	194,316	-
Joint ventures		-	-	-	-	-	-
Other related parties		924	7,630	968	187	11,360	-
		₩ 86,272	₩ 68,864	₩ 5,317	₩ 11,620	₩ 206,532	₩ 108,350

(*1) As of December 31, 2023, the balance of trade receivables is the amount after deducting the allowance for bad debts of ₩15,232 million for related parties.

		December 31, 2022					
	Related parties	Trade receivables(*1)	Other receivables	Trade payables	Other payables	Lease liabilities	Asset-backed loan
Subsidiaries	Doosan Enerbility Co., Ltd. and its subsidiaries	₩ 22,793	₩ 4,200	₩ 134	₩ 1,243	₩ -	₩ -
	Doosan Bobcat Inc. and its subsidiaries	589	2,833	-	550	3,207	-
	Doosan Industrial Vehicle Co., Ltd. and its subsidiaries	2,716	202	-	853	-	-
	Others	37,254	20,966	1,673	3,039	-	197,000
		63,352	28,201	1,807	5,685	3,207	197,000
Associates		-	32,200	-	3,034	215,713	-
Joint ventures		-	1,245	-	-	-	-
Other related parties		2,954	7,692	5	286	12,546	-
		₩ 66,306	₩ 69,338	₩ 1,812	₩ 9,005	₩ 231,466	₩ 197,000

(*1) As of December 31, 2022, the balance of trade receivables is the amount after deducting the allowance for bad debts of ₩15,341 million for related parties.

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33. Related party transactions (cont'd)

Fund and equity transactions for the years ended December 31, 2023 and 2022 between the Company and related parties are as follows (Korean won in millions):

Related parties	2023									
	Borrowing		Lease liabilities		Contribution		Dividend		Loan	
	Borrowings	Repayment	Increase	Decrease	Received	Provided	Income(*1)	Paid	Loans	Repayment
Subsidiaries:										
Doosan Enerbility Co., Ltd. and its subsidiaries	₩ -	₩ -	₩ -	₩ -	₩ -	₩ -	₩ -	₩ -	₩ -	₩ -
Doosan Bobcat Inc. and its subsidiaries	-	-	89	2,556	-	-	-	-	-	-
Others	-	88,650	-	-	-	10,000	19,549	-	8,933	-
	-	88,650	89	2,556	-	10,000	19,549	-	8,933	-
Associates	-	-	-	33,154	-	20,359	1,268	-	-	-
Joint ventures	-	-	-	-	-	-	1,878	-	-	-
Other related parties	-	-	162	2,058	-	-	-	3,135	-	-
	₩ -	₩ 88,650	₩ 251	₩ 37,768	₩ -	₩ 30,359	₩ 22,695	₩ 3,135	₩ 8,933	₩ -

(*1) It is included insales.

Related parties	2022									
	Borrowing		Lease liabilities		Contribution		Dividend		Loan	
	Borrowings	Repayment	Increase	Decrease	Received	Provided	Income(*2)	Paid	Loans	Repayment
Subsidiaries:										
Doosan Enerbility Co., Ltd. and its subsidiaries	₩ -	₩ -	₩ -	₩ -	₩ -	₩ 183,062	₩ -	₩ -	₩ -	₩ -
Doosan Bobcat Inc. and its subsidiaries	-	-	356	2,479	-	-	-	-	-	-
Others (*1,3)	197,000	82,500	-	-	-	263,574	13,065	-	210	13,800
	197,000	82,500	356	2,479	-	446,636	13,065	-	210	13,800
Associates	-	-	-	32,728	-	(47,013)	1,339	-	-	-
Joint ventures	-	-	-	-	-	-	1,324	-	-	-
Other related parties	-	-	-	1,994	-	-	-	3,305	-	-
	₩ 197,000	₩ 82,500	₩ 356	₩ 37,201	₩ -	₩ 399,623	₩ 15,728	₩ 3,305	₩ 210	₩ 13,800

(*1) It contains transactions in which some of the Mastern General Private Security Investment Trust No 98 beneficiary certificates held as investments in associates were invested in Doosan Portfolio Holdings Co., Ltd. (formerly, Doosan Investment Co., Ltd.), a subsidiary of the company, and a debt for equity swap for Doosan Logistics Co., Ltd.

(*2) It is included in sales

(*3) During the previous year, The Path With You was excluded from the related party, and the above transaction includes the transaction before being excluded from the related party.

33. Related party transactions (cont'd)

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

The Company provided guarantees of payment and others to related parties as of December 31, 2023 (See Note 31).

The Company defines key management personnel as registered officer and non-registered officer (including outside director) who have the authority and responsibility for planning, operation and control and are in charge of business or division unit. Compensation to key management personnel of the Company for the years ended December 31, 2023 and 2022 is as follows (Korean won in millions):

	2023	2022
Employee benefits	₩ 31,019	₩ 26,261
Retirement benefits	5,720	3,994
Shared-based payment	5,966	3,084
	<u>₩ 42,705</u>	<u>₩ 33,339</u>

34. Cash flow statement

The adjustments and changes in cash generated from operating activities in the separate statements of cash flows for the years ended December 31, 2023 and 2022 is as follows (Korean won in millions):

	2023	2022
Adjustments for:		
Adjustments For Losses Without Cash Flow Out	₩ 227,232	₩ 253,401
Interest expense	75,637	79,612
Income tax expenses	(47,902)	25,213
Loss on foreign currency translation	2,672	7,209
Depreciation	33,893	33,083
Amortization	6,722	5,979
Loss on disposal of property, plant and equipment	126	457
Impairment loss on property, plant and equipment	2,978	5,457
Loss on disposal of intangible assets	22	26
Impairment loss on intangible assets	138	39
Shared-based payment	5,966	3,084
Retirement benefits	16,354	16,481
(Reversal of provision) bad debt expenses	(56)	(773)
(Reversal of provision) other bad debt expenses	110	414
Write-down (of reversal) of inventories	(162)	3,286
Adjustments for expense of provisions	-	5,354
Loss on repayment of bonds	59	840
Loss on repayment of borrowings	-	344
Loss on valuation of derivatives	11,776	-
Loss on valuation of short and long-term investment securities	96,700	53,702
Loss on disposal of short and long-term investment securities	34	10
Impairment loss on investment in subsidiaries and associates	4,978	3,018
Loss on valuation of investment properties	17,165	10,566
Loss on disposal of investment properties	22	-
Interest income	₩ (53,031)	₩ 1
Interest income	12,878	15,059
Dividend income	22,889	15,864
Gain on foreign currency translation	4,359	9,565
Gain on trade of derivatives	-	21,146
Gain on disposal of investment in subsidiaries and associates	-	229,352
Gain on disposal of property, plant and equipment	665	377
Gain on disposal of intangible assets	6	9,044
Gain on disposal of investment properties	49	-
Gain on valuation of investment properties	10,050	5,398
Gain on valuation of short and long-term investment securities	367	329
Gain on disposal of short and long-term investment securities	-	216
Reversal of impairment loss of long-term investment securities	-	19
Reversal of	526	5,744
Financial guarantee income	1,219	2,541
Others	23	3
	₩ 174,201	₩ (61,256)

34. Cash flow statement (cont'd)

	2023		2022
Changes in operating assets and liabilities:			
Trade receivables	₩ (33,310)	₩	71,275
Other receivables	6,812		24,787
Due from customers for contract work	(861)		-
Inventories	6,454		(8,291)
Other current assets	3,901		(9,877)
Long-term other receivables	3,467		(6,150)
Other non-current assets	-		242
Trade payables	34,394		(1,226)
Other payables	17,215		1,831
Due to customers for contract work	1,499		2,795
Provisions	(6,004)		(1,118)
Other current liabilities	(1,715)		(8,137)
Long-term other payables	(3,377)		68,343
Retirement benefits paid	(3,082)		(2,896)
Defined benefit liabilities transferred from affiliated companies	(547)		(989)
Contributions by employer directly to plan assets	(7,540)		(26,900)
	₩ 17,306	₩	(103,689)

Significant non-cash transactions for the years ended December 31, 2023 and 2022 are as follows (Korean won in millions):

	2023		2022
Reclassification of construction in progress to property, plant and equipment and others	₩ 52,108	₩	23,200
Current portion of bonds	137,774		223,580
Reclassification of current portion of long-term asset-backed loan	86,556		88,319
Reclassification of current portion of lease liabilities	29,607		28,591
Acquisition of investment in subsidiaries	68,905		64,377

34. Cash flow statement (cont'd)

Details of changes in liabilities arising from financial activities for the years ended December 31, 2023 and 2022 are as follows (Korean won in millions):

	2023				
	Beginning balance	Cash flows from financing activities	Reclassification of current portion	Others	Ending balance
Short-term borrowings	₩ 175,000	₩ 52,913	₩ -	₩ 87	₩ 228,000
Current portion of long-term borrowings	-	-	450,593	788	451,381
Current portion of bonds	153,836	(189,056)	137,774	410	102,964
Current portion of long-term asset-backed loan	88,380	(88,764)	86,556	199	86,371
Current lease liabilities	28,195	(29,037)	29,607	(114)	28,651
Long-term borrowings	418,301	164,000	(450,593)	729	132,437
Bonds	177,635	92,697	(137,774)	155	132,713
Long-term asset-backed loan	108,020	-	(86,556)	129	21,593
Non-current lease liabilities	210,315	-	(29,607)	4,745	185,453
	₩ 1,359,682	₩ 2,735	₩ -	₩ 7,128	₩ 1,369,563

	2022				
	Beginning balance	Cash flows from financing activities	Reclassification of current portion	Others	Ending balance
Short-term borrowings	₩ 668,399	₩ (493,399)	₩ -	₩ -	₩ 175,000
Current portion of long-term borrowings	-	-	-	-	-
Current portion of bonds	264,512	(335,794)	223,580	1,538	153,836
Current portion of long-term asset-backed loan	65,738	(66,103)	88,319	426	88,380
Current lease liabilities	27,412	(27,632)	28,591	(176)	28,195
Long-term borrowings	-	417,460	-	841	418,301
Bonds	291,197	109,569	(223,580)	449	177,635
Long-term asset-backed loan	16,435	179,708	(88,319)	196	108,020
Non-current lease liabilities	234,719	-	(28,591)	4,187	210,315
	₩ 1,568,412	₩ (216,191)	₩ -	₩ 7,461	₩ 1,359,682

35. Effect of Introducing the Global Minimum Tax

Global Minimum Tax is a system where a multinational group, consisting of entities(subsidiaries, etc.) included in consolidated financial statements, with sales exceeding €750 million in at least 2 of the immediate preceding 4 fiscal years, that fail to meet an effective tax rate of 15%, shall pay the shortfall to the tax authority of the country where the controlling entity is located.

The tax legislation related to the Global Minimum Tax in the Republic of Korea, in which the parent company is domiciled, was enacted in 2023 and will be effective from January 1, 2024.

The Company believes that it is in the scope of applying Global Minimum Tax, but as the related legislation will be effective from January 1, 2024, there is no impact on income tax expenses for the current year. Also, the Company applies a mandatory temporary exception for deferred tax accounting under KIFRS 1012, and the Company does not recognize related deferred tax assets and liabilities or disclose information related thereto.

Audit opinion on internal control over financial reporting

The accompanying independent auditor's report on internal control over financial reporting is attached as a result of auditing the internal control over financial reporting of Doosan Corporation (the "Company") and the separate financial statements of the Company for the year ended December 31, 2023 in accordance with the Article 8 of the *Act on External Audit of Stock Companies*.

Attachments:

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

Independent auditor's report on internal control over financial reporting
(English Translation of a Report Originally Issued in Korean)

Doosan Corporation
The Shareholders and Board of Directors

Opinion on internal control over financial reporting

We have audited Doosan Corporation's (the "Company") internal control over financial reporting ("ICFR") based on the Conceptual Framework for designing and operating ICFR established by the Operating Committee of ICFR (the "ICFR Committee") as of December 31, 2023.

In our opinion, the Company's ICFR has been effectively designed and operated, in all material respects, as of December 31, 2023, in accordance with the Conceptual Framework for designing and operating ICFR.

We also have audited, in accordance with the Korean Standards on Auditing ("KSA"), the separate statement of financial position as of December 31, 2023, and the separate statement of profit or loss, separate statement of comprehensive income, separate statement of changes in equity and separate statement of cash flows for the year then ended, and notes to the financial statements, including a summary of material accounting policy information, and our report dated March 20, 2024 expressed an unqualified opinion thereon.

Basis for opinion on ICFR

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

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

Responsibilities of management and those charged with governance for ICFR

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

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

Auditor's responsibilities for the audit of ICFR

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

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

ICFR definition and inherent limitations

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

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

The engagement partner on the audit resulting in this independent auditor's report is Jee hoon Kim.



March 20, 2024

This audit report is effective as of March 20, 2024, the independent auditor's report date. Accordingly, certain material subsequent events or circumstances may have occurred during the period from the independent auditors' report date to the time this report is used. Such events and circumstances could significantly affect the Company's ICFR and may result in modifications to this report.

ICFR Operating Status Report by CEO

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

We, as the Chief Executive officer and the Internal Accounting Manager of Doosan Company, assessed operating status of the Company's Internal Control over Financial Reporting("ICFR") for the year ending December 31, 2023.

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

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

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

Based on our assessment, we concluded that the Company's ICFR is designed and operated effectively as of December 31, 2023, in all material respects, in accordance with the 'Conceptual Framework for Designing and Operating Internal Control over Financial Reporting'

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

2024. 2. 26

Internal Accounting Manager

Baek Seung-am



Chief Executive Officer

Moon Hong-sung

