HYUNDAI HEAVY INDUSTRIES CO., LTD. AND SUBSIDIARIES

Consolidated Financial Statements

December 31, 2022

(With Independent Auditors' Report Thereon)

Contents

KPMG SAMJONG

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Independent Auditors' Report

Based on a report originally issued in Korean

The Board of Directors and Stockholders
Hyundai Heavy Industries Co., Ltd.:

Opinion

We have audited the consolidated financial statements of Hyundai Heavy Industries Co., Ltd. and its subsidiaries (the "Group"), which comprise the consolidated statement of financial position as of December 31, 2022, the consolidated statements of comprehensive loss, changes in equity and cash flows for the year then ended, and notes to the consolidated financial statements, including significant accounting policies and other explanatory information.

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Group as of December 31, 2022, and its consolidated financial performance and its consolidated cash flows for the year then ended in accordance with Korean International Financial Reporting Standards ("K-IFRS").

Basis for Opinion

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

Key audit Matters

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the consolidated financial statements as of and for the year ended December 31, 2022. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

(1) Overview

An overview of key audit matters described in this audit report is as follows:

As described in Note 4 to the consolidated financial statements, the Group produces the customization goods on orders from the customers and recognizes revenue over time by the input method when having the following characteristics.

(i) the Group's performance creates or enhances an asset that the customer controls as the asset is created or enhanced; or

(ii) the Group's performance does not create an asset with an alternative use to the Group and the Group has an enforceable right to payment for performance completed to date

The percentage-of-completion is calculated based on the ratio of contract costs incurred to date for work performed to estimated total contract costs except contract costs that do not reflect the progress of completion. The contract assets are presented for all contracts in which contract costs incurred to date plus recognized profits (less recognized losses) exceeded progress billings. The contract liabilities are presented for all contracts in which progress billings exceed contract costs incurred to date plus recognized profits (less recognized losses).

(2) Assessment of the percentage-of-completion

As described in the Note 29 to the consolidated financial statements, the Group should include only contract costs incurred to date for work performed to estimated total contract costs in case the percentage-of-completion is calculated based on estimated total contract costs. There is a risk that the factors of change in contract costs incurred to date include construction inefficiency costs. Therefore, we identified assessment of the percentage-of-completion as a significant risk, considering the impact of uncertainty on earnings volatility.

We performed the following audit procedures with respect to the estimated total contract costs and accumulated costs which have effect on calculating the construction percentage-of-completion as of December 31, 2022:

- Inquiries and analytical review procedures on items of the contract costs incurred to date in each reporting period
- For selected major projects, comparing the progress of construction with the percentage-of-completion
- Inspecting the documents on existence of material costs incurred for selected samples
- Engaging our IT specialists to assist us in assessing the appropriateness of aggregation and allocation of overhead costs by each project
- Engaging our IT specialists to assist us in testing risk scenarios including verification on whether the costs are allocated appropriately to each project

(3) Assessment of recoverability of contract assets

As described in Note 29 to the consolidated financial statements, Heavy-Tail payment plan is a major collection terms of the Group. Since Heavy-Tail payment plan is able to result in significant losses if contract is cancelled, we identified the collectability of contract assets as a significant risk.

We performed the following audit procedures with respect to the assessment of collectability of contract assets as of and for the year ended December 31, 2022:

- Testing certain internal controls over identification and assessment of impairment indicators on contract assets
- For contracts with significant increases in contract assets, inquiries and inspection of documents on payment terms, liquidated damages, delivery time, and other obligations of contracts
- Inspection of the terms of the contracts for ongoing construction to assess the appropriateness of the Group's payment conditions
- Assessing management's estimate basis for the collectability of contract assets
- Inspecting the documents regarding completion of construction (Delivery protocol, etc.) for completion work to assess existence of contract asset amounts
- For selected major customers, obtaining external confirmation letters

(4) Accounting for the variations in contract work

As described in Note 29 to the consolidated financial statements, although contract revenue is measured as the initial amount agreed in the contract, it is possible to be increased by claims and incentive payments, and decreased by penalties due to delay of construction completion by reason attributable to the Group. Variations in contract work, such as specification or design change by clients, have been occurring frequently in the shipbuilding sector due to characteristics of the industry, and they cause a possibility of variations in contract revenue. Accordingly, we identified the accounting for the variations in contract work as a significant risk.

We performed the following audit procedures with respect to the accounting for the variations in contract work as of and for the year ended December 31, 2022:

- Testing certain internal controls over changes in terms of contracts
- Inquiries and analytical review procedures on projects in which significant changes in contract revenue were made
- Inspecting the documents (change order document, etc.) to confirm the appropriateness of the changes in construction contract amounts
- Comparing the contractual delivery date with expected delivery date as of December 31, 2022
- Assessing the appropriateness of liquidated damages and the estimated amount of compensation

(5) Uncertainty of estimated total contract costs

As described in Note 29 to the consolidated financial statements, estimated total contract costs are calculated based on estimated costs of materials, labor costs and construction period, and uncertainty risk related to exchange rate fluctuation, changes of steel prices and changes in production hours exists. Accordingly, considering the impacts on profit or loss for the year ended December 31, 2022 and future periods, we identified uncertainty of estimated total contract costs as a significant risk.

We performed the following audit procedures regarding the impact of uncertainty of estimated total contract costs on the consolidated financial statements as of and for the year ended December 31, 2022:

- Testing certain internal controls over the Group's determination of revenue recognition accounting polices
- Testing certain internal controls over the Group's determination of the estimated total contract costs
- Inquiries and analytical procedures on changes in major items of total contract costs in each reporting period
- Retrospective review of projects with significant changes in estimated total contract costs
- Identify the cause of difference for projects with significant changes in estimated total contract costs and if necessary, inspecting relevant documents
- Comparing estimated total contract costs among similar vessels
- Collecting and inspecting the data of estimated total contract costs managed by production department for major projects
- Comparing details in purchase order issued by purchasing department by projects with estimated total material costs
- Assessment on whether estimated total contract costs were approved by proper authorized person
- Inquiries and analytical review procedures on the causes of increase or decrease in percentage-of-completion by each reporting period
- Inquiries on progress and significant changes in major projects
- Visits of ship construction sites

Other Matters

The consolidated financial statements of the Group for the year ended December 31, 2021 were audited by another auditor, who expressed an unmodified opinion on those statements on March 14, 2022.

The procedures and practices utilized in the Republic of Korea to audit such consolidated financial statements may differ from those generally accepted and applied in other countries.

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

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

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

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

Auditors' Responsibilities for the Audit of the Consolidated Financial Statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' 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 KSAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

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

- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's internal control.

- Evaluate the appropriateness of accounting policies used in the preparation of the consolidated financial statements and the reasonableness of accounting estimates and related disclosures made by management.

- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditors' report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditors' report. However, future events or conditions may cause the Group to cease to continue as a going concern.

- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

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

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

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

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditors' 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 auditors' report is Dong Hyun Chi.

KPMG Samjong Accounting Corp.

Seoul, Korea
March 20, 2023

This report is effective as of March 20, 2023, the audit report date. Certain subsequent events or circumstances, which may occur between the audit report date and the time of reading this report, could have a material impact on the accompanying consolidated financial statements and notes thereto. Accordingly, the readers of the audit report should understand that the above audit report has not been updated to reflect the impact of such subsequent events or circumstances, if any.

HYUNDAI HEAVY INDUSTRIES CO., LTD. AND SUBSIDIARIES

Consolidated Statements of Financial Position

As of December 31, 2022 and 2021

(In thousands of won)

	Note		2022	2021
Assets				
Cash and cash equivalents	*5,6,38,39*	₩	744,148,120	2,137,391,421
Short-term financial assets	*5,7,8,38,39*		161,000,000	151,000,000
Trade and other receivables	*8,9,29,38,39,42*		1,135,986,607	1,032,431,186
Contract assets	*29,38,39*		3,180,079,663	2,836,711,441
Inventories	*10*		1,377,137,503	898,666,745
Derivative assets	*24,38,39*		106,450,664	11,368,268
Firm commitment assets	*24*		218,541,618	96,769,053
Current tax assets			5,192,928	2,447,046
Non-current assets held for sale	*43*		-	4,719,315
Other current assets	*11*		1,072,328,831	714,560,459
Total current assets			8,000,865,934	7,886,064,934
Investments in associate	*12,42*		1,345,757	2,789,842
Long-term financial assets	*5,7,8,14,38,39*		9,554,272	9,560,272
Long-term trade and other receivables	*9,29,38,39,42*		176,766,787	38,942,194
Investment property	*15*		1,457,516	4,108,679
Property, plant and equipment	*16*		6,237,402,566	5,986,254,763
Intangible assets	*18*		100,465,276	79,457,817
Right-of-use assets	*17*		43,390,369	17,906,009
Derivative assets	*24,38,39*		293,924,052	43,123,042
Firm commitment assets	*24*		190,170,417	145,688,023
Deferred tax assets	*35*		893,619,300	837,655,729
Other non-current assets	*11,22*		340,435,807	27,120,187
Total non-current assets			8,288,532,119	7,192,606,557
Total assets		₩	16,289,398,053	15,078,671,491

See accompanying notes to the consolidated financial statements.

HYUNDAI HEAVY INDUSTRIES CO., LTD. AND SUBSIDIARIES

Consolidated Statements of Financial Position, Continued

As of December 31, 2022 and 2021

(In thousands of won)

	Note	2022	2021
Liabilities			
Short-term financial liabilities	*5,19,21,38,39,40*	₩ 1,444,632,171	1,506,767,831
Current lease liabilities	*19,21,38,39*	13,173,646	6,052,095
Trade and other payables	*20,38,39,42*	1,573,600,240	1,745,928,953
Contract liabilities	*29*	4,764,892,821	2,607,770,742
Short-term provisions	*23,29,38,39*	900,927,588	1,027,990,055
Derivative liabilities	*24,38,39*	316,553,631	148,741,660
Firm commitment liabilities	*24*	58,224,089	5,356,117
Total current liabilities		9,072,004,186	7,048,607,453
Long-term financial liabilities	*5,19,21,38,39,40*	1,159,024,155	1,958,992,315
Non-current lease liabilities	*19,21,38,39*	31,277,476	12,746,171
Long-term trade and other payables	*20,38,39,42*	380,996	248,798
Long-term contract liabilities	*29*	10,551,260	10,815,243
Liabilities for defined benefit plans	*22*	28,462,252	33,198,092
Non-current provisions	*23*	279,748,701	269,562,659
Derivative liabilities	*24,38,39*	190,170,417	146,030,764
Firm commitment liabilities	*24*	229,959,123	4,445,047
Total non-current liabilities		1,929,574,380	2,436,039,089
Total liabilities		11,001,578,566	9,484,646,542
Equity			
Common stock	*25*	443,865,580	443,865,580
Capital surplus	*25*	3,118,364,962	3,118,364,962
Capital adjustments	*26*	(1,642,927)	(1,411,000)
Accumulated other comprehensive income	*24,27*	881,829,100	881,487,616
Retained earnings	*28*	845,402,772	1,151,717,791
Total equity		5,287,819,487	5,594,024,949
Total liabilities and equity		₩ 16,289,398,053	15,078,671,491

See accompanying notes to the consolidated financial statements.

HYUNDAI HEAVY INDUSTRIES CO., LTD. AND SUBSIDIARIES

Consolidated Statements of Comprehensive Loss

For the years ended December 31, 2022 and 2021

(In thousands of won, except per share information)

	Note		2022	2021
Sales	*24,29,30,42*	₩	9,045,480,488	8,311,275,924
Cost of sales	*10,24,32,42*		8,882,619,441	8,520,484,596
Gross profit (loss)			162,861,047	(209,208,672)
Selling, general and administrative expenses	*31,32,38*		452,012,200	591,054,105
Operating loss			(289,151,153)	(800,262,777)
Finance income	*24,33,38*		1,139,354,504	514,057,441
Finance costs	*24,33,38*		1,591,690,209	999,733,145
Other non-operating income	*24,34*		812,715,869	471,302,460
Other non-operating expenses	*24,34*		491,268,710	296,165,988
Loss on valuation of equity method			(1,444,085)	(646,157)
Loss before income tax			(421,483,784)	(1,111,448,166)
Income tax benefit	*35*		(69,419,162)	(297,220,204)
Loss for the year			(352,064,622)	(814,227,962)
Other comprehensive income (loss)	*24,27,38*			
Items that are or may be reclassified subsequently to profit or loss:				
Effective portion of changes in fair value of cash flow hedges		₩	525,597	7,717,898
Exchange differences on translating foreign operations			30,293	4,926
Total items that are or may be reclassified subsequently to profit			555,890	7,722,824
Items that will not be reclassified to profit or loss:				
Changes in fair value of financial assets measured at FVOCI			(186)	(41,861)
Actuarial gains and losses			43,307,734	(28,635,576)
Revaluation of property, plant and equipment			2,227,649	-
Total items that will not be reclassified to profit or loss			45,535,197	(28,677,437)
Other comprehensive profit or loss for the year, net of income tax			46,091,087	(20,954,613)
Total comprehensive loss for the year		₩	(305,973,535)	(835,182,575)
Loss per share	*36*			
Basic loss per share (In won)		₩	(3,966)	(10,713)

See accompanying notes to the consolidated financial statements.

HYUNDAI HEAVY INDUSTRIES CO., LTD. AND SUBSIDIARIES

Consolidated Statements of Changes in Equity

For the years ended December 31, 2022 and 2021

(In thousands of won)

		Common stock	Capital surplus	Capital adjustments	Accumulated other comprehensive income	Retained earnings (Accumulated Deficit)	Total equity
Balance at January 1, 2021	₩	353,865,580	4,639,942,059	(1,411,000)	873,473,232	(505,085,250)	5,360,784,621
Total comprehensive income (loss) for the year							
Loss for the year		-	-	-	-	(814,227,962)	(814,227,962)
Changes in fair value of financial assets measured at FVOCI		-	-	-	(41,861)	-	(41,861)
Effective portion of changes in fair value of cash flow hedges		-	-	-	7,717,898	-	7,717,898
Actuarial gains and losses		-	-	-	-	(28,635,576)	(28,635,576)
Translation differences related to foreign operation		-	-	-	4,926	-	4,926
Transactions with owners of the Group, recognized directly in equity							
Capital increase		90,000,000	978,422,903	-	-	-	1,068,422,903
Other							
Capital surplus transfer		-	(2,500,000,000)	-	-	2,500,000,000	-
Reclassification of revaluation of fair value of financial assets measured at FVOCI		-	-	-	489,527	(489,527)	-
Reclassification of revaluation of property, plant and equipment		-	-	-	(156,106)	156,106	-
Balance at December 31, 2021	₩	443,865,580	3,118,364,962	(1,411,000)	881,487,616	1,151,717,791	5,594,024,949
Balance at January 1, 2022	₩	443,865,580	3,118,364,962	(1,411,000)	881,487,616	1,151,717,791	5,594,024,949
Total comprehensive income (loss) for the year							
Loss for the year		-	-	-	-	(352,064,622)	(352,064,622)
Changes in fair value of financial assets measured at FVOCI		-	-	-	(186)	-	(186)
Effective portion of changes in fair value of cash flow hedges					525,597	-	525,597
Actuarial gains and losses		-	-	-	-	43,307,734	43,307,734
Revaluation of property, plant and equipment		-	-	-	2,227,649	-	2,227,649
Exchange differences on translating foreign operations		-	-	-	30,293	-	30,293
Other							
Reclassification of revaluation surplus		-	-	-	(2,441,869)	2,441,869	-
Reclassification of revaluation surplus		-	-	(231,927)	-	-	(231,927)
Balance at December 31, 2022	₩	443,865,580	3,118,364,962	(1,642,927)	881,829,100	845,402,772	5,287,819,487

See accompanying notes to the consolidated financial statements.

HYUNDAI HEAVY INDUSTRIES CO., LTD. AND SUBSIDIARIES

Consolidated Statements of Cash Flows

For the years ended December 31, 2022 and 2021

(In thousands of won)

	Note		2022	2021
Cash flows from operating activities				
Loss for the year		₩	(352,064,622)	(814,227,962)
Adjustments			463,554,223	1,669,141,261
Cash generated from operations	*37*		111,489,601	854,913,299
Interest received			41,382,180	16,901,380
Interest paid			(76,942,756)	(110,083,307)
Dividends received			37,708	34,280
Income taxes refund (paid)			(4,748,333)	295,746
Net cash provided by operating activities			71,218,400	762,061,398
Cash flows from investing activities				
Proceeds from collection of short-term financial assets			746,299,513	403,200,000
Proceeds from collection of short-term other receivables			5,666,035	-
Proceeds from collection of long-term financial assets			6,000	452
Proceeds from collection of long-term other receivables			152,655	5,315,962
Proceeds from sales of property, plant and equipment			12,889,870	12,469,277
Proceeds from sales of intangible assets			500,000	2,526,016
Proceeds from sales of non-current assets held for sale			4,719,315	-
Acquisition of short-term financial assets			(755,040,653)	-
Acquisition of long-term other receivables			(4,496,089)	(6,588,941)
Acquisition of property, plant and equipment			(484,478,175)	(243,969,800)
Acquisition of intangible assets			(29,673,758)	(21,220,365)
Changes in scope of consolidation (acquisition of control)			(14,379,533)	-
Changes in scope of consolidation (loss of control)			(44,334)	-
Net cash provided by (used in) investing activities			(517,879,154)	151,732,601
Cash flows from financing activities				
Capital Increase			-	1,068,422,903
Proceeds from short-term financial liabilities			621,413,028	991,522,103
Proceeds from long-term financial liabilities			374,490,000	1,235,155,000
Repayment of financial liabilities			(1,919,105,866)	(3,378,319,040)
Repayment of lease liabilities			(9,636,937)	(9,340,382)
Net cash used in financing activities			(932,839,775)	(92,559,416)
Effects of exchange rate changes on cash and cash equivalents			(13,742,772)	1,333,829
Net increase (decrease) in cash and cash equivalents			(1,393,243,301)	822,568,412
Cash and cash equivalents at January 1			2,137,391,421	1,314,823,009
Cash and cash equivalents at December 31		₩	744,148,120	2,137,391,421

See accompanying notes to the consolidated financial statements.

1. Reporting Entity

(1) Description of the controlling company

Hyundai Heavy Industries Co., Ltd. (the "Parent company") was newly established through a split-off from Korea Shipbuilding & Offshore Engineering Co., Ltd. (known as Hyundai Heavy Industries Co., Ltd. before split-off, existing entity) on June 1, 2019 (inception date) and is engaged in the manufacture and sale of ships, offshore structures, plants, engines and other products. The Parent company was listed on the Korea Exchange in September 2021. The Parent company's head office is located in Ulsan. As of December 31, 2022, the Parent company's major stockholder is the Korea Shipbuilding & Offshore Engineering Co., Ltd. (78.0%).

(2) Consolidated subsidiaries

Subsidiaries as of December 31, 2022 and 2021 are summarized as follows:

Company	Main business	Location	Fiscal year end	Ownership (%)	
				2022	2021
Hyundai Heavy Industries Free Zone Enterprise(*1)	Industrial plant construction	Nigeria	December	-	100.00
Hyundai Engine Company Ltd.(*2)	Manufacture of internal combustion engines	Korea	December	100.00	-

(*1) The liquidation process has been completed for the year ended December 31, 2022.
(*2) The Group acquired the entire shares of Hyundai Engine Company Ltd. from Korea Shipbuilding & Offshore Engineering Co., Ltd., which is the related party.

(3) Changes in scope of consolidation

(iii) The subsidiary newly subject to consolidation for the year ended December 31, 2022 is as follows:

Company	Reason
Hyundai Engine Company Ltd.	Purchase of shares

(iv) The subsidiary excluded from consolidation for the year ended December 31, 2022 is as follows:

Company	Reason
Hyundai Heavy Industries Free Zone Enterprise	Liquidation

1. Reporting Entity, Continued

(4) Condensed financial information of consolidated subsidiaries

Condensed financial information of consolidated subsidiaries as of and for the years ended December 31, 2022 and 2021 is summarized as follows:

(In millions of won)

		2022					
Company		**Assets**	**Liabilities**	**Equity**	**Sales**	**Profit (loss)**	**Total comprehensive loss**
Hyundai Engine Company Ltd.	₩	64,562	37,659	26,903	6,168	(1,865)	(1,865)

(In millions of won)

		2021					
Company		**Assets**	**Liabilities**	**Equity**	**Sales**	**Profit**	**Total comprehensive profit**
Hyundai Heavy Industries Free Zone Enterprise	₩	669	11	658	7,578	551	556

(5) Non-controlling interests

There is no information relating to the non-controlling interests of subsidiary as of December 31, 2022.

2. Basis of Preparation

The Parent company and its subsidiaries ("the Group") prepared the consolidated financial statements in accordance with Korean International Financial Reporting Standards ("K-IFRS"), as prescribed in Article 5, Clause 1 of *the Act on External Audit of Stock Companies, Etc.* of the Republic of Korea.

The consolidated financial statements were authorized for issue by the Board of Directors on February 7, 2023 and will be submitted for approval to the stockholder's meeting to be held on March 28, 2023.

(1) Basis of measurement

The consolidated financial statements have been prepared on a historical cost basis except for the following material items in the statement of financial position:

- Derivative financial instruments measured at fair value
- Financial assets measured at FVTPL measured at fair value
- Financial assets measured at FVOCI measured at fair value
- Lands measured at fair value
- Liabilities for defined benefit plans recognized at the net of the total present value of defined benefit obligations less the fair value of plan assets

(2) Functional and presentation currency

The financial statements of individual entities within the Group are prepared in functional currency, which is the currency of the primary economic environment in which the individual entities operate. The consolidated financial statements are prepared and presented in Korean won, which is the Parent Company's functional currency and presentation currency.

(3) Use of estimates and judgments

The preparation of the consolidated financial statements in conformity with K-IFRS requires management to make judgments, estimates and assumptions that affect the application of accounting policies and the reported amounts of assets, liabilities, income and expenses. Actual results may differ from these estimates.

Estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognized in the period in which the estimates are revised and in any future periods affected.

The financial impact of the armed conflict in Ukraine, started in February 2022, and subsequent international sanctions against Russia cannot be estimated reasonably.

(i) Judgments

Information about critical judgements in applying accounting policies that have the most significant effect on the amounts recognized in the consolidated financial statements is included in the following notes:

- Note 4: Lease term – whether the Group is reasonably certain to exercise extension options;
- Note 4: Timing of revenue recognition;
- Note 12: Investment in associates - whether the Group has significant influence over an investee;
- Note 13: Classification of joint arrangements; and
- Note 15: Classification of investment property

2. Basis of Preparation, Continued

(3) Use of estimates and judgements, continued

(ii) Assumptions and estimation uncertainties

Information about assumptions and estimation uncertainties that have a significant risk of resulting in a material adjustment within the next financial year is included in the following notes:

- Note 5 and 39: Measurement of expected credit loss on trade receivables and contract assets – key assumption about determining weighted-average loss rate;
- Note 11, 16 and 18: Impairment test – key assumptions underlying recoverable amounts, including the recoverability of other current assets, property and intangible assets;
- Note 22: Measurement of defined benefit obligations – key actuarial assumptions;
- Note 23, 40 and 41: Recognition and measurement of provisions and contingencies – key assumption about the likelihood and magnitude of an outflow of resources;
- Note 29: Revenue recognition in proportion to the stage of completion, the estimates of total contract costs; and
- Note 35: Measurement of deferred tax.

(iii) Measurement of fair value

A number of the Group's accounting policies and disclosures require the measurement of fair values, for both financial and non-financial assets and liabilities. The Group has an established control framework with respect to the measurement of fair values. This includes a valuation team that has overall responsibility for overseeing all significant fair value measurements, including Level 3 fair values, and reports directly to the CFO.

The valuation team regularly reviews significant unobservable inputs and valuation adjustments. If third party information, such as broker quotes or pricing services, is used to measure fair values, then the valuation team assesses the evidence obtained from the third parties to support the conclusion that such valuations meet the requirements of K-IFRS, including the level in the fair value hierarchy in which such valuations should be classified.

Significant valuation issues are reported to the Group's Audit Committee.

When measuring the fair value of an asset or a liability, the Group uses market observable data as far as possible. Fair values are categorized into different levels in a fair value hierarchy based on the inputs used in the valuation techniques as follows.

- Level 1: Quoted prices (unadjusted) in active markets for identical assets or liabilities.
- Level 2: Inputs other than quoted prices included in Level 1 that are observable for the asset or liability, either directly (i.e., as prices) or indirectly (i.e., derived from prices).
- Level 3: Inputs for the asset or liability that are not based on observable market data (unobservable inputs).

If the inputs used to measure the fair value of an asset or a liability might be categorized in different levels of the fair value hierarchy, then the fair value measurement is categorized in its entirety in the same level of the fair value hierarchy as the lowest level input that is significant to the entire measurement. The Group recognizes transfers between levels of the fair value hierarchy at the end of the reporting period during which the change has occurred.

2. Basis of Preparation, Continued

(3) Use of estimates and judgements, continued

(iii) Measurement of fair value, continued

Further information about the assumptions made in measuring fair values is included in the following notes:

- Note 14: Financial assets measured at fair value;
- Note 15: Investment property;
- Note 16: Property, plant and equipment;
- Note 39: Financial instruments; and

3. Changes in Accounting Policies

(1) New and revised standards adopted by the Group

The Group has initially adopted the following new standards and amendments which are effective from January 1, 2022. The Group has not early adopted the new standards, interpretations or amendments which have been published but are not mandatory.

(i) K-IFRS No.1037 '*Provision, Contingent Liabilities and Contingent Assets*' amendment (Onerous Contracts – Cost of Fulfilling a Contract)

An onerous contract is a contract in which the non-avoidable costs required for the performance of its contractual obligations exceed the economic benefits expected to be received in that contract. When determining whether a contract is a loss-bearing contract, the costs directly associated with the contract include both incremental costs of performing the contract (e.g., material and labor costs) and other costs directly related to the performance of the contract (e.g., depreciation or allocation of costs to manage and supervise the contract). General administrative costs do not relate directly to the contract and are excluded unless they are explicitly chargeable to the counterparty under the contract.

Prior to applying the amendment, the Group determined that the cost of providing goods or services was an onerous contract, including the incremental cost of performing the contract (e.g., material and labor costs) and other cost allocations directly related to the performance of the contract (e.g., depreciation or cost of managing and supervising the contract). Therefore, the amendment is not expected to have a significant impact on our financial statements.

(ii) K-IFRS No.1103 '*Business Combinations*' amendment (Conceptual framework for financial reporting)

The amendment ensures that significant changes to the previously published 'Conceptual Framework for the Preparation and Presentation of Financial Statements' are not made to reference the 'Conceptual Framework for Financial Reporting' published in March 2018.

An exception was added to the K-IFRS No.1103 '*Business Combinations*' to prevent day 2 gains or losses from occurring on liabilities and contingent liabilities that fall within the scope of the K-IFRS No.1037 '*Provision, Contingent Liabilities and Contingent Assets*' and the K-IFRS No.2121 '*Levies*'. This exception requires the application of the criteria in the K-IFRS No.1037 '*Provision, Contingent Liabilities and Contingent Assets*' or the K-IFRS No.2121 '*Levies*' to determine whether the current obligation exists at the acquisition date.

The amendment also added a new paragraph to the K-IFRS No.1103 '*Business Combinations*' to clarify that contingent assets cannot be recognised at the acquisition date. The amendment is not expected to have a significant impact on the Group's consolidated financial statements.

3. Changes in Accounting Policies, Continued

(iii) K-IFRS No.1016 '*Property, Plant and Equipment*' amendment (Proceeds before Intended Use)

The amendment prohibits entities deducting from the cost of an item of property, plant and equipment, any proceeds from selling items produced while bringing that asset to the location and condition necessary for it to be capable of operating in the manner intended by management. Instead, an entity recognizes the proceeds from selling such items, and the costs of producing those items, in profit or loss. The amendment is not expected to have a significant impact on the Group's consolidated financial statements.

(iv) K-IFRS No.1109 '*Financial Instruments*' amendment
(Fees related to 10% testing for the purpose of eliminating financial liabilities)

The amendment clarifies the fees an entity includes when assessing whether the terms of a new or changed financial liability are substantially different from those of an existing financial liability. These fees include only fees paid or received between creditors and debtors and fees paid or received by creditors and debtors on behalf of each other. There are no similar limited amendments to the K-IFRS No.1039 '*Financial Instruments*: *Recognition and Measurement*'. The amendment is not expected to have a significant impact on the Group's consolidated financial statements

(v) K-IFRS No.1041 '*Agriculture, Forestry and Fisheries*' amendment
(Consider taxes when measuring fair value)

The amendment eliminated the requirements in paragraph 22 that do not include tax-related cash flows when measuring the fair value of an asset that falls within the scope of the K-IFRS No.1041 '*Agriculture*'. As of December 31, 2022, the Group does not have any assets within the scope of the Standard, so the amendment is not expected to have a significant impact on the Group's consolidated financial statements.

4. Significant Accounting Policies

The significant accounting policies applied by the Group in the preparation of the consolidated financial statements in accordance with K-IFRS are included below. The accounting policies set out below have been applied consistently to all periods presented in these consolidated financial statements except for the changes in accounting policies as explained in *Note 3*.

(1) Operating segments

An operating segment is a component of the Group that engages in business activities from which it may earn revenues and incur expenses, including revenues and expenses that relate to transactions with any of the Group's other components. All operating segment operating results are reviewed regularly by the Group's chief executive officer (CEO) to make decisions about resources to be allocated to the segment and assess its performance, and for which discrete financial information is available. As discussed in *Note 30* the Group has four reportable segments which are the Group's strategic business units. The strategic business units offer different products and services and are managed separately because they require different technology and marketing strategies.

Segment results that are reported to the CEO include items directly attributable to a segment as well as those that can be allocated on a reasonable basis.

4. Significant Accounting Policies, Continued

(2) Basis of consolidation

(i) Business combinations

A business combination is accounted for by applying the acquisition method, unless it is a combination involving entities or business under common control.

The consideration transferred in the acquisition is generally measured at fair value, as are the identifiable net assets acquired. Any goodwill that arises is tested annually for impairment. Any gain on a bargain purchase is recognized in profit or loss immediately. Transaction costs are expensed as incurred, except if related to the issue of debt or equity securities. The costs to issue debt or equity securities are recognized in accordance with K-IFRS No. 1032 and K-IFRS No. 1109.

The consideration transferred does not include amounts related to the settlement of pre-existing relationships. Such amounts are generally recognized in profit or loss.

Any contingent consideration is measured at fair value at the acquisition date. If the contingent consideration is classified as equity, then it is not remeasured and settlement is accounted for within equity. Otherwise, subsequent changes in the fair value of the contingent consideration are recognized in profit or loss.

If share-based payment awards (replacement awards) are required to be exchanged for awards held by the acquiree's employees (acquiree's awards), then all or a portion of the amount of the acquirer's replacement awards is included in measuring the consideration transferred in the business combination. This determination is based on the market-based measure of the replacement awards compared with the market-based measure of the acquiree's awards and the extent to which the replacement awards relate to pre-combination service.

(ii) Subsidiaries

Subsidiaries are entities controlled by the Group. The Group controls an entity when it is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. The financial statements of subsidiaries are included in the consolidated financial statements from the date on which control commences until the date on which control ceases.

(iii) Non-controlling interests

Non-controlling interests are measured initially at their proportionate share of the acquiree's identifiable net assets at the date of acquisition. Changes in the Group's interest in a subsidiary that do not result in a loss of control are accounted for as equity transactions.

(iv) Loss of control

When the Group loses control over a subsidiary, it derecognizes the assets and liabilities of the subsidiary, and any related NCI and other components of equity. Any resulting gain or loss is recognized in profit or loss. Any interest retained in the former subsidiary is measured at fair value when control is lost.

4. Significant Accounting Policies, Continued

(2) Basis of consolidation, continued

(v) Interests in equity-accounted investees

The Group's interests in equity-accounted investees comprise interests in associates.

Associates are those entities in which the Group has significant influence, but not control or joint control, over the financial and operating policies.

Interests in associates are accounted for using the equity method. They are recognized initially at cost, which includes transaction costs. Subsequent to initial recognition, the consolidated financial statements include the Group's share of the profit or loss and OCI of equity-accounted investees, until the date on which significant influence ceases.

(vi) Transactions eliminated on consolidation

Intra-group balances and transactions, and any unrealized income and expenses arising from intra-group transactions, are eliminated. Unrealized gains arising from transactions with equity-accounted investees are eliminated against the investment to the extent of the Group's interest in the investee. Unrealized losses are eliminated in the same way as unrealized gains, but only to the extent that there is no evidence of impairment.

(vii) Business combination of entities under common control

The assets and liabilities acquired under business combinations of entities under common control are recognized at the carrying amounts recognized previously in the consolidated financial statements of the ultimate parent. The difference between consideration transferred and carrying amounts of net assets acquired is recognized as part of capital surplus.

(3) Cash and cash equivalents

Cash and cash equivalents comprise cash balances, call deposits, short-term investments with maturities of three months or less from the acquisition date that are subject to an insignificant risk of changes in their fair value and are used by the Group in the management of its short-term commitments. Equity investments are excluded from cash equivalents unless they are, in substance, cash equivalents, for example in the case of preference shares when it has a short maturity with a specified redemption date.

(4) Inventories

The cost of inventories is based on the moving-average method with the exception of cost of materials-in-transit, which is determined on the specific identification method. Cost of inventories includes expenditures incurred in acquiring the inventories, production or conversion costs and other costs incurred in bringing them to their existing location and condition. Fixed manufacturing overhead costs among conversion costs are distributed based on the normal capacity of production facilities.

Inventories are measured at the lower of cost and net realizable value. Net realizable value is the estimated selling price in the ordinary course of business, less the estimated costs of completion and selling expenses. The amount of any write-down of inventories to net realizable value and all losses of inventories are 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.

4. Significant Accounting Policies, Continued

(5) Non-derivative financial assets

(i) Recognition and initial measurement

The Group initially recognizes trade receivables and debt securities issued on the date on which they are originated. Other financial assets and financial liabilities are recognized on trade date, which is the date on which the Group becomes a party to the contractual provisions of the instrument.

A financial asset (unless it is a trade receivable without a significant financing component) or financial liability is initially measured at fair value plus, for an item not at FVTPL, transaction costs that are directly attributable to its acquisition or issue. A trade receivable without a significant financing component is initially measured at the transaction price.

(ii) Classification and subsequent measurement

(a) Financial assets

On initial recognition, a financial asset is classified as measured at: amortized cost; FVOCI – debt investment; FVOCI – equity investment; or FVTPL.

Financial assets are not reclassified subsequent to their initial recognition unless the Group changes its business model for managing financial assets, in which case all affected financial assets are reclassified on the first day of the first reporting period following the change in the business model.

A financial asset is measured at amortized cost if it meets both of the following conditions and is not designated as at FVTPL:

- the asset is held within a business model whose objective is to hold assets to collect contractual cash flows; and
- its contractual terms give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

A debt investment is measured at FVOCI if it meets both of the following conditions and is not designated as at FVTPL:

- it is held within a business model whose objective is achieved by both collecting contractual cash flows and selling financial assets; and
- its contractual terms give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

On initial recognition of an equity investment that is not held for trading, the Group may irrevocably elect to present subsequent changes in the investment's fair value in OCI. Once the Group designates an equity investment, as at FVOCI the Group will not reclassify this item. This election is made on an investment-by-investment basis.

All financial assets not classified as measured at amortized cost or FVOCI as described above are measured at FVTPL. These financial assets include all derivative financial assets (See Note 24). In addition, on initial recognition, the Group may irrevocably designate a financial asset that otherwise meets the requirements to be measured at amortized cost or at FVOCI as at FVTPL if doing so eliminates or significantly reduces an accounting mismatch that would otherwise arise. Once the Group designates a financial asset as at FVTPL, the Group will not reclassify this item to amortized cost or FVOCI subsequently.

4. Significant Accounting Policies, Continued

(5) Non-derivative financial assets, continued

(ii) Classification and subsequent measurement, continued

(b) Financial assets - Business model assessment

The Group makes an assessment of the objective of a business model in which an asset is held at a portfolio level because this best reflects the way the business is managed and information is provided to management. The information considered includes:

- the stated policies and objectives for the portfolio and the operation of those policies in practice. In particular, whether management's strategy focuses on earning contractual interest revenue, maintaining a particular interest rate profile, matching the duration of the financial assets to the duration of the liabilities that are funding those assets or realizing cash flows through the sale of the assets;
- how the performance of the portfolio is evaluated and reported to the Group's management;
- the risks that affect the performance of the business model (and the financial assets held within that business model) and its strategy for how those risks are managed;
- how managers of the business are compensated (e.g., whether compensation is based on the fair value of the assets managed or the contractual cash flows collected); and
- the frequency, volume and timing of sales in prior periods, the reasons for such sales and its expectations about future sales activity.

Transfers of financial assets to third parties in transactions that do not qualify for derecognition are not considered sales for this purpose, consistent with the Group's continuing recognition of the assets.

Financial assets that are held for trading or managed and whose performance is evaluated on a fair value basis are measured at FVTPL.

(c) Financial assets - Assessment of whether contractual cash flows are solely payments of principal and interest

For the purposes of this assessment, 'principal' is defined as the fair value of the financial asset on initial recognition. 'Interest' is defined as consideration for the time value of money and for the credit risk associated with the principal amount outstanding during a particular period of time and for other basic lending risks and costs (e.g., liquidity risk and administrative costs), as well as profit margin.

In assessing whether the contractual cash flows are SPPI, the Group considers the contractual terms of the instrument. This includes assessing whether the financial asset contains a contractual term that could change the timing or amount of contractual cash flows such that it would not meet this condition.

In making the assessment, the Group considers:

- contingent events that would change the amount and timing of cash flows;
- terms that may adjust the contractual coupon rate, including variable-rate features;
- prepayment and extension features; and
- terms that limit the Group's claim to cash flows from specified assets (e.g., non-recourse features)

A prepayment feature is consistent with the solely payments of principal and interest criterion if the prepayment amount substantially represents unpaid amounts of principal and interest on the principal amount outstanding, which may include reasonable additional compensation for early termination of the contract.

4. Significant Accounting Policies, Continued

(5) Non-derivative financial assets, continued

(ii) Classification and subsequent measurement, continued

(c) Financial assets - Assessment of whether contractual cash flows are solely payments of principal and interest, continued

Additionally, for a financial asset acquired at a discount or premium to its contractual par amount, a feature that permits or requires prepayment at an amount that substantially represents the contractual par amount plus accrued (but unpaid) contractual interest (which may also include reasonable additional compensation for early termination) is treated as consistent with this criterion if the fair value of the prepayment feature is insignificant at initial recognition.

(d) Financial assets – Subsequent measurement and gains and losses

Financial assets at FVTPL	These assets are subsequently measured at fair value. Net gains and losses, including any interest or dividend income, are recognized in profit or loss.
Financial assets at amortized cost	These assets are subsequently measured at amortized cost using the effective interest method. The amortized cost is reduced by impairment losses. Interest income, foreign exchange gains and losses and impairment are recognized in profit or loss. Any gain or loss on derecognition is recognized in profit or loss.
Debt investments at FVOCI	These assets are subsequently measured at fair value. Interest income calculated using the effective interest method, foreign exchange gains and losses and impairment are recognized in profit or loss. Other net gains and losses are recognized in OCI. On derecognition, gains and losses accumulated in OCI are reclassified to profit or loss.
Equity investments at FVOCI	These assets are subsequently measured at fair value. Dividends are recognized as income in profit or loss unless clearly represents a recovery of part of the cost of the investment. Other net gains and losses are recognized in OCI and are never reclassified to profit or loss.

(iii) Derecognition

The Group derecognizes a financial asset when the contractual rights to the cash flows from the financial asset expire, or it transfers the rights to receive the contractual cash flows in a transaction in which substantially all of the risks and rewards of ownership of the financial asset are transferred or in which the Group neither transfers nor retains substantially all of the risks and rewards of ownership and it does not retain control of the financial asset.

The Group enters into transactions whereby it transfers assets recognized on its statement of financial position, but retains either all or substantially all of the risks and rewards of the transferred assets. In such cases, the transferred assets are not derecognized.

Interest rate benchmark reform

When the basis for determining the contractual cash flows of a financial asset or financial liability measured at amortized cost changed as a result of interest rate benchmark reform, the Group updates the effective interest rate of the financial asset or financial liability to reflect the change that is required by the reform. A change in the basis for determining the contractual cash flows is required by interest rate benchmark reform if the following conditions are met:

4. Significant Accounting Policies, Continued

(5) Non-derivative financial assets, continued

(iii) Derecognition, continued

- the change is necessary as a direct consequence of the reform; and
- The new basis for determining the contractual cash flows is economically equivalent to the previous basis (i.e., the basis immediately before the change).

When changes were made to a financial asset or financial liability in addition to changes to the basis for determining the contractual cash flows required by interest rate benchmark reform, the Group first updates the effective interest rate of the financial asset of financial liability to reflect the change that is required by interest rate benchmark reform. After that, the Group applies the policies on accounting for modifications to the additional changes.

(iv) Offsetting

Financial assets and financial liabilities are offset and the net amount presented in the statement of financial position when, and only when, the Group currently has a legally enforceable right to set off the amounts and it intends either to settle them on a net basis or to realize the asset and settle the liability simultaneously.

4. Significant Accounting Policies, Continued

(6) Derivative financial instruments

Derivatives are initially measured at fair value. Subsequent to initial recognition, derivatives are measured at fair value, and changes therein are recognized as described below:

(i) Hedge accounting

The Group holds forward exchange contracts to manage foreign exchange risk. The Group designated derivatives as hedging instruments to hedge the risk of changes in fair value of assets, liabilities or firm commitments (a fair value hedge) and foreign currency risk of highly probable forecasted transactions or firm commitments (a cash flow hedge).

On initial designation of the hedge, the Group formally documents the relationship between the hedging instrument(s) and hedged item(s), including the risk management objectives and strategy in undertaking the hedge transaction, together with the methods that will be used to assess the effectiveness of the hedging relationship.

(a) Fair value hedge
When a derivative is designated as a fair value hedging instrument, changes in fair value of the derivative is recognized in profit or loss. Changes in fair value of the hedged item attributable to hedged risk are also recognized in profit or loss. Changes in fair value of the hedging instrument and hedged item attributable to hedged risk are recognized in profit or loss in the same line of item of consolidated financial statements of comprehensive income. However, for hedges of equity investments at FVOCI, changes in fair value of the hedged item and the hedging instrument are recognized in other comprehensive income. The Group prospectively discontinues fair value hedge accounting if the hedging instrument expires or is sold, terminated or exercised, or if the fair value hedge no longer meets the criteria for hedge accounting.

(b) Cash flow hedge
When a derivative is designated as a cash flow hedging instrument, the effective portion of changes in fair value of the derivative is recognized in other comprehensive income and ineffective portion of changes in fair value of the derivative is recognized immediately in profit or loss.

If the cash flow hedge no longer meets the criteria for hedge accounting or the hedging instrument is sold, expires, is terminated, or is exercised, then hedge accounting is discontinued prospectively. When hedge accounting for cash flow hedges is discontinued, the amount that has been accumulated in the hedging reserve remains in equity, it is reclassified to profit or loss in the same period or periods as the hedged expected future cash flows affect profit or loss.

If the hedged future cash flows are no longer expected to occur, then the amounts that have been accumulated in the hedging reserve and the cost of hedging reserve are immediately reclassified to profit or loss.

4. Significant Accounting Policies, Continued

(6) Derivative financial instruments, continued

(i) Hedge accounting, continued

(c) Hedges directly affected by interest rate benchmark reform

When the basis for determining the contractual cash flows of the hedged item or hedging instrument changes as a result of IBOR reform and therefore there is no longer uncertainty arising about the cash flows of the hedged item or the hedging instrument, the Group amends the hedge documentation of that hedging relationship to reflect the change required by IBOR reform. For this purpose, the hedge designation is amended only to make one or more of the following changes:

- designating an alternative benchmark rate as the hedged risk;
- updating the description of the hedged item, including the description of the designated portion of the cash flows or fair value being hedged; or
- updating the description of the hedging instrument.

The Group amends the description of the hedging instrument only if the following conditions are met:

- it makes a change required by IBOR reform by using an approach other than changing the basis for determining the contractual cash flows of the hedging instrument;
- the original hedging instrument is not derecognized; and
- the chosen approach is economically equivalent to changing the basis for determining the contractual cash flows of the original hedging instrument.

The Group amends the formal hedge documentation by the end of the reporting period during which a change required by IBOR reform is made to the hedged risk, hedged item or hedging instrument. These amendments in the formal hedge documentation do not constitute the discontinuation of the hedging relationship or the designation of a new hedging relationship.

If changes are made in addition to those changes required by IBOR reform described above, then the Group first considers whether those additional changes result in the discontinuation of the hedge accounting relationship. If the additional changes do not result in the discontinuation of the hedge accounting relationship, then the Group amends the formal hedge documentation for changes required by IBOR reform as mentioned above.

When modifying the description of the hedged item in the hedge accounting document to reflect the changes required in IBOR reform, the Group deems that the hedging reserve recognized in OCI for that hedging relationship is based on the alternative benchmark rate by which the hedged future cash flows will be determined.

When the interest rate benchmark on which the hedged future cash flows had been based is changed as required by IBOR reform, for the purpose of determining whether the hedged future cash flows are expected to occur, the Group deems that the hedging reserve recognized in OCI for that hedging relationship is based on the alternative benchmark rate on which the hedged future cash flows will be based.

4. Significant Accounting Policies, Continued

(6) Derivative financial instruments, continued

(ii) Separable embedded derivatives

Embedded derivatives are separated from the host contract and accounted for separately only if the following criteria have been met:

(a) The economic characteristics and risks of the embedded derivative are not closely related to those of the host contract;
(b) A separate instrument with the same terms as the embedded derivative would meet the definition of a derivative; and
(c) The hybrid instrument is not financial assets measured at FVTPL.

Changes in the fair value of separable embedded derivatives are recognized immediately in profit or loss.

(iii) Other derivative financial instruments

Changes in fair value of other derivative financial instrument not designated as a hedging instrument are recognized immediately in profit or loss.

4. Significant Accounting Policies, Continued

(7) Impairment of financial assets

(i) Financial assets and contract assets

The Group recognizes loss allowances for ECLs on:
- financial assets measured at amortized cost;
- debt investments measured at FVOCI; and
- contract assets defined in K-IFRS No.1115.

The Group measures loss allowances at an amount equal to lifetime ECLs, except for the following, which are measured at 12-month ECLs:
- debt securities that are determined to have low credit risk at the reporting date; and
- other debt securities and bank balances for which credit risk (i.e., the risk of default occurring over the expected life of the financial instrument) has not increased significantly since initial recognition.

Loss allowances for trade receivables and contract assets are always measured at an amount equal to lifetime ECLs.

When determining whether the credit risk of a financial asset has increased significantly since initial recognition and when estimating ECLs, the Group considers reasonable and supportable information that is relevant and available without undue cost or effort. This includes both quantitative and qualitative information and analysis, based on the Group's historical experience and informed credit assessment that includes forward-looking information.

The Group considers a financial asset to be in default when:
- the debtor is unlikely to pay its credit obligations to the Group in full, without recourse by the Group to actions such as realizing security (if any is held); or
- a significant increase in overdue days of financial assets.

Lifetime ECLs are the ECLs that result from all possible default events over the expected life of a financial instrument.

12-month ECLs are the portion of ECLs that result from default events that are possible within the 12 months after the reporting date (or a shorter period if the expected life of the instrument is less than 12 months).

The maximum period considered when estimating ECLs is the maximum contractual period over which the Group is exposed to credit risk.

(ii) Measurement of ECLs

ECLs are a probability-weighted estimate of credit losses. Credit losses are measured as the present value of all cash shortfalls (i.e., the difference between the cash flows due to the entity in accordance with the contract and the cash flows that the Group expects to receive). ECLs are discounted at the effective interest rate of the financial asset.

The maximum period considered when estimating ECLs is the maximum contractual period over which the Group is exposed to credit risk.

4. Significant Accounting Policies, Continued

(7) Impairment of financial assets, continued

(iii) Credit-impaired financial assets

At each reporting date, the Group assesses whether financial assets carried at amortized cost and debt securities at FVOCI are credit-impaired. A financial asset is ‘credit-impaired’ when one or more events that have a detrimental impact on the estimated future cash flows of the financial asset have occurred.

Evidence that a financial asset is credit-impaired includes the following observable data:

- significant financial difficulty of the debtor or issuer;
- a breach of contract such as a default;
- the restructuring of a loan or advance by the Group on terms that the Group would not consider otherwise;
- it is probable that the debtor will enter bankruptcy or other financial reorganization; or
- the disappearance of an active market for a security because of financial difficulties.

(iv) Presentation of allowance for ECL in the statement of financial position

Loss allowances for financial assets measured at amortized cost are deducted from the gross carrying amount of the assets. For debt securities at FVOCI, the loss allowance is charged to profit or loss and is recognized in OCI.

In view of the importance of impairment losses related to trade receivables and other receivables, including contract assets, they are presented in 'selling, general and administrative expenses' or 'other non-operating expenses'. In view of the importance of other financial assets, impairment losses are not presented separately in the statement of comprehensive income but are presented in 'finance costs'.

(v) Write-off

The gross carrying amount of a financial asset is written off when the Group has no reasonable expectations of recovering a financial asset in its entirety or a portion thereof. The Group expects no significant recovery from the amount written off. However, financial assets that are written off could still be subject to enforcement activities in order to comply with the Group’s procedures for recovery of amounts due.

4. Significant Accounting Policies, Continued

(8) Property, plant and equipment

Property, plant and equipment are initially measured at cost at the initial recognition. The cost of property, plant and equipment includes expenditures arising directly from the construction or acquisition of the asset, 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 and the initial estimate of the costs of dismantling, removing the item and restoring the site on which it is located.

Subsequent to initial recognition, an item of property, plant and equipment excluding land is carried at its cost less any accumulated depreciation and any accumulated impairment losses. Subsequent to initial recognition land that fair value can be measured reliably is carried at its fair value at the date of revaluation less any accumulated impairment losses. Revaluations are made with sufficient regularity to ensure that the carrying amount does not differ materially from that which would be determined using fair value at the end of the reporting period.

Property, plant and equipment, except for land, are depreciated on a straight-line basis over estimated useful lives that appropriately reflect the pattern in which the asset's future economic benefits are expected to be consumed. A component that is significant compared to the total cost of property, plant and equipment is depreciated over its separate useful life.

Gains and losses on disposal of an item of property, plant and equipment are determined by comparing the proceeds from disposal with the carrying amount of property, plant and equipment and are recognized in profit or loss.

The estimated useful lives of the Group's property, plant and equipment are as follows:

	Useful lives (years)
Buildings	25~50
Structures	20~45
Machinery and equipment	5~20
Ships	15, 25
Vehicles	5~14
Tools, furniture and fixtures	3~20

Depreciation methods, useful lives and residual values are reviewed at the end of each reporting period and adjusted, if appropriate. The change is accounted for as a change in an accounting estimate.

Subsequent expenditure is capitalized only when it increases the future economic benefits embodied in the specific asset to which it relates.

(9) Intangible assets

Intangible assets are measured initially at cost and, subsequently, are carried at cost less accumulated amortization and accumulated impairment losses.

Amortization of intangible assets except for goodwill is calculated on a straight-line basis over the estimated useful lives of intangible assets from the date that they are available for use. The residual value of intangible assets is zero. However, as there are no foreseeable limits to the periods over which some intangible assets are expected to be available for use, this intangible asset is determined as having indefinite useful lives and not amortized.

	Useful lives (years)
Development costs	5
Other intangible assets	20
Memberships, Trademarks	Indefinite

4. Significant Accounting Policies, Continued

(9) Intangible assets, continued

Useful lives and the amortization methods for intangible assets with finite useful lives are reviewed at the end of each reporting period. The useful lives of intangible assets that are not being amortized are reviewed at the end of each reporting period to determine whether events and circumstances continue to support indefinite useful life assessments for those assets. Changes are accounted for as changes in accounting estimates.

(i) Research and development

Expenditures on research activities, undertaken with the prospect of gaining new scientific or technical knowledge and understanding, are recognized in profit or loss as incurred. Development expenditures are capitalized only if expenditures can be measured reliably, the product or process is technically and commercially feasible, future economic benefits are probable, and the Group intends and has sufficient resources to complete development and to use or sell the asset. Other development expenditures are recognized in profit or loss as incurred.

(ii) Subsequent expenditures

Subsequent expenditures are capitalized only when they increase the future economic benefits embodied in the specific asset to which it relates. All other expenditures, including expenditures on internally generated goodwill and brands, are recognized in profit or loss as incurred.

(10) Government grants

Government grants are only recognized if there is reasonable assurance that they will be received and the Group will comply with the conditions associated with the grant.

Government grants whose primary condition is that the Group purchase, construct or otherwise acquire long-term assets are deferred and recognized as deduction to depreciation expense over the useful life of the asset.

Government grants which are intended to compensate the Group for expenses incurred are recognized as other income (government grants) in profit or loss over the periods in which the Group recognizes the related costs as expenses.

(11) Investment property

Property held for the purpose of earning rentals, benefiting from capital appreciation or both is classified as investment property. Investment property is measured initially at its cost. Transaction costs are included in the initial measurement. Subsequent to initial recognition, investment property is carried at its cost less any accumulated depreciation and any accumulated impairment losses.

Subsequent costs are recognized in the carrying amount of investment property at cost or, if appropriate, as separate items if it is probable that future economic benefits associated with the item will flow to the Group and the cost of the item can be measured reliably. The carrying amount of the replaced part is derecognized. The costs of the day-to-day servicing are recognized in profit or loss as incurred.

Investment property is depreciated on a straight-line basis over the following estimated useful lives:

	Useful lives (years)
Buildings	50

Depreciation methods, useful lives and residual values are reviewed at the end of each reporting period and adjusted, if appropriate. The change is accounted for as a change in an accounting estimate.

4. Significant Accounting Policies, Continued

(12) Impairment of non-financial assets

The carrying amounts of the Group's non-financial assets, other than assets arising from contract assets that are recognized according to the revenue from the contract with the customer, assets arising from the cost of entering into or fulfilling a contract, employee benefits, inventories, deferred tax assets and non-current assets held for sale, are reviewed at the end of the reporting period to determine whether there is any indication of impairment. If any such indication exists, then the asset's recoverable amount is estimated. Goodwill arising from a business combination, Intangible assets that have indefinite useful lives or that are not yet available for use, irrespective of whether there is any indication of impairment, are tested for impairment annually by comparing their recoverable amount to their carrying amount.

For impairment testing, assets are grouped together into the smallest group of assets that generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets ("CGUs"). The recoverable amount of an asset or CGU is the greater of its value in use and its fair value less costs to sell. Value in use is based on the estimate future cash flows, discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset or CGU.

An impairment loss is recognized in profit or loss if the carrying amount of an asset or a CGU exceeds its recoverable amount.

Goodwill arising from a business combination is allocated to CGUs or groups of CGUs that are expected benefit from the synergies of the combination. Impairment losses identified at CGU are allocated first to reduce the carrying amount of any goodwill allocated to the CGU, and then to reduce the carrying amounts of the other assets in the CGU on a pro rata basis. An impairment loss in respect of goodwill is not reversed. For other assets, an impairment loss is reversed if there is any indication that the impairment loss previously recognized is no longer exists or has been reduced and there is a change in the estimates used to determine the recoverable amount. An impairment loss is reversed only to the extent that the asset's carrying amount does not exceed the carrying amount that would have been determined, net of depreciation or amortization, if no impairment loss had been recognized.

(13) Leases

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

At commencement or on modification of a contract, the Group assesses whether a contract is or contains a lease.

At commencement or on modification of a contract that contains a lease component, the Group allocates the consideration in the contract to each lease and non-lease component on the basis of their relative stand-alone prices. However, for the leases of property, the Group has elected practical expedient not to separate non-lease components and account for the lease and non-lease components as a single lease component.

4. Significant Accounting Policies, Continued

(13) Leases, continued

(i) As a lessee

The Group, as a lessee, has recognized right-of-use assets representing its rights to use the underlying assets and lease liabilities representing its obligation to make lease payments.

At the lease commencement date, the Group recognizes a right-of-use asset and a lease liability. The right-of-use asset is initially measured at cost. Subsequent to initial recognition, the right-of-use asset is carried at cost less any accumulated depreciation and any accumulated impairment losses, if any, and adjusted for certain remeasurements of the lease liability. The right-of-use assets that meet the definition of investment property is presented in the consolidated statements of financial position as investment property. The right-of-use assets that meet the definition of investment property is initially measured at cost and subsequent to initial recognition, the right-of-use asset is carried at cost less any accumulated depreciation and any accumulated impairment losses.

The right-of-use asset is subsequently depreciated using the straight-line method from the commencement date to the end of the lease term (1 ~ 34years).

The lease liability is initially measured at the present value of the lease payments that are not paid at the commencement date, discounted using the interest rate implicit in the lease or, if that rate cannot be readily determined, the Group's incremental borrowing rate. Generally, the Group uses its incremental borrowing rate as the discount rate.

Subsequent to initial recognition, the lease liability increases by interests recognized for the lease liability and decreases by lease payments made. It is remeasured when there is a change in future lease payments arising from a change in an index or rate, if there is a change in the Group's estimate of the amount expected to be payable under a residual value guarantee or if the Group changes its assessment of whether it will exercise a purchase, extension or termination option.

The Group uses judgment when determining lease term for some lease contracts that include extension option. The assessment whether the Group is reasonably certain to exercise the extension option affects the lease term therefore has a significant impact on the amounts of the lease liability and right-of-use asset.

The Group has elected practical expedient not to recognize right-of-use assets and lease liabilities for leases of low-value assets and short-term leases. The Group recognizes the lease payments associated with these leases as an expense on a straight-line basis over the lease term.

(ii) As a lessor

When the Group acts as a lessor, it determines at lease inception whether each lease is a finance lease or an operating lease.

To classify each lease, the Group makes an overall assessment of whether the lease transfers substantially all of the risks and rewards incidental to ownership of the underlying asset. If this is the case, then the lease is a finance lease; if not, then it is an operating lease.

When the Group is an intermediate lessor. It assesses the lease classification of a sub-lease with reference to the right-of-use asset arising from the head lease, not with reference to the underlying asset.

If an arrangement contains lease and non-lease components, then the Group applies K-IFRS No.1115 '*Revenue from Contracts with Customers*' to allocate the consideration in the contract.

4. Significant Accounting Policies, Continued

(14) Contract assets and contract liability

If the Group performs the transfer of goods or services to the customer before the customer pays the consideration or before the payment date, the Group presents the contract as a contract asset, except as a receivable. Contract assets are the Group's rights to consideration for transfer of goods or services to the customer.

If the customer pays the consideration before the Group transfers goods or services to the customer, or the Group has an unconditional right to receive consideration (i.e., the receivable), the Group presents the contract as a contract liability either when it is paid or to be paid (early both).

Contract liabilities are the Group's obligation to transfer of goods or services to the customer in accordance with the consideration received from the customer or the consideration of the Group's rights to receive the payment. The Group offsets the contract assets and contract liabilities arising from one contract and presents them in the consolidated statements of financial position on a net basis.

On the other hand, expected losses in contracts (i.e., onerous contracts) that exceed the economic benefits expected to be received by the contract are recognized as current provisions.

(15) Non-current assets held for sale

Non-current assets, or disposal groups comprising assets and liabilities, are classified as held for sale if it is highly probable that they will be recovered primarily through sale rather than through continuing use, are classified as held for sale. In order to be classified as held for sale, the asset (or disposal group) must be available for immediate sale in its present condition and its sale must be highly probable. The assets or disposal group that are classified as non-current assets held for sale are measured at the lower of their carrying amount and fair value less cost to sell. An impairment loss for any subsequent decrease in fair value less costs to sell of an asset recognized impairment loss on initial classification and a gain for any subsequent increase in fair value less costs to sell, up to the cumulative impairment loss previously recognized, are recognized in profit or loss.

Once classified as held for sale, non-current assets are no longer amortized or depreciated.

(16) Borrowing costs

The Group capitalizes borrowing costs directly attributable to the acquisition, construction or production of a qualifying asset as part of the cost of that asset. Other borrowing costs are recognized in expense as incurred. A qualifying asset is an asset that requires a substantial period of time to get ready for its intended use or sale. Financial assets and inventories that are manufactured or otherwise produced over a short period of time are not qualifying assets. Assets that are ready for their intended use or sale when acquired are not qualifying assets.

To the extent that the Group borrows funds specifically for the purpose of obtaining a qualifying asset, the Group determines the amount of borrowing costs eligible for capitalization as the actual borrowing costs incurred from those borrowings less any investment income arising from the temporary investment of those borrowings, during the reporting period. To the extent that the Group borrows funds generally and uses them for the purpose of obtaining a qualifying asset, the Group determines the amount of borrowing costs eligible for capitalization by applying a capitalization rate to the expenditures related on that asset. The capitalization rate is calculated by the weighted average of the borrowing costs incurred from borrowed funds (excluding borrowed funds specifically for the purpose of obtaining a qualifying asset). The amount of borrowing costs that the Group capitalizes during the period shall not exceed the amount of borrowing costs incurred during that period.

4. Significant Accounting Policies, Continued

(17) Non-derivative financial liabilities

The Group classifies non-derivative financial liabilities into financial liabilities at fair value through profit or loss or other financial liabilities in accordance with the substance of the contractual arrangement and the definitions of financial liabilities. The Group recognizes financial liabilities in the consolidated statement of financial position when the Group becomes a party to the contractual provisions of the financial liability.

(i) Financial liabilities at fair value through profit or loss

Financial liabilities at fair value through profit or loss include financial liabilities held for trading or designated as such upon initial recognition. Subsequent to initial recognition, financial liabilities at fair value through profit or loss are measured at fair value, and changes therein are recognized in profit or loss. Upon initial recognition, transaction costs that are directly attributable to the acquisition are recognized in profit or loss as incurred.

(ii) Other financial liabilities

Non-derivative financial liabilities other than financial liabilities at fair value through profit or loss are classified as other financial liabilities. At the date of initial recognition, other financial liabilities are measured at fair value less transaction costs that are directly attributable to the acquisition. Subsequent to initial recognition, other financial liabilities are measured at amortized cost using the effective interest method.

(iii) Derecognition of financial liabilities

The Group derecognizes a financial liability when its contractual obligations are discharged, cancelled or expired. The Group derecognizes a financial liability when its terms are modified and the cash flows of the modified liability are substantially different. In this case, a new financial liability based on the modified terms is recognized at fair value.

On derecognition of a financial liability, the difference between the carrying amount extinguished and the consideration paid (including any non-cash assets transferred or liabilities assumed) is recognized in profit or loss.

4. Significant Accounting Policies, Continued

(18) Employee benefits

(i) Short-term employee benefits

Short-term employee benefits are employee benefits that are due to be settled within 12 months after the end of the period in which the employees render the related service. When an employee has rendered service to the Group during an accounting period, the Group recognizes the undiscounted amount of short-term employee benefits expected to be paid in exchange for that service as profit or loss.

(ii) Other long-term employee benefits

Other long-term employee benefits include employee benefits that are settled beyond 12 months after the end of the period in which the employees render the related service. The Group's net obligation in respect of long-term employee benefits is the amount of future benefit that employees have earned in return for their service in the current and prior periods. That benefit is discounted to determine its present value. Remeasurements are recognized in profit or loss in the period in which they arise.

(iii) Retirement benefits: defined contribution plans

The contribution to the defined contribution plan in exchange for that service is recognized in profit or loss as the related service is provided, except it is included in part of the cost of an asset.

Prepaid contributions are recognized as an asset to the extent that a cash refund or a reduction in future payments is available.

(iv) Retirement benefits: defined benefit plans

The Group's net obligation in respect of defined benefit plans is calculated separately for each plan by estimating the amount of future benefit that employees have earned in the current and prior periods, discounting that amount and deducting the fair value of any plan assets.

The calculation of defined benefit obligations is performed annually by a qualified independent actuary using the projected unit credit method. When the calculation results in a potential asset for the Group, the recognized asset is limited to the present value of economic benefits available in the form of any future refunds from the plan or reductions in future contributions to the plan.

Remeasurements of the net defined benefit liability, which comprise actuarial gains and losses, the return on plan assets (excluding interest) and the effect of the asset ceiling (if any, excluding interest), are recognized immediately in other comprehensive income. The Group determines the net interest expense (income) on the net defined benefit liability (asset) for the period by applying the discount rate used to measure the defined benefit obligation at the beginning of the annual period to the then-net defined benefit liability (asset), taking into account any changes in the net defined benefit liability (asset) during the period as a result of contributions and benefit payments. Net interest expense and other expenses related to defined benefit plans are recognized in profit or loss.

When the benefits of a plan are changed or when a plan is curtailed, the resulting change in benefit that relates to past service or the gain or loss on curtailment is recognized immediately in profit or loss. The Group recognizes gains and losses on the settlement of a defined benefit plan when the settlement occurs.

(v) Termination benefits

Termination benefits are expensed at the earlier of when the Group can no longer withdraw the offer of those benefits and when the Group recognizes costs for a restructuring. If benefits are not expected to be settled wholly within 12 months of the end of the reporting period, then they are discounted.

4. Significant Accounting Policies, Continued

(19) Provisions

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

The risks and uncertainties that inevitably surround many events and circumstances are taken into account in reaching the best estimate of a provision. Where the effect of the time value of money is material, provisions are determined at the present value of the expected future cash flows.

Where some or all of the expenditures required to settle a provision are expected to be reimbursed by another party, the reimbursement shall be recognized when, and only when, it is virtually certain that reimbursement will be received if the entity settles the obligation. The reimbursement shall be treated as a separate asset.

Provisions are reviewed at the end of each reporting period and adjusted to reflect the current best estimates. If it is no longer probable that an outflow of resources embodying economic benefits will be required to settle the obligation, the provision is reversed.

(i) Provision for construction warranty

A provision for construction warranties is recognized when the rectification of defects on construction is expected, based on historical warranty data.

(ii) Provision for product warranty

A provision for product warranties is recognized in order to cover ordinary repair related to product defects within the specified period after sales.

(iii) Provision for construction losses

A provision for onerous contracts is measured at the lower of the expected cost of terminating the contract and the expected net cost of continuing with the contract, if unavoidable costs arising from the contractual obligations exceed the benefits expected to arise from the contract. Before a provision is established, the Group recognizes any impairment loss on the assets associated with that contract.

(iv) Other provision

In accordance with the announced environmental policy and appropriate legal requirements, the Group recognizes the cost of recovering from pollution and the constructive obligation due to performance guarantee as other provisions.

A provision shall be used only for expenditures for which the provision was originally recognized.

4. Significant Accounting Policies, Continued

(20) Emissions rights

The Group accounts for greenhouse gases emission right and the relevant liability as below pursuant to the *Act on Allocation and Trading of Greenhouse Gas Emission*.

(i) Greenhouse gases emission right

Greenhouse gases emission right consists of emission allowances which are allocated from the government free of charge or purchased from the market. Emission rights are recognized as purchase costs by adding other costs that are directly attributable to the acquisition and incurred during the normal course of business.

Emission rights held for the purpose of performing the obligation are classified as an intangible asset and are initially measured at cost and after initial recognition, are carried at cost less accumulated impairment losses. Emission rights held for short-swing profits are classified as current asset and are measured at fair value in each reporting period. Changes in fair value of emission rights held for short-swing profits are recognized in profit or loss.

The Group derecognizes emission rights when the emission allowance is unusable, disposed or submitted to government in which the future economic benefits are no longer expected to be probable.

(ii) Emission liability

Emission liability is a present obligation of submitting emission rights to the government with regard to emission of greenhouse gas. Emission liability is recognized when it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and a reliable estimate can be made of the amount of the obligation. Emission liability is estimated obligations for emission rights to be submitted to the government for the performing period. Emission liability is measured based on the expected quantity of emission for the performing period in excess of emission allowance in possession and the unit price for such emission rights in the market at of the end of the reporting period. Emission liability is derecognized when it is submitted to the government.

The Group participated in the *Act on Allocation and Trading of Greenhouse Gas Emission* from 2015. One planning period spans from 2021 to 2025. The quantities of emission rights which are allocated free of charge during the planning period are as follows:

(In ton)	2021	2022	2023	2024	2025	Total
Allocated emission right free of charge	514,508	526,763	526,763	521,830	521,830	2,611,694

4. Significant Accounting Policies, Continued

(20) Emissions rights, continued

(ii) Emission liability, continued

As of December 31, 2022, there are no emission rights provided as collateral and the Group did not recognize emission rights and emission liabilities since the estimated quantity of greenhouse gases emission of 549,552 ton did not exceed allocated emission right.

(In ton, in millions of won)	2022 (*1)		2021	
	Quantity	**Book value**	**Quantity**	**Book value**
Beginning balance	122,778	-	199,658	-
Free allocation	526,763	-	514,508	-
Purchase (disposal)	-	-	(61,389)	-
Governmental proposition	-	-	(529,999)	-
Estimated volume of emission	(549,552)	-	-	-
Borrowing (carry forward)	-	-	(122,778)	-
Others (*2)	-	-	-	-
Ending balance	99,989	-	-	-

(*1) Governmental proposition, purchase (disposal), borrowing (carry forward) and quantity of 2022 will be decided in the next year.
(*2) Cancellation of emission right by the *Act on Allocation and Trading of Greenhouse Gas Emission`s* article 17 and article 22 of enforcement ordinance.

(21) Foreign currency

Transactions in foreign currencies are translated to the respective functional currencies of the Group at exchange rates at the dates of the transactions. Monetary assets and liabilities denominated in foreign currencies are translated into the functional currency at the exchange rate at the reporting date. Non-monetary assets and liabilities that are measured at fair value in a foreign currency are translated into the functional currency at the exchange rate when the fair value was determined. Non-monetary items that are measured based on historical cost in a foreign currency are translated at the exchange rate at the date of the transaction.

Foreign currency differences arising from translation of monetary items are recognized in profit or loss, except the differences arising from payment of monetary items, net investment in a foreign operation or a financial liability designated as cash flow hedges, which are recognized in other comprehensive income. When gains or losses on non-monetary items are recognized in other comprehensive income, effects of exchange rate changes included in that gains or losses are recognized in other comprehensive income. Conversely, when a gain or loss on a non-monetary item is recognized in profit or loss, any exchange component of that gain or loss is recognized in profit or loss.

(22) Equity capital

Ordinary shares are classified as equity. Incremental costs directly attributable to the issue of ordinary shares are recognized as a deduction from equity, net of any tax effects.

When shares recognized as equity are repurchased, the amount of the consideration paid is recognized as a deduction from equity and classified as treasury shares. Gains or losses from purchase, sold, reissue, or retirement of treasury shares are not recognized in profit or loss. When treasury shares are acquired and retained, the amount paid or received is directly recognized in equity.

4. Significant Accounting Policies, Continued

(23) Revenue from contracts with customers

Under K-IFRS No. 1115, revenue is recognized when the Group transfers control over a good or service to a customer. Control is transferred at a point in time or over time and it requires judgments.

- Determining the transaction price

The Group considers if significant benefits of financing is provided to the customer or the Group in relation to the advance payment from customers and reflects the effects of the time value of money to the transaction price. As a practical expedient, the Group need not adjust the promised amount of consideration for the effects of a significant financing component if the entity expects, at contract inception, that the period between when the Group transfers a promised good or service to a customer and when the customer pays for that good or service will be one year or less.

- Identifying of performance obligations

The Group shall assess the goods or services promised in a contract with a customer and shall identify as a performance obligation each promise to transfer a good or service that is distinct to the customer. If partial change in an order is not distinct, within the context of the contract, the performance obligation is not separated.

(i) Nature and timing of satisfaction of performance obligations

The Group engages in the shipbuilding segment for building merchant ships and special vessels and manufacturing ships' digital control panel and the offshore, industrial plant and engineering segment for building and installing offshore oil and gas fields, and the engine machinery segment for manufacturing ships' engines.

The shipbuilding segment builds and sells ships of the order from the owner and takes at least one year from the date of the contract to the completion of the construction. Due to the nature of the order-made production industry being customized according to the terms presented to the customer, the Group itself has no alternative use, and if the contract is terminated for the customer or other party reasons, it can claim incurred costs and reasonably estimated profit for performance completed to date or claim insufficient amount after the Group resale the asset in accordance with the contractual process. Consequently, if the Group's performance does not create an asset with an alternative use to the Group and the Group has enforceable right to payment for performance completed to date. The Group recognizes revenue over time in accordance with K-IFRS No.1115.

If the performance obligation is satisfied over time, the timing of satisfaction of performance obligations depends on measuring the progress, to depict the Group's performance in transferring control of goods or services promised to a customer, towards complete satisfaction of that performance obligation. If the Group would not be able to reasonably measure its performance, it measures its performance only to the extent of the costs incurred.

If the Group would not be able to reasonably measure its performance, it measures its performance only to the extent of the costs incurred. As the shipbuilding segment provides design, raw material purchase, production, and trial run, it is difficult to obtain the information required to apply output methods may not be available to the Group without undue cost. Therefore, the Group determines the timing of satisfaction of performance obligations when the timing of costs incurred because input methods, that recognize revenue on the basis of the Group's inputs to the satisfaction of a performance obligation relative to the total expected inputs to the satisfaction of that performance obligation, can faithfully depict the Group's performance.

4. Significant Accounting Policies, Continued

(23) Revenue from contracts with customers, continued

(i) Nature and timing of satisfaction of performance obligations, continued

The offshore, industrial plant and engineering segment is similar process industry to the shipbuilding segment, but the required facility specifications are complicated and extensive depending on the installation area and the production conditions of crude oil or gas, so the construction period is long and the construction amount is large.

The construction contracts of the Group take at least one year from the contract signing date to the construction completion date and as it has the following nature of the industry, which it produces the customization goods on orders from the customers, the Group recognizes revenue over time for performance obligations satisfied over time.

i) the Group's performance creates or enhances an asset that the customer controls as the asset is created or enhanced; or

ii) the Group's performance does not create an asset with an alternative use to the entity and the entity has an enforceable right to payment for performance completed to date.

If the performance obligation is satisfied over time, the timing of satisfaction of performance obligations depends on measuring the progress, to depict the Group's performance in transferring control of goods or services promised to a customer, towards complete satisfaction of that performance obligation. If the Group would not be able to reasonably measure its performance, it measures its performance only to the extent of the costs incurred. As the offshore, industrial plant and engineering segment provides design, raw material purchase, production, and trial run, it is difficult to obtain the information required to apply output methods may not be available to the Group without undue cost. Therefore, the Group determines the timing of satisfaction of performance obligations when the timing of costs incurred because input methods, that recognize revenue on the basis of the Group's inputs to the satisfaction of a performance obligation relative to the total expected inputs to the satisfaction of that performance obligation, can faithfully depict the Group's performance.

The engine machinery segment and ship's digital control business of the shipbuilding segment supplies the ship's propulsion/power generation engines and ship's digital control panel as its main products. For general contracts, revenues are recognized as being satisfied the performance obligation at a point in time, not as satisfied the performance obligation over time.

The timing of satisfaction of performance obligations is when the assets held by the Group are transferred to and controlled by the customer, and the Group determines the point in time by indictors of the transfer of control, that include right to payment, legal title, physical possession, transfer of the significant risks and rewards, and the customer's acceptance of an asset. Generally, exports are transferred under the same conditions as CIF and FOB, and domestic sales are determined to satisfy performance obligations when the Group transfers physical possession of the asset to the customer.

(ii) Significant payment terms

The shipbuilding segment collects by each stage of ship-building, and the timing of collection for general merchant ships is divided into Contract, Steel Cutting, Keel laying, Launching, Delivery, and in particular, the Heavy Tail payment plan, which collects most of the contract price at delivery of ships is a major collection term.

In accordance with the *"Rules on the advances and progress payments for the defense industry"*, advances and progress payments for the special vessels will be made only for funds planned to be spent within 180 days from the date of claim.

4. Significant Accounting Policies, Continued

(23) Revenue from contracts with customers, continued

(ii) Significant payment terms, continued

The offshore, industrial plant and engineering segment charges and collect by the progress of the construction, including the advance payment, amount of work completed, the achievement amount of milestone, and the reserve for performance, and the engine machinery segment collects separately by the advance, middle and balance payments in accordance with the payment terms as specified in the contract.

Depending on the terms of payment, there may exist a significant financing component, that adjusts the promised consideration to reflect the effect of the time value of money, when the difference between when we receive the goods or services from the customer and when we expect to transfer the promised goods or services to the customer occurs.

(iii) Nature of warranty and the length of the warranty coverage period

The shipbuilding segment typically provides a warranty of 12 months or 24 months depending on type of ship. The engine machinery segment typically provides a warranty period of 24 months after delivery or 12 months after ship delivery. The offshore, industrial plant and engineering segment provides a separate warranty period based on the nature of each construction and the terms of the contract. Usually, after the warranty period granted, it will be converted to paid-in-AS. The provided warranty provides the customer with a service in addition to the assurance that the product complies with agreed-upon specifications.

(iv) How to determine the transaction price, estimating the variable consideration, input variables, information

In the shipbuilding and the offshore, industrial plant and engineering segment, a single performance obligation exists, so it is not necessary to estimate the stand-alone selling price to allocate the transaction price, but in the engine machinery segment, separate services such as installation and supervision exist within the contract.

When the Group allocates the transaction price on a stand-alone selling price basis and the stand-alone selling price does not exist in the market, the total contract amount is allocated to the distinct performance obligations by the expected cost plus a margin approach – the Group forecasts its expected costs of satisfying a performance obligation and then add on appropriate margin for that good or service.

The consideration receivable from customers may be variable by change order due to design changes and additional work caused by requests from owners of the shipbuilding and the offshore, industrial plant and engineering segment, and delayed compensation due to delay in delivery and fail to achieve specifications. In the case of change order, variable consideration is included in the transaction price only to the extent it is highly probable that a significant revenue reversal will not occur. In the case of delayed compensation, the Group recognizes revenue by deducting the estimated amount incurred by the contract terms from the contract price.

4. Significant Accounting Policies, Continued

(24) Finance income and finance costs

The Group's finance income and finance costs include:

- interest income;
- interest expense;
- dividend income;
- the net gain or loss on financial assets at FVTPL;
- the foreign currency gain or loss on financial assets and liabilities;
- impairment losses (and reversals) on investments in debt securities carried at amortized cost;
- the fair value loss on contingent consideration classified as a financial liability;
- hedge ineffectiveness recognized in profit or loss; and
- the reclassification of net gains or losses previously recognized in other comprehensive income on cash flow hedges of interest rate risk and foreign currency risk for borrowings (See Note 24).

Interest income or expense is recognized using the effective interest method. Dividend income is recognized in profit or loss on the date on which the Group's right to receive payment is established.

The 'effective interest rate' is the rate that exactly discounts estimated future cash payments or receipts through the expected life of the financial instrument to:

- the gross carrying amount of the financial asset; or
- the amortized cost of the financial liability.

In calculating interest income and expense, the effective interest rate is applied to the gross carrying amount of the asset (when the asset is not credit-impaired) or to the amortized cost of the liability. However, for the financial assets that have become credit-impaired subsequent to initial recognition, interest income is calculated by applying the effective interest rate to the amortized cost of the financial asset. If the asset is no longer credit-impaired, then the calculation of interest income reverts to the gross basis.

4. Significant Accounting Policies, Continued

(25) Income tax

Income tax expense comprises current and deferred tax. It is recognized in profit or loss except to the extent that it relates to a business combination, or items recognized directly in equity or in other comprehensive income.

The Group has determined that interest and penalties related to income taxes meet the definition of income taxes, and accounted for them under K-IFRS No. 1012 '*Income Taxes*'. If they do not meet the definition of income taxes, the Group has accounted for them under K-IFRS No. 1037 '*Provision, Contingent Liabilities and Contingent Assets*'.

(i) Current tax

Current tax comprises the expected tax payable or receivable on the taxable income or loss for the period and any adjustment to the tax payable or receivable in respect of previous year. The taxable profit is different from the accounting profit for the period since the taxable profit is calculated excluding the temporary differences, which will be taxable or deductible in determining taxable profit (tax loss) of future periods, and non-taxable or non-deductible items from the accounting profit. It is measured using tax rates enacted or substantively enacted at the reporting date.

Current tax assets and liabilities are offset only if certain criteria are met;

- there is a legally enforceable right to offset the recognized amount; and
- there is intends to settle on a net basis or the liability while simultaneously realizing the asset.

(ii) Deferred tax

The measurement of deferred tax liabilities and deferred tax assets reflects the tax consequences that would follow from the manner in which the Group expects, at the reporting date, to recover or settle the carrying amount of its assets and liabilities.

For additional temporary differences in subsidiaries, associates and joint ventures, the Group can control when the temporary difference expires and all recognizes deferred tax liabilities except where it is likely that the temporary difference will not expire in the foreseeable future. The Group recognizes a deferred tax asset for all deductible temporary differences to the extent that it is probable that the temporary difference will reverse in the foreseeable future and taxable profit will be available against which the temporary difference can be utilized.

Deferred tax assets are recognized for unused tax losses, unused tax credits and deductible temporary differences to the extent that it is probable that future taxable profits will be available against which they can be used. Future taxable profits are determined based on the reversal of relevant taxable temporary differences. If the amount of taxable temporary differences is insufficient to recognize a deferred tax asset in full, then future taxable profits, adjusted for reversals of existing temporary differences and the business plans of the Group are considered.

Deferred tax assets are reviewed at each reporting date and are reduced to the extent that it is no longer probable that future taxable profits will be available against which they can be used.

4. Significant Accounting Policies, Continued

(25) Income tax, continued

(ii) Deferred tax, continued

Deferred tax assets and liabilities are measured at the tax rates that are expected to be applied to temporary differences when they reverse, using tax rates enacted or substantively enacted at the reporting date. The measurement of deferred tax liabilities and deferred tax assets reflects the tax consequences that would follow from the manner in which the Group expects, at the reporting date, to recover or settle the carrying amount of its assets and liabilities.

Deferred tax assets and liabilities are offset only if there is a legally enforceable right to offset the related current tax liabilities and assets, and they relate to income taxes levied by the same tax authority and they intend to settle current tax liabilities and assets on a net basis.

(26) Earnings (loss) per share

The Group presents basic earnings (loss) per share (EPS) data in the consolidated financial statements of comprehensive income (loss) for its ordinary shares. Basic EPS is calculated by dividing the profit or loss attributable to ordinary shareholders by weighted average number of ordinary shares outstanding during the period.

(27) Standards issued but not yet effective

A number of new standards are effective for annual reporting periods beginning after January 1, 2022 and earlier application is permitted. However, the Group has not early adopted the new or amended standards in preparing these consolidated financial statements.

(i) K-IFRS No.1117 *'Insurance Contracts'*

During 2021, an entirely new accounting standard for insurance contracts, including recognition and measurement of insurance contracts, was published, which covers the recognition and measurement of insurance contracts. Once implemented, the K-IFRS No.1117 '*Insurance Contract*' replaces the K-IFRS No.1104 '*Insurance Contract*' issued in 2007. This Standard applies to all types of insurance contracts (e.g., life insurance, non-life insurance, raw insurance contracts, and reinsurance contracts), regardless of the type of entity that issued the insurance contracts, and also to investment contracts with specific guarantees and discretionary participation characteristics. There will be very few contracts that are excluded from the scope. The overall purpose of this standard is to provide insurers with an accounting model for more useful and consistent insurance contracts. Unlike the requirements of the K-IFRS No.1104, which are largely based on existing accounting policies in each country, this standard suggests a comprehensive model for insurance contracts. The key of this standard is the general model, which adds:

· Special application to contracts with direct participation characteristics (variable fee approach)
· Simple act on contracts with a short coverage period (insurance premium allocation approach)

This standard is effective for annual period beginning on or after January 1, 2023, and should be published in comparative financial statements. An entity that applied K-IFRS No.1109 '*financial instruments*' and K-IFRS No.1115 '*revenue from contracts with customers*' before the initial date of application of this standard may apply this standard early.

4. Significant Accounting Policies, Continued

(27) Standards issued but not yet effective, continued

(ii) Classification of Liabilities as Current or Non-current (Amendment to K-IFRS No.1001 *'Presentation of Financial Statements')*

This amendment clarifies the following requirements for the classification of liabilities into current or non-current:

· meaning of the rights to extend settlement of liabilities;
· the right to extend must exist as of the end of the reporting period;
· the likelihood of an entity exercising its right to extend does not affect the classification of liquidity; and
· the terms of the liability do not affect the classification of liquidity only if the embedded derivative of the convertible liability itself is an equity instrument.

This amendment is effective for annual period beginning on or after 1 January 2024 and must apply retrospectively.

(iii) Definition of Accounting Estimates (Amendment to K-IFRS No.1008 '*Accounting Policies, Changes in Accounting Estimates and Errors*')

This amendment clearly distinguishes between changes in accounting estimates, changes in accounting policies and corrections of accounting errors. The revised Standard also clarifies how entities use measurement techniques and inputs to develop accounting estimates. This amendment is effective for annual periods beginning on or after January 1, 2023, and applies to changes in accounting policy and accounting estimates occurring after that time. This Standard is acceptable for early application and is not expected to have a significant impact on the Group's consolidated financial statements.

(iv) Accounting policy Disclosure (Amendment to K-IFRS No.1001 *'Presentation of Financial Statements'*)

This amendment provides requirements and guidance to make accounting policy disclosures more effective. K-IFRS No.1001 requires disclosure of the Group's significant accounting policies. The amendment changed the 'significant' accounting policy to 'critical' accounting policy and added a description of important accounting policy information. It enables the Group to provide more useful accounting policy information when making decisions about accounting policy disclosures. This amendment is effective for annual periods beginning on or after January 1, 2023 and will be allowed to apply early.

(v) Deferred tax when assets and liabilities are generated in a single transaction at the same time (Amendment to K-IFRS No.1012 '*Income Taxes*')

This amendment reduces the scope of the initial recognition exception in accordance with K-IFRS No.1012 to avoid applying it to transactions that result in a temporary difference to be added and a temporary difference to be deducted at the same amount. This amendment applies to transactions made after the start date of the earliest comparable period. In addition, deferred tax assets (if sufficient taxable income is present) and deferred tax liabilities should be recognized for all additional and deductible temporary differences relating to leases and post-processing and recovery related liabilities at the beginning of the earliest period presented.

5. Risk Management

The Group has exposure to the following risks arising from financial instruments:
- Credit risk;
- Liquidity risk; and
- Market risk

This note presents information about the Group's exposure to each of the above risks, the Group's risk management objectives, policies and processes for measuring and managing risk, and the Group's capital management. Further quantitative disclosures are included throughout these consolidated financial statements.

(1) Financial risk management

1) Risk management framework

The Board of Directors has overall responsibility for the establishment and oversight of the Group's risk management framework.

The Group's risk management policies are established to identify and analyze the risks faced by the Group, to set appropriate risk limits and controls, and to monitor risks and adherence to limits. Risk management policies and systems are reviewed regularly to reflect changes in market conditions and the Group's activities. The Group, through its training and management standards and procedures, aims to maintain a disciplined and constructive control environment in which all employees understand their roles and obligations.

The Group Audit Committee oversees how management monitors compliance with the Group's risk management policies and procedures, and reviews the adequacy of the risk management framework in relation to the risks faced by the Group. The Group Audit Committee is assisted in its oversight role by Internal Audit. Internal Audit undertakes both regular and ad hoc reviews of risk management controls and procedures, the results of which are reported to the Audit Committee.

2) Credit risk

Credit risk is the risk of financial loss to the Group if a customer or counterparty to a financial instrument fails to meet its contractual obligations, and arises principally from the Group's trade and other receivables from customers and investments.

(i) Trade and other receivables and contract assets

The Group's exposure to credit risk is influenced mainly by the individual characteristics of each customer. Most of the Group's customers are major and international ship's owner targeting global markets and the risk of bankruptcy in the country where they located does not have significant impact on credit risk.

The Group establishes credit limits for each customer and each new customer is analyzed quantitatively and qualitatively before determining whether to utilize third party guarantees, insurance or factoring as appropriate.

The Group evaluates the impairment loss separately for bonds with significant bond size and impaired credit, taking into account the insurance purchase and creditworthiness. Other than these bonds, the expected loss rate applied for collective evaluation is as follows:

(In percentage)	**Not delayed**	**Not more than a year**	**Not more than 2 years**	**Not more than 3 years**
Expected loss rate	0.02%	0.2~4%	7~30%	36~100%

5. Risk Management, Continued

(1) Financial risk management, continued

2) Credit risk, continued

(ii) Investments

The Group limits its exposure to credit risk by investing only in liquid securities and only with counterparties that have high credit ratings. Management actively monitors credit ratings and given that the Group only has invested in securities with high credit ratings, does not expect a significant risk that any counterparty fails to meet its obligations.

(iii) Guarantees

The Group provides financial guarantees to other related parties if necessary.

3) Liquidity risk

Liquidity risk is the risk that the Group will encounter difficulty in meeting the obligations associated with its financial liabilities that are settled by delivering cash or another financial asset. The Group's approach to managing liquidity is to ensure, as far as possible, that it will have sufficient liquidity to meet its liabilities when they are due, under both normal and stressed conditions, without incurring unacceptable losses or risking damage to the Group's reputation.

The Group has historically been able to satisfy its cash requirements from cash flow from operations and debt or equity financing. If the Group cannot generate sufficient cash flow from operations to meet its capital requirements, the Group may rely on other financing activities, such as external borrowings and issuing bonds.

4) Market risk

Market risk is the risk that changes in market prices, such as foreign exchange rates, interest rates and equity prices will affect the Group's income or the value of its holdings of financial instruments. The objective of market risk management is to manage and control market risk exposures within acceptable parameters, while optimizing the return.

The Group buys and sells derivatives, and also incurs financial liabilities to manage market risks. All such transactions are carried out within the guidelines set by the Group. Generally, the Group seeks to apply hedge accounting in order to manage volatility in profit or loss.

(i) Currency risk

The Group is exposed to currency risk on sales, purchases and borrowings that are denominated in a currency other than the functional currency of the Group, Korean won (KRW). The currencies in which these transactions primarily are denominated are USD, EUR, CNY, JPY and others.

The Group hedges trade receivables and trade payables denominated in a foreign currency in respect of forecasted sales and purchases. The Group uses forward exchange contracts to hedge its currency risk, most with a maturity of less than two years from the reporting date. When necessary, forward exchange contracts are rolled over at maturity. Trade receivables denominated in a foreign currency have been hedged using forward contracts that mature on the same dates that the receivables are due for collection. In respect of other monetary assets and liabilities denominated in foreign currencies, the Group ensures that its net exposure is kept to an acceptable level by buying or selling foreign currencies at spot rates when necessary to address short-term imbalances.

5. Risk Management, Continued

(1) Financial risk management, continued

4) Market risk, continued

(ii) Interest rate risk

The Group hedges interest rate risk using interest rate swap for variable interest borrowings. As a result, the risk that changes in the value of variable interest-bearing bonds and loans will affect the Group's profit or loss is avoided.

(iii) Other market price risk

The Group is exposed to price risk arising from equity instruments.

(2) Capital management

The management's policy is to maintain a strong capital base so as to maintain investor, creditor and market confidence and to sustain future development of the business. The Group monitors the liability to equity ratio and net borrowing to equity ratio, which the Group defines as total liabilities divided by total equity and net borrowing divided by total equity.

The Group's liability to equity ratio and net borrowing to equity ratio as of December 31, 2022 and 2021 are as follows:

(In millions of won, except equity ratio)		**2022**	**2021**
Total liabilities	₩	11,001,579	9,484,647
Total equity		5,287,819	5,594,025
Cash and deposits(*1)		905,156	2,288,405
Borrowings(*2)		2,603,656	3,465,760
Liability to equity ratio		208.06%	169.55%
Net borrowing to equity ratio(*3)		32.12%	21.05%

(*1) Cash and deposits consist of cash and cash equivalents and short-term and long-term financial instruments.
(*2) Discount on bonds is deducted from the face value of bonds.
(*3) Net borrowing represents borrowings net of cash and deposits.

The interest coverage ratio and basis of calculation for the years ended December 31, 2022 and 2021 are as follows:

(In millions of won, except interest coverage ratio)		**2022**	**2021**
1. Operating loss	₩	(289,151)	(800,263)
2. Interest expenses		106,141	125,635
3. Interest coverage ratio(1÷2)		(*)	(*)

(*) The interest coverage ratio was not calculated due to operating losses for the years ended December 31, 2022 and 2021.

6. Cash and Cash Equivalents

Cash and cash equivalents as of December 31, 2022 and 2021 are summarized as follows:

(In millions of won)		2022	2021
Cash	₩	57	87
Current deposit		3,954	2,216
Ordinary deposit		3,580	3,390
MMDA and others		736,557	2,131,698
	₩	744,148	2,137,391

7. Short-term and Long-term Financial Assets

Short-term and long-term financial assets as of December 31, 2022 and 2021 are summarized as follows:

(In millions of won)		2022		2021	
		Current	Non-current	Current	Non-current
Financial instruments	₩	161,000	8	151,000	14
Financial assets measured at FVTPL		-	7,808	-	7,808
Financial assets measured at FVOCI		-	1,738	-	1,738
	₩	161,000	9,554	151,000	9,560

8. Restricted Financial Instruments

Financial instruments, which are restricted in use, as of December 31, 2022 and 2021 are summarized as follows:

(In millions of won)

Description	2022	2021	Restrictions
Other receivables	₩ 4,100	-	Collateral deposit
Long-term financial instruments	8	14	Guarantee deposits for checking accounts

The Group has deposited ₩131,000 million in financial institutions to provide financial support to the Group's partners as of December 31, 2022.

9. Trade and Other Receivables

(1) Trade and other receivables as of December 31, 2022 and 2021 are summarized as follows:

(In millions of won)		2022		2021	
		Current	Non-current	Current	Non-current
Trade receivables:					
Trade receivables	₩	1,495,383	316,995	1,478,538	195,329
Allowance for doubtful accounts		(617,794)	(151,542)	(626,294)	(164,220)
		877,589	165,453	852,244	31,109
Other receivables:					
Other accounts receivables		397,460	2,878	330,287	2,878
Allowance for doubtful accounts		(157,004)	(1)	(162,123)	(19)
Accrued income		14,870	-	10,529	-
Allowance for doubtful accounts		(1,567)	-	(1,899)	-
Loans		164,088	1,095	168,649	992
Allowance for doubtful accounts		(159,844)	(292)	(165,510)	(292)
Guarantee deposits		395	7,634	254	4,274
		258,398	11,314	180,187	7,833
	₩	1,135,987	176,767	1,032,431	38,942

(2) Changes in allowance for doubtful accounts in respect of trade and other receivables for the years ended December 31, 2022 and 2021 are as follows:

(In millions of won)		2022	2021
Beginning balance	₩	1,120,357	1,054,545
Impairment loss recognized		445	68,619
Reversal of allowance for doubtful accounts		(32,049)	(2,791)
Write-off		(709)	(16)
Ending balance	₩	1,088,044	1,120,357

10. Inventories

Inventories as of December 31, 2022 and 2021 are summarized as follows:

(In millions of won)		2022			2021		
		Acquisition cost	**Provision for inventory valuation**	**Carrying amount**	**Acquisition cost**	**Provision for inventory valuation**	**Carrying amount**
Work-in-progress		459,302	(11,614)	447,688	340,892	(14,603)	326,289
Raw materials		548,283	(3,995)	544,288	408,769	(6,663)	402,106
Supplies		15,450	-	15,450	16,100	-	16,100
Materials-in-transit		369,712	-	369,712	154,172	-	154,172
	₩	1,392,747	(15,609)	1,377,138	919,933	(21,266)	898,667

The reversals of write-down of inventories to net realizable value amounting to ₩5,657 million and ₩7,471 million are deducted from cost of sales for the years ended December 31, 2022 and 2021, respectively.

11. Other Current Assets and Other Non-current Assets

Other current assets and other non-current assets as of December 31, 2022 and 2021 are summarized as follows:

(In millions of won)		2022		2021	
		Current	**Non-current**	**Current**	**Non-current**
Advance payments	₩	869,604	-	571,642	-
Prepaid expenses		179,910	735	134,459	768
Accumulated impairment loss(*1)		(18,016)	-	(39,115)	-
Others(*2)		229,814	101,719	213,896	-
Accumulated impairment loss(*2)		(188,983)	-	(166,322)	-
Defined benefit assets		-	237,982	-	26,352
	₩	1,072,329	340,436	714,560	27,120

(*1) Prior to recognition of the provision for the onerous contract, the impairment loss on the related asset was recognized.

(*2) The Group has acquired vessel under construction due to cancellation of a shipbuilding contracts. A sales contract was concluded for a vessel under construction for the year ended December 31, 2022, and the amount reflecting the additional construction cost calculated according to the sales contract was recorded.

12. Investment in Associate

The Group purchased shares of KC LNG Tech Co., Ltd. from Korea Shipbuilding & Offshore Engineering Co., Ltd., the intermediate parent of the Parent company.

(1) Investment in associate as of December 31, 2022 and 2021 is summarized as follows:

(In millions of won, except percentage of ownership)

Company	Location	Fiscal year end	Main business	Ownership (%)		2022 Carrying amount	2021 Carrying amount
KC LNG Tech Co., Ltd.(*)	Korea	December	Other engineering services	16.60	₩	1,346	2,790

(*) Although ownership is less than 20%, the Group includes the entity securities as investments in associate since the Group has a significant influence on main operating and financial policy decisions.

12. Investment in Associate, Continued

(2) Condensed financial information of associate as of and for the years ended December 31, 2022 and 2021 is summarized as follows:

1) Condensed statement of financial position of associate

(In millions of won)

Associate	Year		Current assets	Non-Current assets	Current liabilities	Non-Current liabilities	Equity
KC LNG Tech Co., Ltd.	2022	₩	2,951	7,107	13,916	346	(4,204)
	2021	₩	2,726	15,263	12,737	757	4,495

2) Condensed statement of comprehensive loss of associate

(In millions of won)

Associate	Year		Sales	Operating loss	Loss for the year	Other comprehensive income	Total comprehensive loss
KC LNG Tech Co., Ltd.	2022	₩	4,231	(3,275)	(8,699)	-	(8,699)
	2021	₩	4,939	(4,137)	(3,893)	-	(3,893)

12. Investment in Associate, Continued

(3) Changes in equity-method accounted investees for the years ended December 31, 2022 and 2021 are summarized as follows:

(In millions of won)

Associate		2022					
		Beginning balance	Acquisition (disposal)	Share of profit (loss) of equity accounted investees	Changes in equity of equity accounted investees	Dividends received	Ending balance
KC LNG Tech Co., Ltd.	₩	2,790	-	(1,444)	-	-	1,346

(In millions of won)

Associate		2021					
		Beginning balance	Acquisition (disposal)	Share of profit (loss) of equity accounted investees	Changes in equity of equity accounted investees	Dividends received	Ending balance
KC LNG Tech Co., Ltd.	₩	946	2,490	(646)	-	-	2,790

(4) Reconciliation from net assets of the associate to the carrying amount of investment in associate in the Group's consolidated financial statements as of December 31, 2022 and 2021 is summarized as follows:

(In millions of won)

Associate		2022				
		Ending net assets (liabilities)	Percentage of the Group's ownership	Net value	Others	Ending carrying amount
KC LNG Tech Co., Ltd.	₩	(4,204)	16.60%	-	1,346	1,346

(In millions of won)

Associate		2021				
		Ending net assets	Percentage of the Group's ownership	Net value	Others	Ending carrying amount
KC LNG Tech Co., Ltd.	₩	4,495	16.60%	746	2,044	2,790

13. Joint Operation

The joint operations as of December 31, 2022 and 2021 are summarized as follows:

Joint operation	Location	Main business	2022 Ownership (%)	2021 Ownership (%)
FDH JV (*1)	Kuwait	Chemical plant	33.33	33.33
FDH JV (*2)	Kuwait	Chemical plant	20.00	20.00

(*1) The Group holds a significant joint operation 'FDH JV' as of December 31, 2022 and 2021. FDH JV is a joint operation that the main purpose of arrangement is construction of Clean Fuels Project MAB2 EPC PKG ordered by Kuwait National Petroleum Company. The Group recognizes the assets and liabilities relating to its interest in a joint operation and recognizes revenues and expenses relating to its interest in a joint operation.

(*2) The Group holds a significant joint operation 'FDH JV' as of December 31, 2022 and 2021. FDH JV is a joint operation that the main purpose of arrangement is construction of Al Zour Refinery Project Package 2 & 3 EPC PKG ordered by Kuwait Integrated Petroleum Industries Company. The Group recognizes the assets and liabilities relating to its interest in a joint operation and recognizes revenues and expenses relating to its interest in a joint operation.

14. Financial Assets measured at fair value

(1) Financial assets measured at FVOCI as of December 31, 2022 and 2021 are summarized as follows:

(In millions of won)		2022	2021
		Non-current	Non-current
Unlisted equity securities:			
Korea Defense Industry Association(*)	₩	1,738	1,738

(*) Unless otherwise noted, the carrying amounts of unlisted equity securities were recorded at their acquisition cost since their fair values cannot be reliably estimated.

(2) Financial assets measured at FVTPL as of December 31, 2022 and 2021 are summarized as follows:

(In millions of won)		2022	2022
		Non-current	Non-current
Investments in capital(*):			
Machinery Financial Cooperative	₩	4,998	4,998
Construction Guarantee Cooperative		2,539	2,539
Busan Marine Equipment Association		230	230
Fire Guarantee		20	20
Korea Marine Equipment Association		21	21
	₩	7,808	7,808

(*) Unless otherwise noted, the carrying amounts of Investments in capital were recorded at their acquisition cost since their fair values cannot be reliably estimated.

15. Investment Property

(1) Changes in investment property for the years ended December 31, 2022 and 2021 are as follows:

(In millions of won)		2022		
		Land	**Buildings**	**Total**
Beginning balance	₩	476	3,633	4,109
Acquisition and other		-	(2,612)	(2,612)
Depreciation		-	(39)	(39)
Ending balance	₩	476	982	1,458
Acquisition cost		476	2,226	2,702
Accumulated depreciation		-	(1,244)	(1,244)

(In millions of won)		2021		
		Land	**Buildings**	**Total**
Beginning balance	₩	476	3,831	4,307
Acquisition and other		-	-	-
Depreciation		-	(198)	(198)
Ending balance	₩	476	3,633	4,109
Acquisition cost		476	7,761	8,237
Accumulated depreciation		-	(4,128)	(4,128)

(2) Revenue and expense from investment property for the years ended December 31, 2022 and 2021 are as follows:

(In millions of won)		**2022**	**2021**
Rental income	₩	7	29
Operating and maintenance expense arising from investment property that generated rental income		54	230

(3) Fair values from investment property as of December 31, 2022 and 2021 are as follows:

(In millions of won)		2022		2021	
		Book value	**Fair value**	**Book value**	**Fair value**
Land	₩	476	935	476	885
Buildings		982	2,330	3,633	7,320
	₩	1,458	3,265	4,109	8,205

The fair value of investment property was determined by external, independent appraiser, having appropriate recognized professional qualifications and experience in relation to the assessment of real estate in the Republic of Korea. The valuation is achieved by using comparison methods to obtain the economic value based on marketability of the property. The Group calculated fair value considering changes in the standard market price such as individual Publicly assessed land price after previous evaluation date in order to estimate the fair value of investment property as of December 31, 2022.

16. Property, Plant and Equipment

(1) Changes in property, plant and equipment for the years ended December 31, 2022 and 2021 are as follows:

(In millions of won)

	2022						
	Land	Buildings	Structures	Machinery and equipment	Construction in-progress	Others	Total
Beginning balance	₩ 3,141,860	1,057,183	826,615	505,589	107,517	347,491	5,986,255
Acquisitions and others(*)	-	17,807	39,786	135,629	190,759	102,873	486,854
Disposals	(380)	(301)	(41)	(4,188)	-	(1,833)	(6,743)
Depreciation	-	(40,259)	(30,951)	(97,641)	-	(66,265)	(235,116)
Changes in scope of consolidation	-	11,489	2,182	320	-	46	14,037
Impairment	-	(1,566)	(2,933)	(734)	-	(2,651)	(7,884)
Ending balance	₩ 3,141,480	1,044,353	834,658	538,975	298,276	379,661	6,237,403
Acquisition cost	3,141,480	1,935,437	1,573,354	3,015,438	298,276	1,772,619	11,736,604
Accumulated depreciation	-	(821,438)	(616,727)	(2,392,057)	-	(1,309,694)	(5,139,916)
Accumulated impairment	-	(69,646)	(121,969)	(84,406)	-	(83,264)	(359,285)

(*) The amount of expenditures related to the acquisition of construction in-progress is ₩263,990 million and the amount of reclassification, after the acquisition is completed, is ₩72,995 million for the year ended December 31, 2022.

(In millions of won)

	2021						
	Land	Buildings	Structures	Machinery and equipment	Construction in-progress	Others	Total
Beginning balance	₩ 3,147,704	1,092,071	843,683	506,202	69,052	361,594	6,020,306
Acquisitions and others(*1)	-	11,690	18,378	92,896	38,465	66,757	228,186
Disposals	(438)	(1,772)	(476)	(1,710)	-	(8,595)	(12,991)
Depreciation	-	(39,354)	(30,312)	(89,699)	-	(66,149)	(225,514)
Reclassification of assets held for sale (*2)	(5,406)	(1,680)	(301)	-	-	-	(7,387)
Impairment(*3)	-	(3,772)	(4,357)	(2,100)	-	(6,116)	(16,345)
Ending balance	₩ 3,141,860	1,057,183	826,615	505,589	107,517	347,491	5,986,255
Acquisition cost	3,141,860	1,890,467	1,525,092	2,921,312	107,517	1,728,856	11,315,104
Accumulated depreciation	-	(770,535)	(583,274)	(2,329,603)	-	(1,298,040)	(4,981,452)
Accumulated impairment	-	(62,749)	(115,203)	(86,120)	-	(83,325)	(347,397)

(*1) The amount of expenditures related to the acquisition of construction in-progress is ₩104,384 million and the amount of reclassification, after the acquisition is completed, is ₩65,919 million for the year ended December 31, 2021.

(*2) It is a reclassification due to the decision to sell the dormitory site for the year ended December 31, 2021.

16. Property, Plant and Equipment, Continued

(2) Construction-in-progress is mainly related to the expansion of plant facilities as of December 31, 2022.

(3) Impairment losses

The Group evaluated impairment loss caused by property, plant and equipment not in use at Gunsan shipyard, and an impairment loss was recognized in the amount of ₩3,173 million as of December 31, 2021. Reflecting the physical and technological obsolescence of assets, the Group estimated the recoverable amount of the assets at Gunsan shipyard based on valuation methods, including the cost approach.

The Group evaluated impairment loss for CGU which has an indication of impairment caused by decrease in production and market recession, so that an impairment loss was recognized in the amount of ₩5,386 million (₩13,172 million in 2021) for property, plant and equipment for the year ended December 31, 2022. The estimated recoverable amount by impairment testing is fair value less costs to sell of the individual assets, which is expected negotiated sales amount or appraised value. Appraised value corresponds to fair value, which is evaluated based on valuation methods, such as "publicly assessed land price", "sales comparison approach", and others.

In addition, the Group evaluated impairment loss caused by damage of typhoon and others, and an impairment loss was recognized in the amount of ₩2,498 million for property, plant and equipment for the year ended December 31, 2022.

Based on the input variables used in valuation methods, the fair value measurements of Gunsan shipyard assets and machinery without plans for use are classified as Level 3 fair value. The valuation methods and input variables used in measuring fair values are as follows:

Valuation method	Significant but unobservable input variables	Correlation between the main unobservable variable and fair value
Publicly assessed land price	Time adjustment (Rate of changes in land value)	If flexibility of land value increases (decreases), then fair value increases (decreases).
	Regional contribution	If regional contribution increases (decreases), then fair value increases (decreases).
	Individual contribution	If the adjusted value of terms of residential lot and others increases (decreases), then fair value increases (decreases).
	Other contributions	If the adjusted value of the level of land value and others increases (decreases), then fair value increases (decreases).
Cost method	Changes in prices of raw materials, other materials, wages, and others	If the prices of raw materials and others increases (decreases), then fair value increases (decreases).
	Status of maintenance, management and others	If the status of maintenance, management and others is good (bad), then fair value increases (decreases).
Sales comparison approach	Sales comparisons of the object same or similar value formation factors with the target object	The price of target object is calculated through the process of information normalization, time adjustment, and value formation factors comparison according to the status of the target object.

16. Property, Plant and Equipment, Continued

(3) Impairment losses, continued

The Group tests for goodwill impairment on CGU annually. The Group, in principle, defines the business unit as CGU, and determines whether it is impaired by evaluating the value in use of the independent CGU. The recoverable amount of each business unit is reasonably estimated by the Group, and is derived through DCF (Discounted Cash Flow) using estimated cash flow before tax based on the five-year business plan approved by the management.

The discount rate and permanent growth rate, which are basically used when testing for impairment on CGU were calculated by taking into account the market environment such as impact of COVID-19, and applying the average value of the long-term observation period.

Discount rate applied 8.13%~8.88% (8.77%~10.65% in 2021). Cash flows after 5 years were estimated by applying a 1% growth rate (1% in 2021). All other assumptions are the same as disclosed as of December 31, 2021. If there are subsequent changes in major assumptions, an impairment loss may occur.

(4) Land revaluation

The Group applied revaluation model on land and for the year ended December 31, 2020 the Group revalued land by using the value which independent and expertise appraisal institution. The appraisal institution valued land price based on the publicly assessed land price with adjustments and reviewed reasonableness of revaluation amount by comparing appraised results with the estimated price based on recent market transactions among the independent third parties.

Book values of land assessed by revaluation model and cost model as of December 31, 2022 are as follows:

(In millions of won)		**2022**	
		Revaluation model	**Cost model**
Land	₩	3,141,480	1,956,323

As a result of revaluation on land, accumulated gain on revaluation amounted to ₩875,579 million (net of tax effects) was recognized as other comprehensive income and accumulated loss on revaluation amounted to ₩28,411 million in relation to land the Group holds as of December 31, 2022 was recognized as other non-operating expenses.

In addition, due to partial disposal of the revalued land, gain on revaluation amounting to ₩2,442 million (₩156 million in 2021) was reclassified to retained earnings for the year ended December 31, 2022 and 2021.

16. Property, Plant and Equipment, Continued

(4) Land revaluation, continued

Based on the input variables used in the valuation method, the fair value measurement of land is classified as level 3 fair value based on the input variables used in the valuation techniques. The valuation method and input variables used in measuring fair value of land are as follows:

Valuation method	Significant but unobservable input variables	Correlation between the main unobservable variable and fair value
Publicly assessed land price	Time adjustment (Rate of changes in land value)	If flexibility of land value increases (decreases), then fair value increases (decreases).
	Regional contribution	If regional contribution increases (decreases), then fair value increases (decreases).
	Individual contribution	If the adjusted value of terms of residential lot and others increases (decreases), then fair value increases (decreases).
	Other contributions	If the adjusted value of the level of land value and others increases (decreases), then fair value increases (decreases).

(5) Temporarily idle property, plant and equipment

The carrying amounts of temporarily idle property, plant and equipment in offshore business are ₩107,103 million as of December 31, 2022.

The carrying amounts of temporarily idle property, plant and equipment in the Gunsan shipyard and offshore business are ₩664,961 million as of December 31, 2021.

(6) Property, plant and equipment completed of depreciation but in use

The carrying amounts of the property, plant and equipment completed of depreciation but in use are ₩125 million and ₩118 million as of December 31, 2022 and 2021, respectively.

(7) The details of property, plant and equipment provided as collateral for loans as of December 31, 2022 are as follows:

(In millions of won)		2022				
Collateral for loans		Carrying amount	Provided amount	Related liabilities	Related amount	Creditor
Buildings, and machinery and equipment	₩	11,126	10,800	Long-term borrowings	9,000	KEB Hana Bank

17. Right-of-use Assets

(1) Changes in right-of-use assets for the years ended December 31, 2022 and 2021 are as follows:

(In millions of won)		2022				
		Land	Machinery and equipment	Buildings	Others	Total
Beginning balance	₩	13,081	3,261	-	1,564	17,906
Additions and adjustment		5,082	27,293	224	3,141	35,740
Depreciation		(4,009)	(5,804)	(25)	(1,431)	(11,269)
Changes in scope of consolidation		1,013	-	-	-	1,013
Ending balance	₩	15,167	24,750	199	3,274	43,390
Acquisition cost		19,312	30,472	224	4,861	54,869
Accumulated depreciation		(4,145)	(5,722)	(25)	(1,587)	(11,479)

(In millions of won)		2021			
		Land	Buildings	Others	Total
Beginning balance	₩	11,698	3,232	665	15,595
Additions and adjustment		4,746	6,223	1,938	12,907
Depreciation		(3,363)	(6,194)	(1,039)	(10,596)
Ending balance	₩	13,081	3,261	1,564	17,906
Acquisition cost		15,626	7,912	2,127	25,665
Accumulated depreciation		(2,545)	(4,651)	(563)	(7,759)

(2) Expenses recognized in profit or loss related to leases for the years ended December 31, 2022 and 2021 are as follows:

(In millions of won)		2022	2021
Depreciation on right-of-use assets(*):			
Lands	₩	4,009	3,363
Buildings		5,804	6,194
Machinery and equipment		25	-
Others		1,431	1,039
	₩	11,269	10,596
Interest expense on lease liabilities	₩	720	583
Short-term lease payment(*)		9,419	9,043
Payments for leases of low-value assets not short-term lease(*)		81	57
Variable lease payments not included in the measurement of the lease liabilities(*)		-	246

(*) Included in cost of sales and selling, general and administrative expenses.

The total cash outflows related to leases for the years ended December 31, 2022 and 2021 are amounting to ₩19,501 million and ₩19,007 million.

18. Intangible Assets

(1) Changes in development costs for the years ended December 31, 2022 and 2021 are as follows:

(In millions of won)		2022	2021
Beginning balance	₩	36,635	30,170
Acquisition and others		29,239	9,168
Amortization		(7,272)	(2,702)
Impairment(*)		(43)	(1)
Ending balance	₩	58,559	36,635
Acquisition cost		77,982	48,745
Accumulated amortization		(18,882)	(11,611)
Accumulated impairment		(541)	(499)

(*) Impairment loss of development costs was recognized for the year ended December 31, 2022.

(2) Other intangible assets include abyss engineering tank and intangible assets with indefinite useful lives. Changes in other intangible assets for the years ended December 31, 2022 and 2021 are as follows:

(In millions of won)		2022	2021
Beginning balance	₩	42,823	34,792
Acquisition and others		435	12,053
Disposals and others		(771)	(3,266)
Amortization		(581)	(353)
Impairment(*1)		-	(403)
Ending balance(*2)	₩	41,906	42,823
Acquisition cost		44,584	44,846
Accumulated amortization		(910)	(329)
Accumulated impairment		(1,768)	(1,694)

(*1) Impairment loss of other intangible assets(membership) was recognized for the year ended December 31, 2021.
(*2) The carrying amounts of the intangible assets with indefinite useful lives are ₩31,101 million and ₩31,872 million as of December 31, 2022 and 2021, respectively.

(3) Details of research and development costs and ordinary development costs and development cost amortization included in intangible asset for the years ended December 31, 2022 and 2021 are as follows:

(In millions of won)			2022	2021
Research and development costs	Selling, general and administrative expenses	₩	3,386	2,962
	Government grants		(150)	(11)
		₩	3,236	2,951
Ordinary development costs	Selling, general and administrative expenses	₩	71,266	65,293
	Government grants		(38)	(106)
		₩	71,228	65,187
Development cost amortization	Manufacturing costs	₩	7,217	2,449
	Selling, general and administrative expenses		55	253
		₩	7,272	2,702

19. Short-term and Long-term Financial Liabilities and Lease Liabilities

(1) Short-term and long-term financial liabilities and lease liabilities as of December 31, 2022 and 2021 are summarized as follows:

(In millions of won)		2022		2021	
		Current	**Non-current**	**Current**	**Non-current**
Borrowings	₩	1,384,655	285,730	1,240,813	1,422,700
Bonds		60,000	873,650	265,970	537,100
Discount on bonds		(23)	(356)	(15)	(808)
	₩	1,444,632	1,159,024	1,506,768	1,958,992
Lease liabilities		13,174	31,277	6,052	12,746

(2) Details of the timing of the cash outflow the lease liabilities under contract as of December 31, 2022 and 2021 are as follows:

(In millions of won)		2022					
		Carrying amount	**Contractual cashflow(*)**	**6 months more or less**	**6~12 months**	**1~3 years**	**More than 3 years**
Lease liabilities	₩	44,451	45,972	6,371	7,150	17,505	14,946

(*) Undiscounted lease payments

(In millions of won)		2021					
		Carrying amount	**Contractual cashflow(*)**	**6 months more or less**	**6~12 months**	**1~3 years**	**More than 3 years**
Lease liabilities	₩	18,798	20,998	3,492	3,026	6,957	7,523

(*) Undiscounted lease payments

20. Trade and Other Payables

Trade and other payables as of December 31, 2022 and 2021 are summarized as follows:

(In millions of won)

		2022		2021	
		Current	**Non-current**	**Current**	**Non-current**
Trade payables	₩	924,771	-	1,180,098	-
Other accounts payable		199,012	-	164,153	-
Accrued expenses		449,817	-	401,678	-
Deposits received		-	381	-	249
	₩	1,573,600	381	1,745,929	249

21. Borrowings and Bonds

(1) Short-term borrowings as of December 31, 2022 and 2021 are as follows:

(In millions of won)

Type of borrowing	Lender	Annual Interest rate (%)		2022	2021
General loan	The Korea Development Bank	5.31	₩	100,000	-
General loan in foreign currency	FDH JV ZOR	2.50		13,547	12,775
Usance L/C	Industrial Bank of Korea and others	0.20~5.73		104,918	648,763
				218,465	661,538
Current portion of long-term borrowings				1,166,190	579,275
			₩	1,384,655	1,240,813

(2) Long-term borrowings as of December 31, 2022 and 2021 are as follows:

(In millions of won)

Type of borrowing	Lender	Annual interest rate (%)		2022	2021
General loan	The Korea Development Bank and others	2.43~6.14	₩	945,000	1,438,500
General loan in foreign currency	KEB Hana Bank and others	4.93~5.58		506,920	533,475
Commercial Paper	Korea Investment & Securities Co., Ltd.	-		-	30,000
				1,451,920	2,001,975
Current portion of long-term borrowings				(1,166,190)	(579,275)
			₩	285,730	1,422,700

21. Borrowings and Bonds, Continued

(3) Bonds as of December 31, 2022 and 2021 are as follows:

(In millions of won)

Description	Issue	Maturity	Annual interest rate (%)		2022	2021	Guarantee(*)
3rd debenture	2019-05-29	2022-02-28	-	₩	-	100,000	Debenture
Floating rate bond	2019-12-12	2022-12-12	-		-	165,970	Secured bond
4-1th debenture	2021-03-05	2023-03-03	1.92		60,000	60,000	Debenture
4-2th debenture	2021-03-05	2024-03-05	2.50		240,000	240,000	Debenture
Floating rate bond	2021-04-01	2024-03-28	4.69		253,460	237,100	Secured bond
Fixed rate bond	2022-03-28	2027-03-28	3.18		380,190	-	Secured bond
					933,650	803,070	
Discount on bonds					(379)	(823)	
Current portion of bonds					(60,000)	(265,970)	
Current portion of discount on bonds					23	14	
				₩	873,294	536,291	

(*) The Group is provided with guarantees from financial institution issued for Secured bond.

(4) Aggregate maturities of the Group's borrowings and bonds as of December 31, 2022 and 2021 are as follows:

(In millions of won)

		2022		
Periods		Borrowings	Bonds	Total
2023.01.01 ~ 2023.12.31	₩	1,384,655	60,000	1,444,655
2024.01.01 ~ 2027.12.31		285,730	873,650	1,159,380
	₩	1,670,385	933,650	2,604,035

(In millions of won)

		2021		
Periods		Borrowings	Bonds	Total
2022.01.01 ~ 2022.12.31	₩	1,240,813	265,970	1,506,783
2023.01.01 ~ 2026.12.31		1,422,700	537,100	1,959,800
	₩	2,663,513	803,070	3,466,583

21. Borrowings and Bonds, Continued

(5) Changes in liabilities arising from financing cash flows for the years ended December 31, 2022 and 2021 are as follows:

(In millions of won)

			2022			
			Borrowings	Bonds	Lease liabilities	Total
Beginning balance		₩	2,663,513	802,247	18,798	3,484,558
Cash flows from financing activities	Borrowing		630,413	365,490	-	995,903
	Repayment		(1,653,136)	(265,970)	(9,637)	(1,928,743)
Non-cash flows	The effects of changes in foreign exchange rates		29,595	31,061	(230)	60,426
	Amortization of bond discounts		-	443	-	443
	Others		-	-	34,858	34,858
Cash flows from operating activities(*)			-	-	(364)	(364)
Changes in scope of consolidation			-	-	1,026	1,026
Ending balance		₩	1,670,385	933,271	44,451	2,648,107

(*) Interest expense among the reduction of lease liabilities for the year ended December 31, 2022, is classified as cash flows from operating activities.

(In millions of won)

			2021			
			Borrowings	Bonds	Lease liabilities	Total
Beginning balance		₩	4,184,530	362,157	16,343	4,563,030
Cash flows from financing activities	Borrowing		1,701,312	525,365	-	2,226,677
	Repayment		(3,268,319)	(11,000)	(9,340)	(3,387,659)
Non-cash flows	The effects of changes in foreign exchange rates		45,990	24,229	124	70,343
	Amortization of bond discounts		-	496	-	496
	Others		-	-	11,992	11,992
Cash flows from operating activities(*)			-	-	(321)	(321)
Ending balance		₩	2,663,513	802,247	18,798	3,484,558

(*) Interest expense among the reduction of lease liabilities for the year ended December 31, 2021, is classified as cash flows from operating activities.

22. Employee Benefits

(1) Defined contribution plans

Due to the implementation of the defined contribution plans in April 2022, the Group recorded contributions to financial institutions as current expenses. The cost recognized in profit or loss due to the defined contribution plans is ₩953 million for the year ended December 31, 2022

(2) Defined benefit plans

(i) Recognized liabilities for defined benefit obligations as of ended December 31, 2022 and 2021 are as follows:

(In millions of won)		2022	2021
Present value of defined benefit obligations	₩	693,939	780,644
Other long-term benefits		28,462	33,198
		722,401	813,842
Fair value of plan assets(*)		(693,939)	(780,644)
Liabilities recognized under defined benefit plans(*)	₩	28,462	33,198

(*) The fair value of plan assets amounting to ₩237,982 million (₩26,352 million in 2021), exceeding the present value of defined benefit obligations, is recognized as defined benefit assets and the fair value of plan assets including excess reserve is ₩931,921 million (₩806,996 million in 2021), as of December 31, 2022(See Note 11).

(ii) Plan assets as of December 31, 2022 and 2021 are as follows:

(In millions of won)		2022	2021
Retirement pension(*)	₩	931,076	805,944
Transfer to National Pension Fund		845	1,052
	₩	931,921	806,996

(*) The retirement pension is invested in principal and interest guaranteed instruments, principal guaranteed instruments and funds with bonds mixed as of December 31, 2022.

(iii) Expenses recognized in profit or loss for the years ended December 31, 2022 and 2021 are as follows:

(In millions of won)		2022	2021
Current service costs	₩	68,389	67,204
Past service costs		(4,024)	40,265
Interest on obligations		23,604	15,881
Expected return on plan assets		(25,394)	(16,262)
	₩	62,575	107,088

For the years ended December 31, 2022 and 2021, amounting to ₩3,527 million and ₩6,053 million were incurred, respectively, as additional retirement benefits.

22. Employee Benefits, Continued

(2) Defined benefit plans, continued

(iv) Changes in the defined benefit obligations for the years ended December 31, 2022 and 2021 are as follows:

(In millions of won)		2022	2021
Beginning balance	₩	813,842	729,432
Current service costs		68,389	67,204
Past service costs		(4,024)	40,265
Interest cost		23,604	15,881
Benefits paid		(113,789)	(77,822)
Transfers from (to) related parties		1,158	2,814
Actuarial gains and losses			
Population statistical assumption		2,728	-
Financial assumption		(120,196)	(1,802)
Experience adjustment		50,689	37,870
Ending balance	₩	722,401	813,842

(v) Changes in the fair value of plan assets for the years ended December 31, 2022 and 2021 are as follows:

(In millions of won)		2022	2021
Beginning balance	₩	806,996	723,063
Benefits paid		(92,574)	(64,384)
Contributions paid into the plan		200,813	135,000
Expected return on plan assets		25,394	16,262
Actuarial gains and losses		(8,726)	(2,945)
Changes in scope of consolidation		18	-
Ending balance	₩	931,921	806,996

The Group reviews the level of the fund each year and takes the policy to preserve fund in the event of a loss to the fund. The Group expects to pay ₩61,992 million and ₩68,022 million in contributions to its defined benefit plans in next year, as of December 31, 2022 and 2021, respectively.

(vi) Expected payment date of the defined benefit obligations as of December 31, 2022 is as follows:

(In millions of won)		2023.01.01 ~ 2023.12.31	2024.01.01 ~ 2027.12.31	2028.01.01 ~ 2032.12.31	2033.01.01 ~	Total
Expected payment	₩	27,072	257,565	320,436	2,099,641	2,704,714

(vii) Principal actuarial assumptions as of December 31, 2022 and 2021 are as follows:

(In percentage)	2022	2021
Discount rate	5.31~5.34	2.72
Future salary growth	3.03	2.11
Future mortality (Males, at age 45)	0.18	0.20

22. Employee Benefits, Continued

(2) Defined benefit plans, continued

(viii) Weighted average durations of the defined benefit obligations as of December 31, 2022 and 2021 are as follows:

(In years)	2022	2021
Weighted average duration	10.12	10.66

(ix) Reasonably possible changes as of December 31, 2022 and 2021 to each relevant actuarial assumption would have affected the defined benefit obligation by the amounts shown below.

(In millions of won)		2022		2021	
		Increase	Decrease	Increase	Decrease
Discount rate (1% movement)	₩	(58,672)	68,190	(72,743)	85,811
Future salary growth (1% movement)		61,570	(54,207)	74,759	(65,139)

23. Provisions

(1) Changes in provisions for the year ended December 31, 2022 are as follows:

(In millions of won)		2022				
		Provision for construction losses	Provision for construction warranty	Provision for product warranty	Other provision(*1)	Total
Beginning balance	₩	229,827	406,602	76,862	584,262	1,297,553
Additions		56,622	56,736	31,418	39,211	183,987
Reversals		(198,787)	(17,145)	(21,763)	-	(237,695)
Utilization		-	(63,352)	(20,915)	-	(84,267)
Others(*2)		21,099	-	-	-	21,099
Ending balance	₩	108,761	382,841	65,602	623,473	1,180,677
Current		108,761	126,366	42,328	623,473	900,928
Non-current		-	256,475	23,274	-	279,749

(*1) As of December 31, 2022, other provisions consist of ₩583,945 million in provisions related to ordinary wage lawsuit and ₩39,528 million in provisions related to construction obligation.
(*2) For the year ended December 31, 2022, this is the effect of changes in impairment losses previously recognized for assets related to onerous contracts.

23. Provisions, Continued

(2) Changes in provisions for the year ended December 31, 2021 are as follows:

(In millions of won)		2021				
		Provision for construction losses	**Provision for construction warranty**	**Provision for product warranty**	**Other provision(*1)**	**Total**
Beginning balance	₩	113,400	355,468	77,290	12,718	558,876
Additions		200,497	77,099	37,426	571,544	886,566
Reversals		(78,656)	(8,977)	(12,842)	-	(100,475)
Utilization		-	(16,988)	(25,012)	-	(42,000)
Others(*2)		(5,414)	-	-	-	(5,414)
Ending balance	₩	229,827	406,602	76,862	584,262	1,297,553
Current		229,827	155,324	58,577	584,262	1,027,990
Non-current		-	251,278	18,285	-	269,563

(*1) Other provisions are recognized for the lawsuit and construction obligation. Ordinary wage lawsuit was newly recognized amount ₩565,134 million by estimation amount the Group have to pay to employees for the year ended December 31, 2021 according to the judgment of the Supreme Court.
(*2) For the year ended December 31, 2021, this is the effect of changes in impairment losses previously recognized for assets related to onerous contracts.

24. Derivative Financial Instruments

The Group has entered into derivative instrument contracts related to foreign currency forwards with KEB Hana Bank and other 16 banks for hedge the changes in foreign exchange rates. Derivatives are measured at fair values by using forward exchange rates presented by the contract counterparty. The details of assessment and gains or losses of transaction for the year ended December 31, 2022 are as follows:

(1) The description of derivative instrument and hedge accounting is as follows:

Hedge accounting	Type	Description
Fair value hedge	Foreign exchange forward contracts	Hedge of the risk of changes in the fair value of firm commitments
Cash flow hedge	Foreign exchange forward contracts	Hedge of the variability in cash flows attributable to foreign currency exposure in respect of forecast purchases
	Foreign exchange swap contracts	Hedge of the variability in cash flows attributable to foreign currency liabilities in respect of interest rate and exchange rate

24. Derivative Financial Instruments, Continued

(2) Terms of derivative contracts as of December 31, 2022 are as follows:

(In millions of won and in thousands of foreign currency)

Description	Type	Currency Sell	Currency Buy	Contract amount	Weighted average exchange rate (In won)	Average maturities	Number of contracts
Fair value hedge	Foreign exchange forward contracts	USD	KRW	13,151,947	₩ 1,222.02	2024-07-18	5,592
		EUR	KRW	13,885	1,344.81	2023-02-15	4
Cash flow hedge	Foreign exchange forward contracts	USD	GBP	9,190	1.23	2023-12-29	1
		USD	EUR	2,758	0.94	2023-02-28	1
		KRW	GBP	1,620	1,521.30	2023-06-29	2
	Foreign exchange swap contracts	KRW	USD	1,044,335	1,160.37	2024-11-29	9

- Terms of settlement: Netting the settlement or collecting total
- The contract amount is denominated in selling currency

(3) Book values related to derivatives as of December 31, 2022 are as follows:

(In millions of won)

Description	Type	Derivatives Assets Current	Derivatives Assets Non-current	Derivatives Liabilities Current	Derivatives Liabilities Non-current	Firm commitment Assets Current	Firm commitment Assets Non-current	Firm commitment Liabilities Current	Firm commitment Liabilities Non-current
Fair value hedge	Foreign exchange forward contracts	₩ 65,132	229,960	316,433	190,170	218,542	190,170	58,224	229,959
Cash flow hedge	Foreign exchange forward contracts	21	-	121	-	-	-	-	-
	Foreign exchange swap contracts	41,298	63,964	-	-	-	-	-	-
		₩ 106,451	293,924	316,554	190,170	218,542	190,170	58,224	229,959

24. Derivative Financial Instruments, Continued

(4) Gains and losses on the valuation and transaction of derivatives for the year ended December 31, 2022 are as follows:

(In millions of won)

Description	Type	Sales	Cost of sales	Finance income	Finance costs	Other non-operating income	Other non-operating expenses	Other comprehensive income (before tax)
Fair value hedge	Foreign exchange forward contracts	₩ (411,780)	-	387,051	875,692	739,113	373,324	-
Cash flow hedge	Foreign exchange forward contracts	-	2,491	-	-	-	-	138
	Foreign exchange swap contracts	-	-	85,884	-	-	-	441
For trading	Foreign exchange forward contracts	-	-	7,833	518	-	-	-
		₩ (411,780)	2,491	480,768	876,210	739,113	373,324	579

For the year ended December 31, 2022, the Group applies cash flow hedge accounting, for which the Group accounted the effective portion of the hedge amounting to ₩526 million, net of tax of ₩53 million, as a gain on valuation of derivatives in accumulated other comprehensive income.

The maximum expected period of exposure to cash flow risk, where the cash flow hedge accounting is applied, is approximately 51 months as of December 31, 2022.

25. Common stock and Capital Surplus

(1) Common stock

(i) Common stock as of December 31, 2022 is as follows:

(In thousands of won)		2022			
		Authorized shares	**Issued shares**	**Par value (in won)**	**Common stock**
Ordinary shares	₩	160,000,000	88,773,116	5,000	443,865,580

(ii) Changes in common stock for the years ended December 31, 2022 and 2021 are as follows:

(In thousands of won)	2022				2021		
	Issued shares		**Capital stock**		**Issued shares**		**Capital stock**
Beginning balance	88,773,116	₩	443,865,580		70,773,116	₩	353,865,580
Capital increase	-		-		18,000,000		90,000,000
Ending balance	88,773,116	₩	443,865,580		88,773,116	₩	443,865,580

(2) Capital surplus

Changes in the capital surplus for the years ended December 31, 2022 and 2021 are as follows:

(In millions of won)		**2022**	**2021**
Paid-in capital in excess of par value by split-off in June, 2019	₩	4,641,671	4,641,671
Paid-in capital in excess of par value by capital increase in September, 2021		990,000	990,000
Deduction : Establishment costs of corporation in June, 2019		(1,729)	(1,729)
Deduction : New stock issue costs of capital increase in September, 2021		(11,577)	(11,577)
Appropriations of retained earnings(*)		(2,500,000)	(2,500,000)
Total	₩	3,118,365	3,118,365

(*) At the annual shareholder`s meeting on March 22, 2021, capital surplus of ₩2,500,000 million was transferred to retained earnings.

(3) Dividends

The Group has no dividends paid for the years ended December 31, 2022 and 2021.

26. Capital adjustments

Capital adjustments as of December 31, 2022 and 2021 are as follows:

(In millions of won)		2022	2021
Repayment of hybrid bonds	₩	(1,411)	(1,411)
Acquisition of subsidiary		(232)	-
	₩	(1,643)	(1,411)

27. Accumulated Other Comprehensive Income

(1) Accumulated other comprehensive income as of December 31, 2022 and 2021 are summarized as follows:

(In millions of won)		2022	2021
Changes in fair value of financial assets measured at FVOCI	₩	(11)	(11)
Effective portion of changes in fair value of cash flow hedges		6,261	5,736
Revaluation of property, plant and equipment		875,579	875,793
Exchange differences on translating foreign operations		-	(30)
	₩	881,829	881,488

(2) Other comprehensive income (loss) for the years ended December 31, 2022 and 2021 are as follows:

(In millions of won)		2022		
		Before tax amount	Tax effect	After tax amount
Effective portion of changes in fair value of cash flow hedges	₩	579	(53)	526
Actuarial gains and losses		58,053	(14,746)	43,307
Revaluation of property, plant and equipment		-	2,228	2,228
Exchange differences on translating foreign operations		30	-	30
	₩	58,662	(12,571)	46,091

(In millions of won)		2021		
		Before tax amount	Tax effect	After tax amount
Changes in fair value of financial assets measured at FVOCI	₩	(57)	15	(42)
Effective portion of changes in fair value of cash flow hedges		10,515	(2,797)	7,718
Actuarial gains and losses		(39,013)	10,377	(28,636)
Exchange differences on translating foreign operations		5	-	5
	₩	(28,550)	7,595	(20,955)

28. Retained Earnings

(1) Retained earnings as of December 31, 2022 and 2021 are as follows:

(In millions of won)		2022	2021
Unappropriated retained earnings	₩	845,403	1,151,718

(2) Changes in retained earnings(deficit) for the years ended December 31, 2022 and 2021 are as follows:

(In millions of won)		2022	2021
Beginning balance	₩	1,151,718	(505,085)
		-	2,500,000
Loss for the year		(352,065)	(814,228)
Actuarial gains and losses		43,308	(28,636)
Reclassification of revaluation surplus		2,442	156
Reclassification of changes in financial assets measured at FVOCI		-	(489)
Ending balance	₩	845,403	1,151,718

29. Revenue

(1) Sales for the years ended December 31, 2022 and 2021 are as follows:

(In millions of won)		2022	2021
Construction contracts	₩	7,067,900	6,594,523
Goods sold		1,767,639	1,539,116
Services		209,941	177,637
	₩	9,045,480	8,311,276

(2) Changes in outstanding contracts for the year ended December 31, 2022 are as follows:

(In millions of won)		Shipbuilding	Offshore, Industrial Plant and Engineering	Others	Total
Beginning balance	₩	16,650,344	2,260,491	2,933,172	21,844,007
Changes and others(*)		15,677,090	197,319	4,505,247	20,379,656
Sales recognized		(6,467,204)	(785,228)	(1,793,048)	(9,045,480)
Ending balance	₩	25,860,230	1,672,582	5,645,371	33,178,183

(*) The changes include the impact from the changes due to fluctuations in the exchange rate of foreign currency contracts, cancellation of contracts, change of contract amount and others.

As of December 31, 2022, the Group provides certain amount of financial institution guarantee deposits or letters of guarantee from various financial institutions to the customers for bidding, performance, advance payment and warranty guarantees in connection with above construction contracts.

29. Revenue, Continued

(2) Changes in outstanding contracts for the year ended December 31, 2022 are as follows, continued:
Periods when the ending balance is expected to be recognized as revenues are as follows:

(In millions of won)		2023	2024	After 2025	Total
Expected amount	₩	12,380,687	13,008,095	7,789,401	33,178,183

(3) Accumulated revenues of construction and others related to construction in progress as of December 31, 2022 are as follows:

(In millions of won)		Accumulated revenue of construction	Accumulated cost of construction	Accumulated Profit (loss) of construction	Billed receivables on construction contracts	Unbilled receivables on construction contracts	Contract liabilities	Provision for construction losses
Shipbuilding	₩	6,457,709	6,697,106	(239,397)	33,224	2,844,640	3,498,802	96,740
Offshore, Industrial Plant and Engineering(*)		4,051,395	4,200,308	(148,913)	69,839	335,440	458,139	5,374
	₩	10,509,104	10,897,414	(388,310)	103,063	3,180,080	3,956,941	102,114

(*) The accumulated revenue and cost of construction related to joint operation (FDH JV) are not included.

Among the receivables on construction contracts, the amount of retentions in accordance with the contract terms is amounting to ₩113,793 million.

Heavy-tail payment plan is a major collection term in the Shipbuilding segment, and Offshore, Industrial Plant and Engineering segment mainly based on Progress and Milestone payment plan. Therefore, billed receivables on construction contracts and contract assets might be changed according to the progress of construction.

29. Revenue, Continued

(4) As of December 31, 2022, the information about significant construction contracts is as follows:

(In millions of won)

	Contract	Contract date	Contract due(*1)	Progress	Contract asset: Total	Contract asset: Allowance for doubtful accounts	Trade receivable: Total	Trade receivable: Allowance for doubtful accounts
Offshore, Industrial Plant and Engineering	CFP	2014.04.13	2018.10.18	99.94%	77,729	-	7,367	-
	ZOR	2015.10.13	2019.07.27	94.72%	-	-	60,610	-
	SHWE	2021.02.01	2024.04.01	34.62%	-	-	-	-
	FPSO Petrobras 78 Project	2021.05.08	2025.11.07	44.90%	239,025	-	-	-
Shipbuilding	Shenandoah FPS Project	2021.08.05	2024.09.26	13.81%	-	-	-	-
	NASR 2	2014.07.08				(*2)		
	3407 Shipbuilding PJT	2022.10.04	2026.06.30	0.02%	-	-	-	-

(*1) For the project the construction deadline that has elapsed, some remaining works are in a progress after delivering the object or a consultation with the client to extent the construction period is still under negotiation.
(*2) As there are contractual confidentiality obligations and the clients disagree with disclosing this information, the Group omits the related disclosures after reporting it to audit committee. As of December 31, 2022, the Group omitted the related disclosures for eight contracts. However, the date of contracts of NASR 2 are disclosed in securities registration statement, business report, investment prospectus, or important management matters, the Group has disclosed the related information.

(5) The effect of changes in estimated total contract costs

(i) Effect of changes in total contract costs

For the year ended December 31, 2022, the estimated total contract costs and total contract revenue for contracts in progress as of December 31, 2021 have changed. Effects on profit or loss for the current period and the future period, the impact on contract assets and contract liabilities are as follows:

(In millions of won)

		Change of total contract revenue(*1)	Change of total estimated contract cost	Effect on profit or loss of contract: Current period	Effect on profit or loss of contract: Future period	Effect on profit or loss of contract: Total	Change of contract assets	Change of contract liabilities
Shipbuilding	₩	778,395	819,157	(49,369)	8,607	(40,762)	(273,164)	37,446
Offshore, Industrial Plant and Engineering(*2)		153,259	133,309	(11,186)	31,136	19,950	(38,298)	19,737
	₩	931,654	952,466	(60,555)	39,743	(20,812)	(311,462)	57,183

(*1) Changes in entire contract revenue (including foreign currency fluctuation) are reflected because it is unable to distinguish total contract revenue changed directly by changes in total contract costs.
(*2) The accumulated revenue and cost of construction related to joint operation (FDH JV) are not included.

29. Revenue, Continued

(5) The effect of changes in estimated total contract costs, continued

(i) Effect of changes in total contract costs, continued

Effects on profit or loss for the current period and future period is calculated based on the total contract cost and total contract revenue estimated on the basis of situations generated in current period, and these estimations could be changed by variation of situations in the future.

(ii) Sensitivity analysis of changes in estimated total contract costs

The amount of contract assets and contract liabilities affected by progress which is determined by accumulated cost incurred divided by estimated total contract cost. An estimated total contract cost is calculated based on an estimated material cost, labor cost and construction period, and has a variance risk related to exchange rate fluctuations, changes in steel prices and changes in production hours.

The Group has entered foreign currency forward contracts to hedge the risk related to exchange rate fluctuations, and hedges the risk related to changes of steel price in short period of time by entering steel purchase agreement by period. The risk and uncertainty related to production hours has been managed by department which is responsible for managing production hours. Effects on profit or loss of current period and future periods, contract assets and contract liabilities in case production hour changes 10% are as follows:

(In millions of won)

		Effect of profit or loss in current period		Effect of profit or loss in future period		Changes of contract assets		Changes of contract liabilities	
		10% increase	10% decrease	10% increase	10% decrease	10% increase	10% decrease	10% increase	10% decrease
Shipbuilding	₩	(128,183)	84,943	(414,758)	457,997	(40,667)	41,658	8,380	(8,639)
Offshore, Industrial Plant and Engineering(*)		(9,819)	7,199	(8,191)	10,812	(3,345)	3,399	2,823	(2,867)
	₩	(138,002)	92,142	(422,949)	468,809	(44,012)	45,057	11,203	(11,506)

(*) The accumulated revenue and cost of construction related to joint operation (FDH JV) are not included.

(6) Source of revenue

(In millions of won)		2022	2021
Revenue from contracts with customers	₩	9,457,253	8,300,600
Investment property rentals		7	29
Hedging gains and losses		(411,780)	10,647
	₩	9,045,480	8,311,276

29. Revenue, Continued

(7) Disaggregation of revenue from contracts with customers

Disaggregation of revenue from contracts with customers for the years ended December 31, 2022 and 2021 is as follows:

(In millions of won)		2022	2021
Major products/service lines			
Shipbuilding	₩	6,793,577	6,311,510
Offshore, Industrial Plant and Engineering		787,446	426,507
Engine and Machinery		1,798,273	1,490,141
Others		77,964	72,471
	₩	9,457,260	8,300,629
Primary geographical markets			
Korea	₩	3,192,054	3,254,167
North America		92,201	171,870
Asia		3,454,214	2,410,717
Europe		1,835,572	2,194,640
Others		883,219	269,235
	₩	9,457,260	8,300,629
Duration of contract			
Short-term contract	₩	608,151	552,597
Long-term contract		8,849,109	7,748,032
	₩	9,457,260	8,300,629
Timing of revenue recognition			
Goods and services transferred at a point in time	₩	2,060,770	1,714,450
Goods and services transferred over time		7,396,490	6,586,179
	₩	9,457,260	8,300,629

(8) Contract balance

The information about receivables, contract assets and contract liabilities from contracts with customers as of December 31, 2022 and 2021 is as follows:

(In millions of won)		2022	2021
Trade receivables	₩	1,812,378	1,673,867
Allowance for doubtful accounts		(769,336)	(790,514)
	₩	1,043,042	883,353
Contract assets	₩	3,180,080	2,836,711
Contract liabilities(*)		(4,743,248)	(2,618,586)

(*) The amount of ₩1,311,915 million included in contract liabilities (₩2,618,586 million) as of December 31, 2021 has been recognized as revenue for the year ended December 31, 2022.

29. Revenue, Continued

(9) Cost to fulfill a contract recognized as an asset

The Group pays commission fees in relation to the contract, in accordance with K-IFRS No.1115, which is the incremental costs of obtaining a contract are those costs that the Group incurs to obtain a contract with a customer that it would not have incurred if the contract had not been obtained. Commission fees that are expected to be recovered from the customers are recognized as costs to fulfill contract assets and amortized to reflect the progress of the construction.

(In millions of won)		**2022**	**2021**
Beginning balance	₩	73,029	50,464
Increase		59,679	74,430
Amortization(*)		(47,509)	(46,451)
Reversal (Impairment)		21,099	(5,414)
Ending balance	₩	106,298	73,029

(*) It is amortized in the same way that the controls over involved goods or services are transferred to the customer.

30. Operating Segments

The Group has the following four strategic divisions, which are its reportable segments. These strategic operating units offer different products and services and are managed separately because they require different technology and marketing strategies. The chief executive officer (CEO) reviews internal reports of each strategic operating unit at least quarterly.

(i) Shipbuilding: Manufacturing and sale of VLCCs, containerships, P/C ships, LNG carriers, warships and others.
(ii) Offshore, Industrial Plant and Engineering: Manufacturing and installation of offshore facilities, floating units, co-generating power plants, and processing equipment
(iii) Engine and Machinery: Manufacturing and sale of engines for ships, diesel power plants, industrial and marine pumps and hydraulic machinery
(iv) Others: Operating performing arts center, leisure sports facilities and others.

(1) The financial performance of each reportable segment for the years ended December 31, 2022 and 2021 is as follows:

(In millions of won)	2022				
	Sales	**Inter-segment revenue**	**Operating Profit (loss)**	**Profit (Loss) for the year**	**Depreciation and amortization(*1)**
Shipbuilding	₩ 6,467,204	-	(123,567)	(48,225)	135,578
Offshore and Industrial Plant Engineering	785,281	(53)	(152,718)	(175,578)	22,909
Engine and Machinery	1,741,067	(25,983)	171,197	151,354	63,557
Others	77,964	-	(183,861)	(279,628)	32,233
Consolidation adjustments(*2)	(26,036)	26,036	(202)	12	-
	₩ 9,045,480	-	(289,151)	(352,065)	254,277

(*1) Depreciation on the right-of-use assets for the year ended December 31, 2022 is included.
(*2) Consolidation adjustments are intercompany transactions within operating segments, the elimination of intercompany transactions, equity method valuation for investments in associate and others.

30. Operating Segments, Continued

(1) The financial performance of each reportable segment for the years ended December 31, 2022 and 2021 is as follows, continued:

(In millions of won)

	2021				
	Sales	Inter-segment revenue	Operating Profit (loss)	Profit (Loss) for the year	Depreciation and amortization(*1)
Shipbuilding	₩ 6,320,638	-	(192,071)	(169,980)	128,064
Offshore and Industrial Plant Engineering	426,740	(298)	(169,261)	(189,748)	23,433
Engine and Machinery	1,491,725	-	132,618	113,264	53,770
Others	72,471	-	(571,549)	(567,764)	34,096
Consolidation adjustments(*2)	(298)	298	-	-	-
	₩ 8,311,276	-	(800,263)	(814,228)	239,363

(*1) Depreciation on the right-of-use assets for the year ended December 31, 2021 is included.
(*2) Consolidation adjustments include intercompany transactions within operating segments, the elimination of intercompany transactions and others.

(2) Assets and liabilities of each reportable segment as of December 31, 2022 and 2021 are as follows:

(In millions of won)

	2022	
	Total assets	Total liabilities
Shipbuilding	₩ 5,533,895	5,582,120
Offshore and Industrial Plant Engineering	1,074,837	1,250,665
Engine and Machinery	1,525,200	1,345,165
Others	8,213,726	2,852,687
Consolidation adjustment	(58,260)	(29,058)
	₩ 16,289,398	11,001,579

(In millions of won)

	2021	
	Total assets	Total liabilities
Shipbuilding	₩ 3,583,839	3,753,820
Offshore and Industrial Plant Engineering	809,976	999,735
Engine and Machinery	1,035,976	922,514
Others	9,649,646	3,808,578
Consolidation adjustment	(766)	-
	₩ 15,078,671	9,484,647

(3) Sales recognized by external customers who account for more than 10% of the Group's sales are ₩1,381,225 million for the year ended December 31, 2022.

31. Selling, General and Administrative Expenses

Selling, general and administrative expenses for the years ended December 31, 2022 and 2021 are as follows:

(In millions of won)		2022	2021
Salaries	₩	126,173	132,722
Bonus		24,344	37,523
Post-employment benefit costs		8,815	30,949
Employee welfare		35,978	38,789
Depreciation		24,501	23,026
Amortization		58	253
Bad debt expenses(Reversal of bad debt)		(23,345)	63,740
Ordinary development costs		71,228	65,187
Advertising		5,930	5,435
Printing		1,009	684
Power		1,819	1,523
Warranty expenses		14,021	56,394
Insurance		486	530
Office supplies		894	473
Supplies		1,667	1,460
Utilities		156	64
Repairs		891	804
Travel		5,022	2,056
Research		3,236	2,951
Training		2,713	843
Service contract expenses		52,374	47,612
Transportation		373	813
Freight		2,273	2,610
Ceremony expenses		1,493	524
Rent		2,541	1,783
Data processing		12,399	11,757
Entertainment		572	418
Taxes and dues		2,249	2,165
Service charges		60,565	46,197
Automobile maintenance		3,322	2,235
Sales commissions		1,975	2,783
Others		6,280	6,751
	₩	452,012	591,054

32. Nature of Expenses

The classifications of expenses by nature for the years ended December 31, 2022 and 2021 are as follows:

(In millions of won)		2022	2021
Changes in inventories	₩	(478,471)	(119,680)
Purchase of inventories		6,216,708	5,278,364
Depreciation		235,155	225,712
Depreciation on right-of-use assets		11,269	10,596
Amortization		7,853	3,055
Employee benefits(*1)		886,675	1,180,298
Others(*1)		2,455,443	2,533,194
(*2)	₩	9,334,632	9,111,539

(*1) Additional amount arising from an ordinary wage lawsuit for the year ended December 31, 2021 is included.
(*2) Total expenses consist of cost of sales and selling, general and administrative expenses.

33. Finance Income and Finance Costs

Finance income and finance costs for the years ended December 31, 2022 and 2021 are as follows:

(In millions of won)		2022	2021
Finance income:			
Interest income	₩	45,610	25,084
Gain on disposal of financial instruments measured at FVTPL		9,126	988
Dividend income		38	34
Gain on foreign currency translation		48,520	91,658
Gain on foreign currency transactions		563,126	292,079
Gain on valuation of derivatives		410,328	72,741
Gain on derivatives transactions		62,607	31,288
Reversal of other provisions		-	185
	₩	1,139,355	514,057
Finance costs:			
Interest expense	₩	106,141	125,635
Loss on disposal of financial instruments measured at FVTPL		518	2,380
Loss on foreign currency translation		227,849	84,741
Loss on foreign currency transactions		361,088	210,359
Loss on valuation of derivatives		415,425	470,564
Loss on derivatives transactions		460,267	99,460
Other provision additions		20,402	6,594
	₩	1,591,690	999,733

34. Other Non-Operating Income and Other Non-operating Expenses

Other non-operating income and other non-operating expenses for the years ended December 31, 2022 and 2021 are as follows:

(In millions of won)		2022	2021
Other non-operating income:			
Gain on disposal of property, plant and equipment	₩	11,236	8,422
Gain on disposal of intangible assets		-	1,556
Reversal of Impairment loss on other current assets		857	-
Gain on valuation of firm commitments		739,113	450,160
Gain on disposal of right-of-use assets		709	1,240
Reversal of other allowance for doubtful accounts		8,264	28
Miscellaneous income		52,537	9,896
	₩	812,716	471,302
Other non-operating expenses:			
Other bad debt expenses	₩	5	2,116
Commissions		4,110	8,524
Warranty		6,992	2,932
Loss on disposal of investments in subsidiary and associate		444	-
Impairment loss on property, plant and equipment		7,884	16,345
Impairment loss on intangible assets		43	404
Impairment loss on other current assets		23,518	7,858
Loss on disposal of property, plant and equipment		5,090	8,944
Loss on disposal of intangible assets		271	2,296
Loss on disposal of non-current assets held for sale		-	2,668
Loss on valuation of firm commitments		373,324	20,908
Donation		2,704	2,466
Loss on disposal of right-of-use assets		80	-
Miscellaneous expenses		66,804	220,705
	₩	491,269	296,166

35. Income Tax Expense

(1) Components of income tax benefit for the years ended December 31, 2022 and 2021 are as follows:

(In millions of won)		2022	2021
Current tax expense	₩	2,028	632
Adjustment for prior periods		(2,913)	-
Origination and reversal of temporary differences		(55,963)	(305,262)
Income tax recognized directly in equity		(12,571)	7,410
Total income tax benefit	₩	(69,419)	(297,220)

35. Income Tax Expense, Continued

(2) Income taxes recognized directly other than profit or loss for the years ended December 31, 2022 and 2021 are as follows:

(In millions of won)		2022	2021
Changes in fair value of financial assets measured at FVOCI	₩	-	(162)
Effective portion of changes in fair value of cash flow hedges		(53)	(2,797)
Actuarial gains and losses		(14,746)	10,377
Revaluation of property, plant and equipment		2,228	(8)
	₩	(12,571)	7,410

Income taxes related to changes in fair value of financial assets measured at FVOCI, effective portion of changes in fair value of cash flow hedges, actuarial gains and losses and others are recognized in other comprehensive incomes.

(3) Reconciliations of the effective tax rates for the years ended December 31, 2022 and 2021 are as follows:

(In millions of won)		2022	2021
Loss before income tax	₩	(421,484)	(1,111,448)
Income tax using the Group's statutory tax rate		(111,996)	(295,620)
Adjustment for:			
- Change in tax rates(*1)		43,349	-
- Tax effect of non-deductible expenses		4,470	4,386
- Tax effect of tax-exempt income		(2)	(1)
- Tax incentives		(3,445)	(386)
- Current adjustments for prior periods		(2,913)	-
- Others		1,118	(5,599)
Income tax benefit	₩	(69,419)	(297,220)
Effective tax rate		(*2)	(*2)

(*1) Reflecting the revised tax law for the year ended December 31, 2022, a tax rate expected to be realized after 2023 applied to temporary differences.
(*2) As income tax benefit is occurred, the Group did not calculate the effective tax rate.

(4) Deferred tax assets and deferred tax effects by origination and reversal of temporary differences for the years ended December 31, 2022 and 2021 are as follows:

(In millions of won)		2022	2021
Deferred assets at the end of the year	₩	893,619	837,656
Deferred assets at the beginning of the year		837,656	532,394
Deferred tax effects by origination and reversal of temporary differences	₩	55,963	305,262

(5) As of December 31, 2022 and 2021, the tax effects of temporary difference were calculated by expected tax rate of the fiscal year when the temporary differences are expected to reverse.

35. Income Tax Expense, Continued

(6) Deferred tax assets and liabilities are offset and presented in the consolidated statements of financial position, only if there are a legally enforceable right to offset the related current tax liabilities and assets, and they relate to income taxes levied by the same tax authority and they intend to settle current tax liabilities and assets on a net basis.

(7) Changes in deferred tax assets (liabilities) for the years ended December 31, 2022 and 2021 are as follows:

(In millions of won)		2022		
		Beginning balance	Change	Ending balance
Allowance for doubtful accounts	₩	288,097	(23,019)	265,078
Defined benefit liabilities		207,905	(4,071)	203,834
Plan assets		(221,492)	(45,245)	(266,737)
Derivatives		2,984	(22,324)	(19,340)
Accrued expenses		16,880	1,846	18,726
Gains and losses on foreign exchange translations		(4,463)	55,513	51,050
Others		281,609	(102,503)	179,106
		571,520	(139,803)	431,717
Tax losses carried forward		246,471	190,294	436,765
Tax incentives carried forward		19,665	5,472	25,137
	₩	837,656	55,963	893,619

(In millions of won)		2021		
		Beginning balance	Change	Ending balance
Allowance for doubtful accounts	₩	270,841	17,256	288,097
Defined benefit liabilities		166,016	41,889	207,905
Plan assets		(178,378)	(43,114)	(221,492)
Derivatives		(5,143)	8,127	2,984
Accrued expenses		19,132	(2,252)	16,880
Gains and losses on foreign exchange translations		27,562	(32,025)	(4,463)
Others		91,622	189,987	281,609
		391,652	179,868	571,520
Tax losses carried forward		121,909	124,562	246,471
Tax incentives carried forward		18,833	832	19,665
	₩	532,394	305,262	837,656

(8) The Group judges that deferred tax assets are recoverable, because it is probable that future taxable profit will be available which the Group can use the unused tax losses and others.

(9) The details of temporary differences not recognized as deferred tax assets (liabilities) as of December 31, 2022 and 2021 are as follows:

(In millions of won)		2022	2021	Reasons
Tax losses carried forward	₩	29,054	-	uncertainty in future taxable income
Temporary differences to be deducted		8,602	-	uncertainty in future taxable income
	₩	37,656	-	

35. Income Tax Expense, Continued

(10) Expiration schedule of unused deficit as of December 31, 2022 and 2021 is as follows.

(In millions of won)		**2022**	**2021**
2029	₩	20,955	-
2035		3,984	-
2036		2,050	-
2037		2,065	-
	₩	29,054	-

36. Loss per share

(1) Basic loss per share for the years ended December 31, 2022 and 2021 is as follows:

(In millions of won, In thousands of shares)		2022	2021
Loss for the year	₩	(352,065)	(814,228)
Weighted average number of ordinary shares outstanding(*)		88,773	76,001
Loss per share *(In won)*	₩	(3,966)	(10,713)

(*) The weighted average number of ordinary shares outstanding for the years ended December 31, 2022 and 2021 are as follows:

(In shares)	2022		
	Number of shares outstanding	**Weighted average (In days)**	**Weighted average number of shares outstanding**
Beginning balance	88,773,116	365/365	88,773,116
Weighted average number of ordinary shares outstanding	88,773,116		88,773,116

(In shares)	2021		
	Number of shares outstanding	**Weighted average (In days)**	**Weighted average number of shares outstanding**
Beginning balance	70,773,116	365/365	70,773,116
Capital increase	18,000,000	106/365	5,227,397
Weighted average number of ordinary shares outstanding	88,773,116		76,000,513

(2) Since there are no diluted potential common shares for the years ended December 31, 2022 and 2021, diluted earnings per share have not been calculated.

37. Cash Generated from Operations

(1) Cash generated from operations for the years ended December 31, 2022 and 2021 is as follows:

(In millions of won)		2022	2021
Loss for the year	₩	(352,065)	(814,228)
Adjustments for:		463,554	1,669,141
Post-employment benefit costs		62,575	107,087
Depreciation		235,155	225,712
Depreciation on right-of-use assets		11,269	10,596
Amortization		7,853	3,056
Bad debt expenses (Reversal of bad debt)		(23,345)	63,740
Reversal of other allowance doubtful accounts (Other non-operating income)		(8,264)	(28)
Other bad debt expenses (Other non-operating expenses)		5	2,116
Finance income		(505,789)	(189,518)
Finance costs		749,450	680,940
Other non-operating income		(751,972)	(461,379)
Other non-operating expenses		410,653	59,424
Loss on valuation of equity method		1,444	646
Income tax benefit		(69,419)	(297,220)
Trade receivables		(250,670)	(64,727)
Other receivables		(61,709)	(44,552)
Contract assets		(343,720)	(211,745)
Inventories		(478,471)	(119,680)
Derivatives		(138,313)	40,679
Firm commitments		477,916	22,528
Other current assets		(361,875)	(36,784)
Other non-current assets		(101,686)	33
Trade payables		(247,993)	229,697
Other payables		74,480	(137,687)
Contract liabilities		2,140,472	1,187,720
Retirement benefits paid		(113,789)	(77,821)
Succession of retirement benefits		1,158	2,814
Plan assets		(108,239)	(70,617)
Provisions		(143,622)	744,111

37. Cash Generated from Operations, Continued

(2) Significant transactions that do not involve cash inflows and outflows for the years ended December 31, 2022 and 2021 are as follows:

(In millions of won)		2022	2021
Reclassification of current portion of long-term borrowings	₩	1,158,240	579,275
Reclassification of construction-in-progress		67,488	65,919
Reclassification of current portion of long-term loans		(103)	(705)
Change in other payables related to acquisition of property, plant and equipment		236	(6,789)
Increase in right-of-use assets and lease liabilities		35,741	11,410
Reclassification of investment properties to property, plant and equipment		2,612	-

38. Categories of Financial Instruments and Income and Costs by Categories

(1) Categories of financial instruments as of December 31, 2022 and 2021 are summarized as follows:

(In millions of won)		2022			
		Fair value-hedging instruments	Financial instruments measured at FVTPL	Equity investments measured at FVOCI	Financial instruments measured at amortized cost
Cash and cash equivalents	₩	-	-	-	744,148
Short-term financial assets		-	-	-	161,000
Trade and other receivables		-	-	-	1,135,987
Contract assets		-	-	-	3,180,080
Derivative assets (current)		106,451	-	-	-
Long-term financial assets		-	7,808	1,738	8
Long-term trade and other receivables		-	-	-	176,767
Derivative assets (non-current)		293,924	-	-	-
	₩	400,375	7,808	1,738	5,397,990
Short-term financial liabilities	₩	-	-	-	1,444,632
Lease liabilities (current)		-	-	-	13,174
Trade and other payables		-	-	-	1,573,600
Other provision (current)		-	-	-	39,528
Derivative liabilities (current)		316,554	-	-	-
Long-term financial liabilities		-	-	-	1,159,024
Lease liabilities (non-current)		-	-	-	31,277
Long-term trade and other payables		-	-	-	381
Derivative liabilities (non-current)		190,170	-	-	-
	₩	506,724	-	-	4,261,616

38. Categories of Financial Instruments and Income and Costs by Categories, Continued

(1) Categories of financial instruments as of December 31, 2022 and 2021 are summarized as follows, continued:

(In millions of won)		2021			
		Fair value-hedging instruments	**Financial instruments measured at FVTPL**	**Equity investments measured at FVOCI**	**Financial instruments measured at amortized cost**
Cash and cash equivalents	₩	-	-	-	2,137,391
Short-term financial assets		-	-	-	151,000
Trade and other receivables		-	-	-	1,032,431
Contract assets		-	-	-	2,836,711
Derivative assets (current)		11,368	-	-	-
Long-term financial assets		-	7,808	1,738	14
Long-term trade and other receivables		-	-	-	38,942
Derivative assets (non-current)		43,123	-	-	-
	₩	54,491	7,808	1,738	6,196,489
Short-term financial liabilities	₩	-	-	-	1,506,768
Lease liabilities (current)		-	-	-	6,052
Trade and other payables		-	-	-	1,745,929
Other provision (current)		-	-	-	19,127
Derivative liabilities (current)		148,742	-	-	-
Long-term financial liabilities		-	-	-	1,958,992
Lease liabilities (non-current)		-	-	-	12,746
Long-term trade and other payables		-	-	-	249
Derivative liabilities (non-current)		146,031	-	-	-
	₩	294,773	-	-	5,249,863

38. Categories of Financial Instruments and Income and Costs by Categories, Continued

(2) Financial instruments income and costs by categories for the years ended December 31, 2022 and 2021 are as follows:

(In millions of won)

	2022				
	Net income (loss)	**Other comprehensive income**	**Interest Income /expense(*)**	**Dividend income**	**Impairment loss**
Fair value-hedging instruments	₩ (817,028)	526	-	-	-
Financial instruments measured at FVTPL	8,646	-	-	38	-
Financial instruments measured at amortized cost	(6,117)	-	(38,596)	-	31,604

(*) Interest income and expense arising from effective interest rate amortization are included.

(In millions of won)

	2021				
	Net income (loss)	**Other comprehensive income(loss)**	**Interest Income /expense(*)**	**Dividend income**	**Impairment loss**
Fair value-hedging instruments	₩ (455,946)	7,718	-	-	-
Financial instruments measured at FVTPL	(1,358)	-	-	34	-
Financial instruments measured at FVOCI	-	(42)	-	-	-
Financial instruments measured at amortized cost	(72,274)	-	(83,362)	-	(65,829)

(*) Interest income and expense arising from effective interest rate amortization are included.

39. Risk of Financial Instruments

(1) Credit risk

1) Exposure to credit risk

The carrying amount of financial assets and contract assets represents the maximum credit exposure. The maximum exposure to credit risk as of December 31, 2022 and 2021 are as follows:

(In millions of won)		2022	2021
Cash and cash equivalents(*1)	₩	744,091	2,137,304
Fair value-hedging instruments		400,375	54,491
Financial instruments measured at FVTPL		7,808	7,808
Financial instruments measured at amortized cost(*2)		4,653,842	4,059,098
	₩	5,806,116	6,258,701

(*1) Cash held as of December 31, 2022 and 2021 is excluded.
(*2) The carrying amounts of contract assets as of December 31, 2022 and 2021 are included.

The maximum exposure to credit risk for financial guarantee contracts is ₩52,054 million as of December 31, 2021.

The maximum exposure to credit risk for financial instruments measured at amortized cost (including contract assets) by geographic region as of December 31, 2022 and 2021 is as follows:

(In millions of won)		2022	2021
Korea	₩	1,164,305	965,601
North America		87	56,892
Asia		2,080,178	1,439,877
Europe		1,030,851	1,448,116
Others		378,421	148,612
	₩	4,653,842	4,059,098

2) Impairment loss

(i) Impairment loss on trade and other receivables and contract assets for the years ended December 31, 2022 and 2021 is as follows:

(In millions of won)		2022	2021
Impairment loss (Reversal) on trade and other receivables and contract assets	₩	(31,604)	65,828

39. Risk of Financial Instruments, Continued

(1) Credit risk, continued

2) Impairment loss, continued

(ii) The aging of trade and other receivables and contract assets and the amount of impairment in each aging as of December 31, 2022 and 2021 are as follows:

(In millions of won)		2022		2021	
		Gross	**Impairment**	**Gross**	**Impairment**
Not past due	₩	4,794,085	(340,363)	4,252,826	(364,932)
0~6 months past due		30,723	(5,855)	38,655	(28,647)
6~12 months past due		18,494	(5,908)	13,242	(12,903)
1~3 years past due		53,586	(52,213)	32,523	(30,526)
More than three years past due		683,990	(683,705)	691,195	(683,349)
	₩	5,580,878	(1,088,044)	5,028,441	(1,120,357)

(iii) Changes in the allowance for doubtful account in respect of trade and other receivables and contract assets for the years ended December 31, 2022 and 2021 are as follows:

(In millions of won)		2022	2021
Beginning balance	₩	1,120,357	1,054,545
Impairment loss recognized		445	68,619
Reversal of allowance for doubtful accounts		(32,049)	(2,791)
Write-off		(709)	(16)
Ending balance	₩	1,088,044	1,120,357

The allowance for doubtful accounts in respect of trade and other receivables and contract assets are used to record impairment losses until the Group is certain that the amount of assets cannot recover. If the Group decides that the asset cannot be recovered, allowance for doubtful accounts will be removed and offset from the financial asset.

For the years ended December 31, 2022 and 2021, impairment losses and reversal of allowance for doubtful accounts arising from in other receivables are recorded as other non-operating income (loss) and the details are as follows:

(In millions of won)		2022	2021
Other bad debt expenses	₩	5	2,116
Reversal of other allowance doubtful accounts		(8,264)	(28)
	₩	(8,259)	2,088

39. Risk of Financial Instruments, Continued

(1) Credit risk, continued

3) The analysis of the aging of financial assets that are past due as of December 31, 2022 and 2021, but not impaired is summarized as follows:

(In millions of won)

		2022				
		Carrying amount	**6 months or less**	**6~12 months**	**1~3 years**	**More than 3 years**
Financial instruments measured at amortized cost	₩	39,112	24,868	12,586	1,373	285

(In millions of won)

		2021				
		Carrying amount	**6 months or less**	**6~12 months**	**1~3 years**	**More than 3 years**
Financial instruments measured at amortized cost	₩	20,191	10,009	339	1,997	7,846

(2) Liquidity risk

1) The contractual maturities of financial liabilities, including contractual interest payments and excluding the impact of offsetting agreements as of December 31, 2022 are summarized as follows:

(In millions of won)

		2022					
		Carrying amount	**Contractual cash flow**	**6 months or less**	**6~12 months**	**1~3 years**	**More than 3 years**
Non-derivative financial liabilities:							
Borrowings	₩	1,670,385	1,714,671	1,205,332	218,627	290,712	-
Bonds		933,271	1,013,846	75,338	15,092	525,097	398,319
Trade and other payables		1,573,981	1,573,981	1,573,600	-	381	-
Lease liabilities		44,451	45,972	6,371	7,150	17,505	14,946
Derivative financial liabilities:							
Forward exchange contracts used for hedging		506,724	536,212	177,685	148,433	209,885	209
	₩	4,728,812	4,884,682	3,038,326	389,302	1,043,580	413,474

It is not expected that the cash flows included in the maturity analysis could occur significantly earlier, or at significantly different amounts.

39. Risk of Financial Instruments, Continued

(2) Liquidity risk, continued

2) The contractual maturities of financial liabilities, including contractual interest payments and excluding the impact of offsetting agreements as of December 31, 2021 are summarized as follows:

(In millions of won)		2021					
		Carrying amount	**Contractual cash flow**	**6 months or less**	**6~12 months**	**1~3 years**	**More than 3 years**
Non-derivative financial liabilities:							
Borrowings	₩	2,663,513	2,743,426	376,062	920,614	1,446,750	-
Bonds		802,247	829,488	107,475	173,232	548,781	-
Trade and other payables		1,746,177	1,746,177	1,745,928	-	249	-
Lease liabilities		18,798	20,998	3,492	3,026	6,957	7,523
Derivative financial liabilities:							
Forward exchange contracts used for hedging		294,773	308,334	73,547	78,402	152,927	3,458
	₩	5,525,508	5,648,423	2,306,504	1,175,274	2,155,664	10,981

As of December 31, 2021, the Group did not include payment guarantee contracts amounting to ₩19,127 million, which are recognized as financial liabilities, due to uncertain timing of expenditure. As of December 31, 2021, the maximum amount of guarantee that the Group may be obliged to cover in connection with financial guarantee contracts is ₩52,054 million, other than the financial guarantee contract.

It is not expected that the cash flows included in the maturity analysis could occur significantly earlier, or at significantly different amounts.

39. Risk of Financial Instruments, Continued

(2) Liquidity risk, continued

3) The periods in which the cash flows associated with cash flow hedges are expected to occur as of December 31, 2022 and 2021 are summarized as follows:

(In millions of won)		2022					
		Carrying amount	**Expected cash flows**	**6 months or less**	**6~12 months**	**1~3 years**	**More than 3 years**
Currency swap							
Assets	₩	105,262	127,281	48,645	12,390	66,246	-
Liabilities		-	-	-	-	-	-
Forward exchange							
Assets		21	21	20	1	-	-
Liabilities		(121)	(129)	-	(129)	-	-
	₩	105,162	127,173	48,665	12,262	66,246	-

(In millions of won)		2021					
		Carrying amount	**Expected cash flows**	**6 months or less**	**6~12 months**	**1~3 years**	**More than 3 years**
Currency swap							
Assets	₩	40,612	40,869	(327)	3,504	37,692	-
Liabilities		(150)	(468)	(165)	(65)	(238)	-
Forward exchange							
Assets		269	281	-	193	88	-
Liabilities		(1,041)	(1,071)	-	(1,071)	-	-
	₩	39,690	39,611	(492)	2,561	37,542	-

39. Risk of Financial Instruments, Continued

(3) Currency risk

1) Exposure to currency risk

(i) The Group's exposure to foreign currency risk as of December 31, 2022 is as follows:

(In millions of won)		2022					
		USD	EUR	CNY	JPY	Others	Total
Cash and cash equivalents	₩	351,323	77	-	108	16,512	368,020
Trade and other receivables		718,561	38,868	-	218	116,718	874,365
Contract assets		3,037,707	13,135	-	-	77,729	3,128,571
		4,107,591	52,080	-	326	210,959	4,370,956
Trade and other payables		(484,753)	(54,851)	(419)	(2,336)	(199,052)	(741,411)
Borrowings and bonds		(1,205,339)	(44,794)	-	-	(8,902)	(1,259,035)
Other provision		-	-	-	-	(39,528)	(39,528)
		(1,690,092)	(99,645)	(419)	(2,336)	(247,482)	(2,039,974)
Net exposure to statement of financial position		2,417,499	(47,565)	(419)	(2,010)	(36,523)	2,330,982
Derivative contracts(*)		(106,244)	13	-	-	(118)	(106,349)
Net exposure	₩	2,311,255	(47,552)	(419)	(2,010)	(36,641)	2,224,633

(*) Derivative contracts to hedge the risk of exchange rate fluctuations are not considered effectiveness of the hedge.

(ii) The Group's exposure to foreign currency risk as of December 31, 2021 is as follows:

(In millions of won)		2021					
		USD	EUR	CNY	JPY	Others	Total
Cash and cash equivalents	₩	276,911	79	-	153	49,782	326,925
Trade and other receivables		466,481	20,831	-	226	207,871	695,409
Contract assets		2,739,345	22,238	-	-	70,249	2,831,832
		3,482,737	43,148	-	379	327,902	3,854,166
Trade and other payables		(573,460)	(47,624)	(557)	(3,808)	(313,902)	(939,351)
Borrowings and bonds		(1,475,476)	(100,740)	-	(7,279)	(14,587)	(1,598,082)
Other provision		-	-	-	-	(19,127)	(19,127)
		(2,048,936)	(148,364)	(557)	(11,087)	(347,616)	(2,556,560)
Net exposure to statement of financial position		1,433,801	(105,216)	(557)	(10,708)	(19,714)	1,297,606
Derivative contracts(*)		(240,700)	150	-	-	269	(240,281)
Net exposure	₩	1,193,101	(105,066)	(557)	(10,708)	(19,445)	1,057,325

(*) Derivative contracts to hedge the risk of exchange rate fluctuations are not considered effectiveness of the hedge.

39. Risk of Financial Instruments, Continued

(3) Currency risk, continued

1) Exposure to currency risk, continued

Exchange rates have been applied for the years ended December 31, 2022 and 2021 are as follows:

(In won)		Average rate		Year-end spot rate	
		2022	**2021**	**2022**	**2021**
USD	₩	1,291.95	1,144.42	1,267.30	1,185.50
EUR		1,357.38	1,352.79	1,351.20	1,342.34
CNY		191.57	177.43	181.44	186.26
JPY(100)		983.44	1,041.45	953.18	1,030.24

2) Sensitivity analysis

A weakening of the won, against the USD, EUR, CNY, JPY and others as of December 31, 2022 and 2021 would have changed profit or loss by the amounts shown below. This analysis is based on foreign currency exchange rate variances that the Group considered to be reasonably possible at the reporting date. In addition, this analysis assumes that all other variables, in particular interest rates, remain constant. The changes in profit or loss are as follows:

(In millions of won)		Profit or loss	
		2022	**2021**
USD (3 percent strengthening)	₩	69,338	35,793
EUR (3 percent strengthening)		(1,427)	(3,161)
CNY (3 percent strengthening)		(13)	(17)
JPY (3 percent strengthening)		(60)	(321)

A strengthening of the won against the above currencies as of December 31, 2022 would have had the equal but opposite effect on the above currencies to the amounts shown above, assuming all other variables remain constant.

(4) Interest rate risk

1) The carrying amounts of the Group's interest-bearing financial instruments as of December 31, 2022 and 2021 is as follows:

(In millions of won)		**2022**	**2021**
Fixed interest rate instruments:			
Financial assets	₩	1,081,837	2,381,935
Financial liabilities		(1,068,276)	(1,923,313)
	₩	13,561	458,622
Floating interest rate instruments:			
Financial assets	₩	3,580	3,126
Financial liabilities		(1,535,380)	(1,543,270)
	₩	(1,531,800)	(1,540,144)

39. Risk of Financial Instruments, Continued

(4) Interest rate risk, continued

2) Interest rate risk arises from savings and borrowings with floating interest rates. The Group properly hedges the risk in borrowings with floating interest rates through interest rate swaps. Interest rate swap contracts as of December 31, 2022 are as follows:

(In thousands of foreign currency)

Counterparties	Amount	Interest rate		Expiration date
Korea Development Bank	USD 100,000	Receives floating interest rate Pays fixed interest rate	US LIBOR(3M)+1.92% 2.21%	2024.02.26
KEB Hana Bank	USD 50,000	Receives floating interest rate Pays fixed interest rate	US LIBOR(3M)+2.82% 2.81%	2023.07.21
KEB Hana Bank and others	USD 200,000	Receives floating interest rate Pays fixed interest rate	US LIBOR(3M)+0.95% 1.47%	2024.03.28
Korea Development Bank	USD 300,000	Receives fixed interest rate Pays fixed interest rate	3.18% 2.97%	2027.03.28
KEB Hana Bank and others	USD 250,000	Receives floating interest rate Pays fixed interest rate	US LIBOR(3M)+1.90% 2.10%	2023.03.29

3) Cash flow sensitivity analysis for floating interest rate instruments

A change of 100 basis points in interest rates as of December 31, 2022 and 2021 would have increased (decreased) profit or loss by the amounts shown below. This analysis assumes that all other variables, in particular foreign currency rates, remain constant.

The changes in profit or loss are as follows:

(In millions of won)		Profit or loss	
		100 bp increase	**100 bp decrease**
2022			
Floating interest rate instruments	₩	(15,318)	15,318
Interest rate swap		11,406	(11,406)
Net cash flow sensitivity	₩	(3,912)	3,912
2021			
Floating interest rate instruments	₩	(15,401)	15,401
Interest rate swap		9,365	(9,365)
Net cash flow sensitivity	₩	(6,036)	6,036

39. Risk of Financial Instruments, Continued

(5) Fair value

1) Fair values versus carrying amounts

(i) The fair values and the carrying amounts of financial assets and liabilities as of December 31, 2022 are as follows:

(In millions of won)		2022			
		Fair value-hedging instruments	**Financial instruments measured at FVTPL**	**Equity investments measured at FVOCI**	**Financial instruments measured at amortized cost**
Financial assets measured at fair value:					
Financial assets measured at FVTPL(*1)	₩	-	7,808	-	-
Financial assets measured at FVOCI(*2)		-	-	1,738	-
Derivative assets		400,375	-	-	-
		400,375	7,808	1,738	-
Financial assets not measured at fair value:					
Cash and cash equivalents		-	-	-	744,148
Financial instruments		-	-	-	161,008
Trade and other receivables		-	-	-	1,312,754
Contract assets		-	-	-	3,180,080
		-	-	-	5,397,990
Total financial assets	₩	400,375	7,808	1,738	5,397,990
Financial liabilities measured at fair value:					
Derivative liabilities	₩	506,724	-	-	-
Financial liabilities not measured at fair value:					
Borrowings		-	-	-	1,670,385
Bonds		-	-	-	933,271
Trade and other payables		-	-	-	1,573,981
Lease liabilities		-	-	-	44,451
Other provision		-	-	-	39,528
		-	-	-	4,261,616
Total financial liabilities	₩	506,724	-	-	4,261,616

(*1) The amounts of financial assets that were recorded at their acquisition cost because the fair values cannot be measured reliably as of December 31, 2022 are ₩271 million.

(*2) The amounts of financial assets that were recorded at their acquisition cost because the fair values cannot be measured reliably as of December 31, 2022 are ₩1,738 million.

39. Risk of Financial Instruments, Continued

(5) Fair value, continued

1) Fair values versus carrying amounts, continued

(ii) The fair values and the carrying amounts of financial assets and liabilities as of December 31, 2021 are as follows:

(In millions of won)		2021			
		Fair value-hedging instruments	**Financial instruments measured at FVTPL**	**Equity investments measured at FVOCI**	**Financial instruments measured at amortized cost**
Financial assets measured at fair value:					
Financial assets measured at FVTPL(*1)	₩	-	7,808	-	-
Financial assets measured at FVOCI(*2)		-	-	1,738	-
Derivative assets		54,491	-	-	-
		54,491	7,808	1,738	-
Financial assets not measured at fair value:					
Cash and cash equivalents		-	-	-	2,137,391
Financial instruments		-	-	-	151,014
Trade and other receivables		-	-	-	1,071,373
Contract assets		-	-	-	2,836,711
		-	-	-	6,196,489
Total financial assets	₩	54,491	7,808	1,738	6,196,489
Financial liabilities measured at fair value:					
Derivative liabilities	₩	294,773	-	-	-
Financial liabilities not measured at fair value:					
Borrowings		-	-	-	2,663,513
Bonds		-	-	-	802,247
Trade and other payables		-	-	-	1,746,178
Lease liabilities		-	-	-	18,798
Other provision		-	-	-	19,127
		-	-	-	5,249,863
Total financial liabilities	₩	294,773	-	-	5,249,863

(*1) The amounts of financial assets that were recorded at their acquisition cost because the fair values cannot be measured reliably as of December 31, 2021 are ₩271 million.

(*2) The amounts of financial assets that were recorded at their acquisition cost because the fair values cannot be measured reliably as of December 31, 2021 are ₩1,738 million.

39. Risk of Financial Instruments, Continued

(5) Fair value, continued

2) Interest rates used for determining fair value

The interest rates used to discount estimated cash flows was determined by adding an adequate credit spread to the government yield curve at the reporting date. The interest rates applied as of December 31, 2022 and 2021 are as follows:

(In percentage)	**2022**	**2021**
Derivatives	6.64	4.01

3) Fair value hierarchy

The Group classified fair value measurements in accordance with the fair value hierarchy which reflects the significance of the inputs used in fair value measurements:

- Level 1: Quoted prices (unadjusted) in active markets for identical assets or liabilities.
- Level 2: Inputs other than quoted prices included in Level 1 that are observable for the asset or liability, either directly (i.e., as prices) or indirectly (i.e., derived from prices).
- Level 3: Inputs for the asset or liability that are not based on observable market data (unobservable inputs).

The financial instruments measured at fair value, by fair value hierarchy as of December 31, 2022 and 2021 are as follows:

(In millions of won)		**Level 1**	**Level 2**	**Level 3**	**Total**
2022:					
Financial assets measured at FVTPL	₩	-	-	7,537	7,537
Derivative assets		-	400,375	-	400,375
Derivative liabilities		-	506,724	-	506,724
2021:					
Financial assets measured at FVTPL	₩	-	-	7,537	7,537
Derivative assets		-	54,491	-	54,491
Derivative liabilities		-	294,773	-	294,773

The fair value of financial instruments traded in active markets is based on quoted market prices at the end of reporting period. A market is regarded as active if quoted prices are readily and regularly available from an exchange, dealer, broker, industry group, pricing service, or regulatory agency, and those prices represent actual and regularly occurring market transactions on an arm's length basis. The quoted market price used for financial assets held by the Group is the current bid price. These instruments are included in level 1.

The fair value of financial instruments that are not traded in an active market 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 to fairly value 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.

39. Risk of Financial Instruments, Continued

(5) Fair value, continued

3) Fair value hierarchy, continued

Specific valuation techniques used to value financial instruments include:

- Quoted market prices or dealer quotes for similar instruments.
- The fair value of forward foreign exchange contracts is determined using forward exchange rates at the end of reporting period, with the resulting value discounted back to present value.
- Other techniques, such as discounted cash flow analysis, are used to determine fair value for the remaining financial instruments.

Unlisted equity securities, investments in capital and other investments in entities newly established or having no comparative entity are excluded from the fair value valuation because their fair value cannot be measured reliably.

(6) Valuation techniques and input variables of Level 2 fair values

The valuation techniques and input variables used in measuring Level 2 fair values as of December 31, 2022 and 2021 are as follows:

(In millions of won)

	2022	2021	Valuation techniques	Input variables
Derivatives:				
Derivative assets	400,375	54,491	Cash flow discount model	Foreign currency forward price, discount rate and others
Derivative liabilities	506,724	294,773	Cash flow discount model	Foreign currency forward price, discount rate and others

(7) Level 3 fair values

1) Changes in assets which are classified as Level 3 fair values among assets measured at fair value for the years ended December 31, 2022 and 2021 are as follows:

(In millions of won)

		Financial assets measured at FVTPL	
		2022	2021
Beginning balance	₩	7,537	7,537
Transfer to Level 3		-	-
Ending balance	₩	7,537	7,537

39. Risk of Financial Instruments, Continued

(7) Level 3 fair values, continued

2) The valuation techniques and input variables used in measuring Level 3 fair values as of December 31, 2022 and 2021 are as follows:

(In millions of won)

		2022	2021	Valuation techniques	Input variables	Significant unobservable input variables	Ranges of significant unobservable input variables
Financial assets measured at FVTPL:							
Machinery Financial Cooperative	₩	4,998	4,998	Net asset value model	-	-	-
Construction Guarantee Cooperative		2,539	2,539	Net asset value mode	-	-	-

(8) Offsetting of financial assets and financial liabilities

1) The details of financial assets and financial liabilities offsetting arrangements as of December 31, 2022 are as follows:

(In millions of won)

		2022			
		Total recognized financial assets	Total recognized financial assets that will be offset	Net financial assets presented in the statement of financial position	Net amount
Financial assets:					
Trade and other receivables	₩	1,273	(543)	730	730
Financial liabilities:					
Trade and other payables		3,902	(543)	3,359	3,359

2) The details of financial assets and financial liabilities offsetting arrangements as of December 31, 2021 are as follows:

(In millions of won)

		2021			
		Total recognized financial assets	Total recognized financial assets that will be offset	Net financial assets presented in the statement of financial position	Net amount
Financial assets					
Trade and other receivables	₩	279	(178)	101	101
Financial liabilities					
Trade and other payables		5,181	(178)	5,003	5,003

40. Commitments and Contingencies

(1) As of December 31, 2022, the Group has entered into general loan agreements with Korea Development Bank and others amounting to ₩1,125,000 million and USD 520,000 thousand.

(2) As of December 31, 2022, the Group has entered into credit facilities agreements such as letters of credit with KEB Hana Bank and others for the Group's exports and imports amounting to ₩210,900 million and USD 1,151,488 thousand.

(3) As of December 31, 2022, the Group has entered into credit facilities agreements such as pre-shipment credit with Shinhan Bank of Korea and others amounting to ₩53,200 million.

(4) As of December 31, 2022, in connection with the Group's contract performance guarantees, the Group has been provided with guarantees amounting to ₩2,379,659 million and USD 12,816,654 thousand by various financial institution. Among them, the Group has also been provided with payment guarantees in relation to ship advances from customers amounting to USD 10,373,199 thousand by Export-Import Bank of Korea and others. Regarding this, the Group provides as collateral its ships under construction and construction materials.

41. Litigations

(1) A claim for damages (Seoul Central District Court 2016 gahap 519022)

Date of filing	October 14, 2015
Litigant	Plaintiff: Korea Gas Corporation, Defendant: The Parent company and 18 other firms
Litigation content	Korea Gas Corporation filed a suit against 19 firms including the Parent Company claiming compensation (amounting to ₩166,000 million) for a damage arising from bidding collusion of first and second main pipe constructions which are ordered to Doosan Heavy Industries & Construction Co., Ltd., Hyundai Engineering & Construction Co., Ltd. and 22 other construction firms by Korea Gas Corporation.
Litigation value	₩166,000 million
The progress of litigation	In progress after filing appeals on October 14, 2015. Plaintiff partially won (₩116,100 million) the first trial on January 13, 2022
Future litigation schedule and countermeasures	Ruling of first trial was accepted. (Plaintiff and defendant didn`t appeal till deadline on February 4, 2022)
The effect on the Group as a result of litigation	The Group recognized provision amount of ₩10,500 million assuming that the Group loses a suit at the end of year ended December 31, 2021. The Group paid compensation amount of ₩10,500 million agreed with between the defendants on January, 2022.

41. Litigations, Continued

(2) Ordinary wage lawsuit (Busan High Court 2022 na 29)

Date of filing	December 28, 2012
Litigant	Plaintiff: Jeong and nine others, Defendant: The Parent company
Litigation content	Plaintiff filed a suit claiming that total bonuses should be included in the ordinary wage category and recalculated.
Litigation value	₩630 million
The progress of litigation	Defendant partially lost the first trial (Ulsan District Court 2012 gahap 10108) on February 12, 2015. Defendant totally won the second trial (Busan High Court 2015 na 1888) on January 13, 2016. The third trial(Supreme Court 2016 da 7975) was reversed and remanded for the purpose of loss of the defendant on December 16, 2021. The reversed and remanded suit(Busan High Court 2022 na 29) was receipted on January 3, 2022. 1st adjustment on July 20, 2022 2nd adjustment on August 17, 2022 3rd adjustment on September 21, 2022 4th adjustment on December 3, 2022 Decisions to replace adjustment (compulsory adjustment) on December 28, 2022 Compulsory adjustment approved on January 12, 2023
Future litigation schedule and countermeasures	Currently, the case was closed due to the confirmation of the compulsory adjustment decision, and the Group will pay unpaid legal allowances through preparatory procedures such as the establishment of a computer system according to the compulsory adjustment decision
The effect on the Group as a result of litigation	Due to, the Group expected losses, the Group recognized other provision amount ₩583,900 million by estimating amount and delayed compensation the Group has to pay to employees at the end of the year according to the judgment of the Supreme Court and Busan High Court 2018 na 54524.

41. Litigations, Continued

(3) KOC Claim Arbitration

Date of filing	February 17, 2020
Litigant	Plaintiff: Kuwait Oil Company, Defendant: The Parent company and Korea Shipbuilding & Offshore Engineering Co., Ltd.
Litigation content	The Kuwait Oil Company (KOC) claimed compensation for a defect to the part of construction delivered by Offshore, Industrial Plant and Engineering segment.
Litigation value	USD 64 million
The progress of litigation	The KOC filed a request for arbitration with the London International Court of Arbitration (LCIA) on February 17, 2020. The KOC submitted a statement of claiming compensation for a defect to the part of construction on January 30, 2021. The Parent company submitted refutation document for plaintiff`s statement on May 7, 2021. The KOC submitted response and the Parent company submitted refutation document on June 25, 2021. Complete of `Document Production' procedure on November 16, 2021. The Parent company submitted the witness statements on March 21, 2022 The Parent company submitted the witness response statements on May 16 ,2022 The Parent company submitted the 1st specialist statements on July 9, 2022 The Parent company submitted the 2nd specialist statements on September 30, 2022 Hearing on October 25, 2022 to November 3, 2022
Future litigation schedule and countermeasures	The Parent company will submit a response to the statement of plaintiff.
The effect on the Group as a result of litigation	If the Group loses the case, it is expected to make an additional loss from compensation. Currently, the impact on the Group's financial statements, if any, cannot be reliably estimated.

In addition to the cases mentioned above, the Group is currently a defendant in 38 lawsuits involving claims amounted to ₩144,400 million. Currently, the impact on the Group's financial statements, if any, cannot be reliably estimated.

Meanwhile, as of June 17, 2019, a lawsuit was filed against the Group and Korea Shipbuilding & Offshore Engineering Co., Ltd. for invalidity of split-off June 1, 2019, but the lawsuit was terminated as of January 26, 2023

42. Related Parties

(1) As of December 31, 2022, related parties with the Group are as follows:

Ultimate parent	**Main business**
HD HYUNDAI CO.,LTD.(formerly known as Hyundai Heavy Industries Holdings Co., Ltd.)(*1)	Investment
Intermediate parent	**Main business**
Korea Shipbuilding & Offshore Engineering Co., Ltd.	Holding Company
Associate	**Main business**
KC LNG Tech Co., Ltd.	Other engineering services
Others (large-scale corporate conglomerate)(*3)(*4)	**Main business**
Hyundai Genuine Co., Ltd	Sale and manufacture of machinery equipment for construction and mining
Hyundai Samho Heavy Industries Co., Ltd.(*2)	Shipbuilding
Hyundai Mipo Dockyard Co., Ltd.	Shipbuilding
Hyundai Hyms Co., Ltd.	Sale and manufacture of machinery equipment for shipbuilding
Hyundai Engineering & Technology Co., Ltd.	Other engineering services
Ulsan Hyundai Football Club Co., Ltd.	Football club
Hyundai Heavy Industries Mos Co., Ltd.	Maintenance services of business facilities
Hyundai Energy Solutions Co., Ltd.	Solar photovoltaic and renewable energy
Hyundai Doosan Infracore Co., Ltd	Sale and manufacture of construction equipment
HYUNDAI-VIETNAM SHIPBUILDING CO., LTD.	Shipbuilding
Hyundai Transformers and Engineering India Private. Ltd.	Sale and manufacture of transformers
Hyundai Heavy Industries Brasil - Manufacturing and Trading of Construction Equipment	Manufacture, trade and repair of heavy equipment
Hyundai Heavy Industries Miraflores Power Plant Inc.	Manufacturing
Hyundai Energy Solutions America Inc.	Sales of solar module
HHI Mauritius Limited	Manufacturing
Hyundai Heavy Industries Technology Center India Pvt., Ltd.	Consulting of engineering
Hyundai Arabia Company L.L.C.	Industrial plant construction
Hyundai Samho Heavy Industries Panama, Inc.	Civil engineering
Hyundai Electric & Energy Systems Co., Ltd.	Sale and manufacture of industrial electric equipment
Hyundai Construction Equipment Co., Ltd.	Sale and manufacture of machinery equipment for construction
Hyundai Global Service Co., Ltd.	Engineering services
Hyundai Oilbank Co., Ltd.	Manufacturing of petroleum products
Hyundai Robotics Co., Ltd.	Manufacturing of industrial robots
Other related parties of HD HYUNDAI CO., LTD.(formerly known as Hyundai Heavy Industries Holdings Co., Ltd.)	Other business
Other related parties of Hyundai Electric & Energy Systems Co., Ltd.	Other business
Other related parties of Hyundai Construction Equipment Co., Ltd.	Other business
Other related parties of Hyundai Global Service Co., Ltd.	Other business
Other related parties of Hyundai Oilbank Co., Ltd.	Other business
Other related parties of Hyundai Doosan Infracore Co., Ltd	Other business
Other related parties	Other business

42. Related Parties, Continued

(1) As of December 31, 2022, related parties with the Group are as follows, continued:

(*1) For the year ended December 31, 2022, it was newly incorporated as an ultimate parent.
(*2) Hyundai Infra Solutions Co., Ltd. was merged with Hyundai Samho Heavy Industries Co., Ltd. for the year ended December 31, 2022.
(*3) KOMAS Corporation and Hyundai West Africa Limited were excluded from related parties due to liquidation for the year ended December 31, 2022.
(*4) Hyundai Heavy Industries Power Systems Co., Ltd., Yantai Hyundai Moon Heavy Industries Co., Ltd., and Hyundai Seentec Co., Ltd. were excluded from related parties for the year ended December 31, 2022.

(2) Transactions with related parties

1) Significant transactions for the years ended December 31, 2022 and 2021 with related parties are as follows:

(In millions of won)		2022			
		Sales and others (*1)	Purchases and others (*2)		
		Sales	Purchase of raw materials	Purchase of Property, plant and equipment	Purchase of others
Ultimate parent					
HD HYUNDAI CO.,LTD. (formerly known as Hyundai Heavy Industries Holdings Co., Ltd.)	₩	1,316	-	-	587
Intermediate parent					
Korea Shipbuilding & Offshore Engineering Co., Ltd.		9,622	8,464	-	92,702
Associate					
KC LNG Tech Co.,Ltd.		-	171	-	284
Others (large-scale corporate conglomerate)					
Hyundai Robotics Co., Ltd.		698	125	9	-
Hyundai Electric & Energy Systems Co., Ltd.		25,043	88,440	3,739	66
Hyundai Construction Equipment Co., Ltd.		13,546	215	-	75
Hyundai Genuine Co., Ltd		2,999	802	3,849	341
Hyundai Samho Heavy Industries Co., Ltd.(*3)		557,799	67	6,644	-
Hyundai Mipo Dockyard Co., Ltd.		503,756	12,705	-	-
Hyundai Engineering & Technology Co., Ltd.		860	25,053	-	-
Hyundai Oilbank Co., Ltd.		624	77,133	-	205
Hyundai Hyms Co., Ltd.		224	55,127	-	95
Hyundai Heavy Industries Mos Co., Ltd.		4,523	115,994	8	-
Hyundai Global Service Co., Ltd.		22,419	13,504	129	38,836
Hyundai Heavy Industries Power Systems Co., Ltd. (*4)		75	2,927	-	79
Hyundai Energy Solutions Co., Ltd.		821	-	-	-
International Maritime Industries Company		13,163	-	-	-
Others		7,137	739	550	2,713
		1,153,687	392,831	14,928	42,410
	₩	1,164,625	401,466	14,928	135,983

42. Related Parties, Continued

(2) Transactions with related parties, continued

1) Significant transactions for the years ended December 31, 2022 and 2021 with related parties are as follows, continued:

(*1) Includes disposal of property, plant and equipment and others.
(*2) Includes ₩995 millions of lease payment.
(*3) As Hyundai Samho Heavy Industries Co., Ltd. has merged Hyundai Infra Solutions Co., Ltd for the year ended December 31, 2022, the transactions between the Group and Hyundai Infra Solutions Co., Ltd are included.
(*4) As Hyundai Heavy Industries Power Systems Co., Ltd. has been separated, only transactions of January and February, 2022 are included.

(In millions of won)		2021			
		Sales and others	Purchases and others(*2)		
		Sales(*1)	Purchase of raw materials	Purchase of Property, plant and equipment	Purchase of others
Parent					
Korea Shipbuilding & Offshore Engineering Co., Ltd.	₩	7,994	14,080	-	68,620
Associate					
KC LNG Tech Co.,Ltd.		2,490	71	-	-
Others (large-scale corporate conglomerate)					
Hyundai Robotics Co., Ltd.		844	7	221	-
Hyundai Electric & Energy Systems Co., Ltd.		21,418	72,818	2,141	144
Hyundai Construction Equipment Co., Ltd.		14,576	268	4,179	147
Hyundai Heavy Industries Holdings Co., Ltd.		1,319	-	-	299
Hyundai Genuine Co., Ltd		1,317	-	-	-
Hyundai Samho Heavy Industries Co., Ltd.		494,040	110	-	-
Hyundai Mipo Dockyard Co., Ltd.		325,244	15,575	-	-
Hyundai Engineering & Technology Co., Ltd.		591	18,112	-	-
Hyundai Oilbank Co., Ltd.		92	49,482	-	185
Hyundai Hyms Co., Ltd.		265	49,793	-	179
Hyundai Heavy Industries Mos Co., Ltd.		4,459	114,252	51	-
Hyundai Global Service Co., Ltd.		14,875	17,384	-	35,991
Hyundai Heavy Industries Power Systems Co., Ltd.		558	20,547	-	110
Hyundai Arabia Company L.L.C.		2,123	-	-	-
International Maritime Industries Company		97,695	-	-	-
Others		7,109	1,653	277	2,466
		986,525	360,001	6,869	39,521
	₩	997,009	374,152	6,869	108,141

(*1) Includes disposal of property, plant and equipment and others.
(*2) Includes ₩897 millions of lease payment.

42. Related Parties, Continued

(2) Transactions with related parties, continued

2) Outstanding balances as of December 31, 2022 and 2021 with related parties are as follows:

(In millions of won)

		2022			
		Trade receivables and other receivables		Trade payables and other payables	
		Trade receivables	Other receivables	Trade payables	Other Payables(*)
Ultimate parent					
HD HYUNDAI CO.,LTD. (formerly known as Hyundai Heavy Industries Holdings Co., Ltd.)	₩	18	4,267	38	19,259
Intermediate parent					
Korea Shipbuilding & Offshore Engineering Co., Ltd.		564	11,990	23,217	587
Associate					
KC LNG Tech Co.,Ltd.		-	-	368	-
Others (large-scale corporate conglomerate)					
Hyundai Robotics Co., Ltd.		78	3,940	32	-
Hyundai Electric & Energy Systems Co., Ltd.		3,990	1,729	3,768	1
Hyundai Construction Equipment Co., Ltd.		709	945	-	-
Hyundai Genuine Co., Ltd		161	335	100	356
Hyundai Samho Heavy Industries Co., Ltd.		133,325	35,550	-	54,419
Hyundai Mipo Dockyard Co., Ltd.		276,107	341	1,305	149,966
Hyundai Engineering & Technology Co., Ltd.		46	23	2,708	-
Hyundai Oilbank Co., Ltd.		221	78	797	-
Hyundai Hyms Co., Ltd.		20	5,001	2,018	-
Hyundai Heavy Industries Mos Co., Ltd.		353	385	18,467	-
Hyundai Global Service Co., Ltd.		3,058	1,745	9,282	407
Hyundai Energy Solutions Co., Ltd.		39	90	-	-
Hyundai Arabia Company L.L.C.		-	159,962	-	-
International Maritime Industries Company		6,290	-	-	-
Others		1,020	275	471	3
		425,417	210,399	38,948	205,152
	₩	425,999	226,656	62,571	224,998

(*) Includes ₩19,848 million of lease liabilities.

42. Related Parties, Continued

(2) Transactions with related parties, continued

2) Outstanding balances as of December 31, 2022 and 2021 with related parties are as follows, continued:

(In millions of won)		2021			
		Trade receivables and other receivables		Trade payables and other payables	
		Trade receivables	Other receivables	Trade payables	Other Payables(*)
Parent					
Korea Shipbuilding & Offshore Engineering Co., Ltd.	₩	449	1,271	14,059	692
Others (large-scale corporate conglomerate)					
Hyundai Robotics Co., Ltd.		172	3,952	2,450	-
Hyundai Electric & Energy Systems Co., Ltd.		1,936	4,072	20,316	1,483
Hyundai Construction Equipment Co., Ltd.		942	730	799	-
Hyundai Heavy Industries Holdings Co., Ltd.		169	1	56	-
Hyundai Genuine Co., Ltd		184	362	-	-
Hyundai Samho Heavy Industries Co., Ltd.		152,886	322	-	89,999
Hyundai Mipo Dockyard Co., Ltd.		132,615	8	804	127,772
Hyundai Engineering & Technology Co., Ltd.		19	13	1,653	-
Hyundai Oilbank Co., Ltd.		6	25	17,350	-
Hyundai Hyms Co., Ltd.		20	1	3,320	1
Hyundai Heavy Industries Mos Co., Ltd.		381	301	19,549	-
Hyundai Global Service Co., Ltd.		3,043	32	15,606	1,191
Hyundai Heavy Industries Power Systems Co., Ltd.		54	1,447	1,054	-
Hyundai Arabia Company L.L.C.		15,499	167,333	-	-
International Maritime Industries Company		2,741	-	-	-
Others		557	3,377	2,620	183
		311,224	181,976	85,577	220,629
	₩	311,673	183,247	99,636	221,321

(*) Includes ₩775 million of lease liabilities.

The details of allowance for doubtful receivables for the related parties for the years ended December 31, 2022 and 2021 are as follows:

(In millions of won)	2022			2021		
	Beginning balance	Impairment loss recognized	Ending balance	Beginning balance	Impairment loss recognized	Ending balance
₩	182,832	(22,981)	159,851	180,705	2,127	182,832

42. Related Parties, Continued

(2) Transactions with related parties, continued

3) The details of fund transactions with related parties for the years ended December 31, 2022 and 2021 are as follows:

(In thousands of foreign currency)

		2022					
		Currency	**Beginning balance**	**Increase**	**Recover**	**Impairment loss recognized**	**Ending balance**
Hyundai Arabia Company L.L.C.	Loans	USD	150,000	-	(4,859)	-	145,141
	Allowance for doubtful accounts	USD	(150,000)	-	4,859	-	(145,141)

(In thousands of foreign currency)

		2021					
		Currency	**Beginning balance**	**Increase**	**Recover**	**Impairment loss recognized**	**Ending balance**
Hyundai Arabia Company L.L.C.	Loans	USD	150,000	-	-	-	150,000
	Allowance for doubtful accounts	USD	(150,000)	-	-	-	(150,000)

4) The details of the Group's capital transaction with related parties for the years ended December 31, 2021 is as follows:

(In millions of won)

	2021		
Transaction	**Company**	**Currency**	**Acquired amount**
Capital increase	KC LNG Tech Co., Ltd.(*)	KRW	2,490

(*) The Group participated in the KC LNG Tech capital increase by issuing new stocks related with Korea Membrane System(KMS) business, and capital increase amount is ₩2,490 million.

42. Related Parties, Continued

(3) As of December 31, 2022, the Group has provided performance guarantees in relation to "Dangote RFCC Onshore Project" which is being built by Hyundai Heavy Industries Free Zone Enterprise, amounting to USD 8,000 thousand.

(4) As of December 31, 2022, the Group has been provided with performance guarantees by the Korea Shipbuilding & Offshore Engineering Co., Ltd. in relation to the contracts of material supply, license, and service which the Group will execute with Saudi Engines Manufacturing Company.

(5) The Group had provided guarantee for debts with Korea Shipbuilding & Offshore Engineering Co., Ltd about loans for members of employee stock ownership acquisition allocated to the employee stock ownership association when Korea Shipbuilding & Offshore Engineering Co., Ltd.'s capital increase in 2018. The guarantee terminated in March, 2022, and the Group provides collateral corresponding amount to 10% (₩4,100 million) of employee stock ownership acquisition loans to The Korea Securities Finance Corporation as of December 31, 2022.

(6) The Group was newly established by dividing the Group from the Korea Shipbuilding & Offshore Engineering Co., Ltd. (Hyundai Heavy Industries Co., Ltd. before spin-off, existing entity) on June 1, 2019 (inception date) and is engaged in the manufacture and sale of ships, offshore structures, plants, engines and other products. In this regard, the Group is responsible for repaying the debts of Korea Shipbuilding & Offshore Engineering Co., Ltd. (Hyundai Heavy Industries Co., Ltd. before spin-off, existing entity) in solidarity.

(7) As of December 31, 2022, the Group has been provided with constructive obligations by Korea Shipbuilding & Offshore Engineering Co., Ltd for SHWE Phase 3 EPCIC Project construction contracts, amounting to USD 423,661 thousand.

(8) As of December 31, 2022, the Group has been provided with constructive obligations by Korea Shipbuilding & Offshore Engineering Co., Ltd for SHENANDOAH FPS Project construction contracts, amounting to USD 582,737 thousand.

(9) Compensation for key management of the Group for the years ended December 31, 2022 and 2021 is as follows:

(In millions of won)		2022	2021
Short-term salaries	₩	2,663	1,938
Post-employment benefit costs		585	1,015
	₩	3,248	2,953

The above key management consists of directors and internal auditors who have important rights and responsibilities for the planning, operation and control of the Group.

43. Non-current assets held for sale

Non-current assets held for sale as of December 31, 2022 and 2021 are as follows:

(In millions of won)		2022	2021
Property, plant and equipment(*)	₩	-	4,719

(*) Property, plant and equipment that are determined to be sold are classified as non-current assets held for sale. Due to the decision to sell the dormitory site, related property, plant and equipment were classified as non-current assets held for sale as of December 31, 2021, and the dormitory site was sold in February 2022.

44. Purchase of investments in subsidiary

(1) The Group acquired the entire shares of Hyundai Engine Company Ltd. from Korea Shipbuilding & Offshore Engineering Co., Ltd. in January 2022 and obtained control of the subsidiary.

For 12 months after the acquisition date, the Group recognized a loss of ₩1,865 million through Hyundai Engine Company Ltd.

(2) Transfer price and identifiable assets and liabilities acquired

i) The fair value of transfer price on acquisition date is as follows:

(In millions of won)

		Amount
Cash and cash equivalents	₩	29,000

ii) The fair value of identifiable assets and liabilities acquired on acquisition date is as follows:

(In millions of won)

		Amount
Assets:		
Cash and cash equivalents	₩	14,620
Property, plant and equipment		14,040
Others		1,135
Liabilities:		
Others		1,027
Identifiable net assets	₩	28,768