HANWHA SOLUTIONS CORPORATION

Separate Financial Statements

December 31, 2022 and 2021

(With Independent Auditors' Report Thereon)

Contents

KPMG SAMJONG

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Independent Auditors' Report

Based on a report originally issued in Korean

To the Board of Directors and Stockholders of
Hanwha Solutions Corporation:

Opinion

We have audited the separate financial statements of Hanwha Solutions Corporation (the "Company"), which comprise the separate statements of financial position as of December 31, 2022 and 2021, the separate statement of comprehensive income, changes in equity and cash flows for the years then ended, and notes to the separate financial statements, comprising significant accounting policies and other explanatory information.

In our opinion, the accompanying separate financial statements present fairly, in all material respects, the separate financial position of the Company as of December 31, 2022 and 2021, and its separate financial performance and its separate cash flows for the years then ended in accordance with Korean International Financial Reporting Standards ("K-IFRS").

We also have audited, in accordance with Korean Standards on Auditing ("KSAs"), the Company's Internal Control over Financial Reporting ("ICFR") as of December 31, 2022 based on the criteria established in Conceptual Framework for Designing and Operating Internal Control over Financial Reporting issued by the Operating Committee of Internal Control over Financial Reporting in the Republic of Korea, and our report dated March 15, 2023 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

Basis for Opinion

We conducted our audits 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 Separate Financial Statements* section of our report. We are independent of the Company in accordance with the ethical requirements that are relevant to our audit of the separate financial statements in the Republic of Korea, and we have fulfilled our 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 is that matters that, in our professional judgement, was of most significance in our audit of the separate financial statements as of and for the year ended December 31, 2022. This matter was addressed in the context of our audit of the separate financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on this matter.

- Revenue recognition of export sales of Hanwha Q CELLS Division

As described in Note 32 to the separate financial statements, revenues generated from export sales of Hanwha Q CELLS (one of the divisions of Hanwha Solutions that operates solar power business) are recognised at the point when the control over goods, which are produced by the Company or purchased from supplier, is transferred to the customer. In the case of export sales, the risk of failing to recognise revenue at the point (point in time of shipment, etc.) of transferring actual control to customer is higher than other types of sales. In particular, the increase in export sales of the Hanwha Q CELLS during the current period is higher than other divisions, and takes significant portion over the total sales. Therefore, we identified the appropriateness of recognizing revenue related to export sales of Hanwha Q CELLS as a key audit matter considering the significant risks associated.

The audit procedures for the key audit matter include followings:

- Inspect the contract documents by export sales type to assess the appropriateness of accounting policy for the revenue recognition;
- Testing the design and the effectiveness of operations for certain controls over the export sales revenue recognition process;
- Inspect documents (external evidence) to assess the occurrence and accuracy of export sales;

- Inspect documents (external evidence) to assess the appropriateness of cut-off for export sales incurred near the end of the reporting period.

Other Matter

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

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

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

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

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

Auditors' Responsibilities for the Audit of the Separate Financial Statements

Our objectives are to obtain reasonable assurance about whether the separate financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an 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 separate 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 separate financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances.

- Evaluate the appropriateness of accounting policies used in the preparation of the separate 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 Company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditors' report to the related disclosures in the separate financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditors' report. However, future events or conditions may cause the Company to cease to continue as a going concern.

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

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

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

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the separate financial statements of the current period and are therefore the key audit matters. We describe these matters in our 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 Dae-jin Kim.

KPMG Samjong Accounting Corp.

Seoul, Korea
March 15, 2023

This report is effective as of March 15, 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 separate financial statement 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.

HANWHA SOLUTIONS CORPORATION
Separate Statements of Financial Position
As of December 31, 2022 and 2021

In won

	Note		December 31, 2022	December 31, 2021
Assets				
Current assets:				
Cash and cash equivalents	6, 7, 9	₩	666,449,832,166	700,830,712,975
Other financial assets	6, 7, 11, 40		80,056,376,743	46,048,055,508
Trade receivables and other receivables	6, 7, 8, 10, 40		2,510,906,078,304	1,614,879,999,521
Other current assets	12, 32, 44		178,289,072,632	127,527,587,719
Inventories	13		927,319,385,007	778,774,220,441
Non-current assets held for sale	20		37,254,006,572	7,377,750,003
			4,400,274,751,424	3,275,438,326,167
Non-current assets:				
FVTPL – financial assets	6, 7, 14		74,126,980,180	27,713,016,423
FVTOCI – financial assets	6, 7, 14		11,732,240,045	11,355,814,926
Other financial assets	6, 7, 11, 39, 40		229,511,735,327	105,641,723,116
Long-term trade receivables and other receivables	6, 7, 10		31,540,867,279	12,815,991,369
Investments in associates and joint ventures	15, 39, 40		7,848,742,520,725	6,717,165,048,922
Investment property	16		77,006,830,910	90,887,371,541
Property, plant and equipment	17, 39		4,774,653,980,537	4,641,427,978,134
Intangible assets	18		74,350,277,436	103,274,185,210
Right-of-use assets	19		278,848,497,082	309,431,430,658
Other non-current assets	12		74,055,997,691	5,992,988,265
Deferred tax assets	37		-	8,915,828,654
			13,474,569,927,212	12,034,621,377,218
Total assets		₩	17,874,844,678,636	15,310,059,703,385

HANWHA SOLUTIONS CORPORATION

Separate Statements of Financial Position, Continued

As of December 31, 2022 and 2021

In won

	Note		December 31, 2022	December 31, 2021
Liabilities				
Current liabilities:				
Trade payables and other payables	5, 6, 7, 21, 39, 40	₩	1,762,023,721,573	1,687,885,608,843
Short-term borrowings	5, 6, 7, 22, 39		2,179,078,124,695	1,535,303,659,886
Other financial liabilities	5, 6, 7, 19, 23, 40		434,496,164,819	286,734,827,210
Provisions	24		1,333,801,108	2,444,000,000
Other current liabilities	25		18,663,258,065	14,301,547,800
Contract liabilities	32, 44		117,292,330,911	116,775,848,339
Current income tax liabilities			331,859,531,598	74,843,531,043
			4,844,746,932,769	3,718,289,023,121
Non-current liabilities:				
Long-term trade payables and other payables	5, 6, 7, 21, 39		39,355,102,865	173,412,458,858
Long-term borrowings	5, 6, 7, 22, 39		3,119,749,151,804	2,640,218,287,982
Other financial liabilities	5, 6, 7, 19, 23, 39, 40		548,337,227,343	415,057,294,040
Net defined benefit liabilities	26		319,040,067,117	427,295,908,894
Long-term employee benefits	40		24,851,338,126	24,302,067,202
Provisions	24		49,159,627,440	46,986,242,765
Other non-current liabilities	25		23,012,264,954	21,863,963,025
Contract liabilities	32		882,875,385	-
Deferred Income tax liabilities	37		69,279,566,911	-
			4,193,667,221,945	3,749,136,222,766
Total liabilities			9,038,414,154,714	7,467,425,245,887
Equity				
Common stock	27		978,240,655,000	978,240,655,000
Capital surplus	27		1,936,933,085,915	1,914,964,340,408
Capital adjustments	28		(160,573,750,100)	(30,549,926,844)
Accumulated other comprehensive income	29		(1,579,298,116)	(1,826,098,470)
Retained earnings	30		6,083,409,831,223	4,981,805,487,404
Total equity			8,836,430,523,922	7,842,634,457,498
Total liabilities and equity		₩	17,874,844,678,636	15,310,059,703,385

See accompanying notes to the separate financial statements.

HANWHA SOLUTIONS CORPORATION

Separate Statements of Comprehensive Income

For the years ended December 31, 2022 and 2021

In won

	Note		2022	2021
Revenue	32, 40	₩	9,686,399,464,742	7,395,684,853,708
Cost of sales	36, 40		7,612,388,904,823	5,954,185,258,631
Gross profit			2,074,010,559,919	1,441,499,595,077
Selling and administrative expenses	33, 36		1,153,647,182,179	883,391,111,128
Operating income			920,363,377,740	558,108,483,949
Other non-operating income	7, 34		1,368,122,504,945	233,253,151,046
Other non-operating expenses	7, 34		(653,024,995,235)	(276,395,854,861)
Financial income	7, 35		57,095,573,995	247,763,697,339
Financial expenses	7, 35		(163,219,641,610)	(88,372,863,084)
Non-operating income (loss)			608,973,442,095	116,248,130,440
Income before income tax expense			1,529,336,819,835	674,356,614,389
Income tax expenses	37		469,972,012,959	126,895,007,030
Net income for the period			1,059,364,806,876	547,461,607,359
Other comprehensive Income (loss)				
Items that will not be reclassified to profit or loss:				
Gain (loss) on valuation FVTOCI-financial assets			250,962,545	82,380,900
Remeasurement of net defined benefit liabilities			46,026,940,111	17,696,310,182
Items that are or may be reclassified to profit or loss:				
Gain (loss) on valuation of cash flow hedges			(3,107,374)	825,490,378
Total comprehensive income for the period		₩	1,105,639,602,158	566,065,788,819
Earnings per share				
Basic and diluted earnings per common share	38	₩	5,526	2,936
Basic and diluted earnings per preferred share	38		5,576	2,986

See accompanying notes to the separate financial statements.

HANWHA SOLUTIONS CORPORATION
Separate Statements of Changes in Equity
For the years ended December 31, 2022 and 2021

In won

		Capital stock	Capital surplus	Capital adjustment	Accumulated other comprehensive income	Retained earnings	Total
Balance at January 1, 2021	₩	821,170,655,000	762,796,518,589	(7,409,222,370)	(1,911,586,744)	4,149,575,142,051	5,724,221,506,526
Total comprehensive income (loss) for the period:							
Net income		-	-	-	-	547,461,607,359	547,461,607,359
Items that will not be reclassified to profit or loss							
Gain (loss) on valuation FVTOCI-financial assets (equity instrument)		-	-	-	82,380,900	-	82,380,900
Remeasurement of net defined benefit liabilities		-	-	-	-	17,696,310,182	17,696,310,182
Items that are or may be reclassified to profit or loss:							
Gain (loss) on valuation of cash flow hedges		-	-	-	825,490,378	-	825,490,378
Transactions with shareholders:							
Increase in paid-in capital		157,070,000,000	1,181,597,430,096	-	-	-	1,338,667,430,096
Effects due to business combination		-	(71,036,868,867)	(9,395,173,263)	(822,383,004)	267,846,621,846	186,592,196,712
Treasury stock acquisition		-	-	(13,772,288,760)	-	-	(13,772,288,760)
Treasury stock disposition		-	31,468,651	26,757,549	-	-	58,226,200
Share-based payment		-	12,905,814,786	-	-	-	12,905,814,786
Other Capital Changes		-	28,669,977,153	-	-	(774,194,034)	27,895,783,119
Balance at December 31, 2021	₩	978,240,655,000	1,914,964,340,408	(30,549,926,844)	(1,826,098,470)	4,981,805,487,404	7,842,634,457,498

HANWHA SOLUTIONS CORPORATION

Separate Statements of Changes in Equity, Continued

For the years ended December 31, 2022 and 2021

In won

		Capital stock	Capital surplus	Capital adjustment	Accumulated other comprehensive income	Retained earnings	Total
Balance at January 1, 2022	₩	978,240,655,000	1,914,964,340,408	(30,549,926,844)	(1,826,098,470)	4,981,805,487,404	7,842,634,457,498
Total comprehensive income (loss) for the period:							
Net income		-	-	-	-	1,059,364,806,876	1,059,364,806,876
Items that will not be reclassified to profit or loss:							
Gain (loss) on valuation FVTOCI-financial assets (equity instrument)		-	-	-	250,962,545	-	250,962,545
Remeasurement of net defined benefit liabilities		-	-	-	-	46,026,940,111	46,026,940,111
Items that are or may be reclassified to profit or loss:							
Gain (loss) on valuation of cash flow hedges		-	-	-	(3,107,374)	-	(3,107,374)
Transactions with shareholders:							
Effects due to business combination		-	-	(39,324,595,763)	-	-	(39,324,595,763)
Treasury stock acquisition		-	-	(90,875,535,740)	-	-	(90,875,535,740)
Share-based payment		-	16,714,953,294	176,308,247	-	-	16,891,261,541
Other Capital Changes		-	5,253,792,213	-	(1,054,817)	(3,787,403,168)	1,465,334,228
Balance at 31 December 2022	₩	978,240,655,000	1,936,933,085,915	(160,573,750,100)	(1,579,298,116)	6,083,409,831,223 -	8,836,430,523,922

See accompanying notes to the separate financial statements.

HANWHA SOLUTIONS CORPORATION
Separate Statements of Cash Flows
For the years ended December 31, 2022 and 2021

In won

	Note		2022	2021
Cash flows from operating activities:				
Cash generated from operating activities	41	₩	161,559,347,390	922,296,711,656
Income taxes paid			(163,210,713,929)	(292,857,162,594)
Net cash provided (used in) by operating activities			(1,651,366,539)	629,439,549,062
Cash flows from investing activities:				
Interest received			11,760,194,811	8,484,610,780
Dividends received			41,562,417,747	237,426,732,441
Proceeds from disposal of investment in associates and joint ventures			1,165,540,247,217	2,364,991,894
Proceeds from disposal of other financial assets			61,944,885,524	53,008,286,488
Proceeds from disposal of investment property			10,578,578,000	357,736,000
Proceeds from disposal of plant, property and equipment			12,850,937,875	21,044,404,663
Proceeds from disposal of intangible assets			40,560,045	3,524,008,623
Receipt of government grants			2,715,303,449	747,139,930
Increase from business combination			-	360,524,908,678
Acquisition of other financial assets			(91,751,556,308)	(103,818,285,679)
Acquisition of investment in associates and joint ventures			(1,363,809,284,662)	(2,200,439,710,561)
Acquisition of property, plant and equipment			(626,252,173,071)	(460,071,288,567)
Acquisition of intangible assets			(3,358,251,862)	(4,858,370,827)
Cash outflows due to split-off			(10,010,092,368)	-
Cash outflows due to business acquisition			(58,416,541,999)	-
Net cash used in investing activities			(846,604,775,602)	(2,081,704,836,137)
Cash flows from financing activities:				
Proceeds from borrowings			3,995,052,191,508	2,910,738,817,641
Increase in paid-in capital			-	1,338,667,430,096
Increase of other financial liabilities			388,579,269	366,855,787
Repayment of borrowings			(2,892,062,715,682)	(2,354,221,463,583)
Decrease of other financial liabilities			(44,317,558)	(207,926,902)
Acquisition of treasury stock			(90,875,535,740)	(13,772,288,760)
Payment of interest			(121,943,228,825)	(32,787,880,071)
Lease payment			(76,617,711,640)	(64,184,564,958)
Net cash provided by financing activities			813,897,261,332	1,784,598,979,250
Net increase (decrease) in cash and cash equivalents			(34,358,880,809)	332,333,692,175
Cash and cash equivalents at January 1			700,830,712,975	361,473,751,271
Effects of exchange rate changes on the balance of cash held in foreign currencies			(22,000,000)	7,023,269,529
Cash and cash equivalents at December 31		₩	666,449,832,166	700,830,712,975

See accompanying notes to the separate financial statements.

1. General

Hanwha Solutions Corporation (the "Company") was incorporated on April 27, 1974, under the laws of the Republic of Korea. The Company is mainly engaged in the manufacturing and commercialization of synthetic resins, such as caustic soda, PVC, and LLDPE, other petrochemical products other and photovoltaic module, photovoltaic power plant, department store and real estate development. The Company's headquarters is located at Janggyo-dong, Jung-gu, Seoul and its manufacturing facilities are located in Ulsan and the petrochemical complex in Yeo-su, Jeolla Namdo, Eum-seong and Jin-cheon, Choongchung Bukdo and Sejong Republic of Korea.

The Company listed its stocks on the Korea Stock Exchange on June 19, 1974. The Company changed its name from Hanwha Petrochemical Co., Ltd. to Hanwha Chemical Corporation on March 19, 2010.

The Company changed its name to Hanwha Solutions Corporation after completing the merger with its subsidiary Hanwha Q CELLS & Advanced Materials Co., Ltd. on January 1, 2020 under Article 527-3 of the Commercial Law in Republic of Korea.

The Company absorbed Hanwha Galleria Co., Ltd. and merged with divisional business department of Hanwha City Development Co., Ltd. on April 1, 2021.

On December 1, 2022, the Company has split off the lightweight composite material business division and the solar material business division, and established Hanwha Advanced Materials Co., Ltd.

As of December 31, 2022, the capital stock (including preferred capital stock) of the Company is ₩978,241 million and the major shareholders are as follows:

In shares	**Common shares**		**Preferred shares**	
	Shares	**Ownership**	**Shares**	**Ownership**
Hanwha Corporation	69,460,211	36.31%	-	-
Treasury stock(*)	2,651,990	1.39%	10,500	0.93%
Others	119,166,296	62.30%	1,113,237	99.07%
	191,278,497	100.00%	1,123,737	100.00%

(*) During the period, the company has acquired 1,962,800 ordinary shares and 10,500 preferred shares, and has paid 8,927 common shares as share-based payment.

2. Basis of Accounting

The separate financial statements of Hyundai Construction Equipment Co., Ltd. have been prepared in accordance with Korean International Financial Reporting Standards("K-IFRS"), as prescribed in Article 5, Clause 1 of the Act on External Audits of Corporations in the Republic of Korea.

The financial statements are separate financial statements in accordance with K-IFRS No.1027, 'Separate Financial Statements' presented by a parent, an investor with joint control of, or significant influence over, an investee, in which the investments are accounted for at cost.

The separate financial statements were authorized for issue by the board of directors on February 16, 2023 and will be submitted for approval to the shareholders' meeting to be held on March 23, 2023.

(1) Application of accounting standards

The separate financial statements have been prepared on the historical cost basis except for the following material items in the statement of financial position:
- Derivative financial instruments measured at fair value
- Financial instruments measured at fair value through profit or loss
- Financial instruments measured at fair value through other comprehensive income
- Contingent considerations recognized in business combinations measured at fair value.
- Liabilities for cash-settled share-based payments measured at fair value.
- Liabilities for defined benefit plans recognized at the net of the present value of defined benefit obligations less the fair value of plan assets

(2) Functional and presentation currency

These separate financial statements are presented in Korean won, which is the Company's functional currency and the currency of the primary economic environment in which the Company operates.

(3) Use of estimates and judgements

The preparation of the 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.

1) Uncertainty in management's judgement and estimates and assumptions

Information about critical judgments in applying accounting policies that have the most significant effect on the amounts recognized in the financial statements is included in the following note.

Note 32 – Revenue : Performance obligations and revenue recognition policies

2. Basis of Accounting, Continued

(3) Use of estimates and judgements, continued

2) Uncertainties in assumptions and estimation

Information about assumptions and estimation uncertainties at the reporting date that have a significant risk of resulting in a material adjustment to the carrying amounts of assets and liabilities within the next financial year is included in the following notes:

Note 15- Investments in Subsidiaries, Associates and Joint Ventures
Note 24- Provisions
Note 26- Net Defined Benefit Liabilities

3) Measurement of fair value

A number of the Company's accounting policies and disclosures require the measurement of fair values, for both financial and non-financial assets and liabilities. The Company has an established control framework with respect to the measurement of fair values.

When measuring the fair value of an asset or a liability, the Company 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 follow.
- Level 1: quoted prices (unadjusted) in active markets for identical assets or liabilities.
- Level 2: inputs to an asset or liability that are observable either directly (e.g., price) or indirectly (e.g., derived from price), except for the quoted price included in Level 1.
- 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 fall into 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 Company recognizes transfers between levels of the fair value hierarchy at the end of the reporting period during which the change has occurred.

Further information about the assumptions made in measuring fair values is included in Note 6.

3. Changes in Accounting Policies

The Company has adopted Onerous Contracts- Costs of Fulfilling a Contract (Amendments to IAS 37) from 1 January 2022. This resulted in a change in accounting policy for performing an onerous contracts assessment. Previously, the Company included only incremental costs to fulfil a contract when determining whether that contract was onerous. The revised policy is to include both incremental costs and an allocation of other direct costs.

The amendments apply prospectively to contracts existing at the date when the amendments are first applied. The Company has analysed all contracts existing at 1 January 2022 and determined that none of them would be identified as onerous applying the revised accounting policy- i.e. there is no impact on the opening equity balances as at 1 January 2022 as a result of the change.

4. Significant Accounting Policies

The significant accounting policies applied by the Company in the preparation of its separate financial statements are included below and the Company has consistently applied the accounting policies to all period presented in these separate financial statements, except for changes in accounting policies described in Note 3.

(1) Business Combination

The Company accounts for business combinations using the acquisition method when the acquired set of activities and assets meets the definition of a business and control is transferred to the Company. In determining whether a particular set of activities and assets is a business, the Company assesses whether the set of assets and activities acquired includes, at a minimum, an input and substantive process and whether the acquired set has the ability to produce outputs.

The Company has an option to apply a 'concentration test' that permits a simplified assessment of whether an acquired set of activities and assets is not a business. The optional concentration test is met if substantially all of the fair value of the gross assets acquired is concentrated in a single identifiable asset or group of similar identifiable assets.

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, 'Financial Instruments: Presentation' and K-IFRS No. 1109 'Financial Instruments: Recognition and Measurement'.

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 date of acquisition. If an obligation to pay contingent consideration that meets the definition of a financial instrument is classified as equity, then it is not re-measured and settlement is accounted for within equity. Otherwise, subsequent changes in the fair value of the contingent consideration are recognized in profit or loss.

(2) Acquisitions from entities under common control

In business combinations arising from transfers of interests in entities that are under the control of the shareholder that controls the Group, the assets and liabilities acquired are recognized at the carrying amounts in the Group controlling shareholder's consolidated financial statements. The components of equity of the acquired entities are added to the same components within Group equity except that any share capital of the acquired entities is recognized as appropriate capital item.

(3) Interests in subsidiaries or investees applying equity method

The Company's financial statements are separate financial statements in accordance with K-IFRS No.1027. The Company selects and accounts for the cost method in accordance with K-IFRS No.1027 for investment in subsidiaries and associates. Dividends received from subsidiaries and associates are recognized in profit or loss when the right to receive dividends is confirmed.

4. Significant Accounting Policies, Continued

(4) Discontinued operations

A discontinued operation is a component of an entity that either has been disposed of, or is classified as held for sale, and
- represents a separate major line of business or geographical area of operations,
- is part of a single co-ordinated plan to dispose of a separate major line of business or geographical area of operations or
- is a subsidiary acquired exclusively with a view to resale

If there is a discontinued operation, the Company restates the statement of comprehensive income as if the operation was discontinued from the beginning of the comparative period.

(5) Cash and cash equivalents

The Company classifies investment assets with maturity within three months from the acquisition date as the cash and cash equivalents. Equity investments are excluded from cash equivalents unless they are, in substance, cash equivalents, for example in the case of preferred shares acquired within a short period of their maturity and with a specified redemption date.

(6) Inventories

The unit costs of inventories are determined by specific identification method for goods in transit, sales value reducing method for merchandise in the distribution sector (department store business), and the average method for other inventories. The cost of inventories shall comprise all costs of purchase, costs of conversion and other costs incurred in bringing the inventories to their present location and condition. Fixed production overheads, which are included in the finished goods, and work in progress, are allocated based on the normal capacity of the production facilities.

Inventories are measured at the lower of cost and net realizable value. 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, are recognized as a reduction in the amount of inventories recognized as an expense in the period in which the reversal occurs.

(7) Non-derivative financial assets

1) Recognition and initial measurement

The Company 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 Company 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.

2) Classification and subsequent measurement

(i) Classification

On initial recognition, a financial asset is classified as measured at: amortized cost, FVOCI or FVTPL.

Financial assets are not reclassified subsequent to their initial recognition unless the Company 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.

4. Significant Accounting Policies, Continued

(7) Non-derivative financial assets, continued

2) Classification and subsequent measurement, continued

(i) Classification, continued

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
- the contractual terms of the financial asset give rise on specified dates to cash flows that are SPPI(Solely Payments of Principal and Interest).

A debt instrument is measured at FVOCI only 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 achieved by both collecting contractual cash flows and selling financial assets; and
- the contractual terms of the financial asset give rise on specified dates to cash flows that are SPPI.

On initial recognition of an equity investment that is not held for trading, the Company may irrevocably elect to present subsequent changes in fair value in OCI. Once selected, it cannot be undone. This election is made on an investment-by-investment basis.

All other financial assets are classified as measured at FVTPL. These financial assets include all derivative financial assets. In addition, on initial recognition, the Company 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 Company designates a financial asset as at FVTPL, the Company will not reclassify those items to FVOCI subsequently.

(ii) Business model assessment

The Company 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 Company'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 Company'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 because they are neither held to collect contractual cash flows nor held both to collect contractual cash flows and to sell financial assets.

4. Significant Accounting Policies, Continued

(7) Non-derivative financial assets, continued

2) Classification and subsequent measurement, continued

(iii) 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 Company 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 Company 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 Company'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.

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.

(iv) 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 the dividend 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.

4. Significant Accounting Policies, Continued

(7) Non-derivative financial assets, continued

3) Derecognition

(i) Financial assets

The Company 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 Company neither transfers nor retains substantially all of the risks and rewards of ownership and it does not retain control of the financial asset.

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

(ii) Interest rate benchmark reform

The Company replaces an existing interest rate benchmark with an alternative benchmark rate when changes are made to contractual cash flows of financial assets or financial liabilities measured at amortized cost as a result of interest rate benchmark reform. Changes to the basis for determining the contractual cash flows are required by interest rate benchmark reform if and only if both of the following conditions are met:
- the modification is required as a direct consequence of interest rate benchmark reform
- the new basis for determining the contractual cash flows is economically equivalent to the previous basis (i.e. the basis immediately preceding the modification)

If there are changes to the basis for determining the contractual cash flows of financial assets or financial liabilities in addition to changes required by interest rate benchmark reform, the Company first replaces an existing interest rate benchmark of financial assets and financial liabilities, and then applies the applicable requirements to account for additional changes.

4) Offsetting

Financial assets and financial liabilities are offset and the net amount presented in the statement of financial position when, and only when, the Company 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.

(8) Derivative financial instruments

1) Derivative financial instruments and hedge accounting

The Company holds derivative financial instruments to hedge its foreign currency and interest rate risk exposures. Embedded derivatives are separated from the host contract and accounted for separately if the host contract is not a financial asset and certain criteria are met.

Derivatives are initially measured at fair value. Subsequent to initial recognition, derivatives are measured at fair value, and changes therein are generally recognized in profit or loss.

The Company designated derivatives as hedging instruments to hedge the risk of changes in the volatility of future cash flows due to changes in exchange rates and interest rates on floating rate bonds (FRN).

At inception of designated hedging relationships, the Company documents the risk management objective and strategy for undertaking the hedge. The Company also documents the economic relationship between the hedged item and the hedging instrument, including whether the changes in cash flows of the hedged item and hedging instrument are expected to offset each other.

4. Significant Accounting Policies, Continued

(8) Derivative financial instruments, continued

2) Hedging relationship 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 Company amends the hedge documentation of that hedging relationship to reflect the change(s). 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 Company 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 chosen approach is economically equivalent to changing the basis for determining the contractual cash flows of the original hedging instrument;
- the original hedging instrument is not derecognised.

Such changes in documentation are made by the end of the reporting period in which changes in hedged risk, hedged item, or hedging instrument are made in accordance with the interest rate benchmark reform. This change in documentation does not terminate the hedging relationship or designate a new hedging relationship.

In the event of the change in a hedging relationship or in addition to the change in the designation of a hedging relationship, the Company determines whether hedge accounting should be discontinued as a result of the interest rate benchmark reform. If it is determined that hedge accounting is not discontinued, the formal designation of the hedging relationship previously documented is changed to reflect the changes required in the interest rate benchmark reform.

When modifying the description of the hedged item in the hedge accounting document to reflect the changes required in the interest rate benchmark reform, in accounting for cash flow hedges, the amount accumulated in the cash flow hedge reserve is considered to be based on the alternative benchmark interest rate used to determine the hedged future cash flow.

In the case of a similarly discontinued cash flow hedge relationship, when the interest rate benchmark changes on which the hedged future cash flows were based, as required by the interest rate benchmark reform, for the purpose of accounting for the amount accumulated in the cash flow hedge reserve to determine whether a hedged future cash flow is expected to occur, the amount accumulated in the cash flow hedge reserve for the hedging relationship is considered to be based on the alternative benchmark interest rate on which the hedged future cash flow is based.

3) Cash flow hedges

When a derivative is designated as a cash flow hedging instrument, the effective portion of changes in the fair value of the derivative is recognized in OCI and accumulated in the hedging reserve. The effective portion of changes in the fair value of the derivative that is recognized in OCI is limited to the cumulative change in fair value of the hedged item, determined on a present value basis, from inception of the hedge. Any ineffective portion of changes in the fair value of the derivative is recognized immediately in profit or loss.

The Company designates only the changes in fair value of the spot element of forward exchange contracts as the hedging instrument in cash flow hedging relationships. The change in fair value of the forward element of forward exchange contracts (forward points) is separately accounted for as a cost of hedging and recognized in a costs of hedging reserve within equity.

4. Significant Accounting Policies, Continued

(8) Derivative financial instruments, continued

3) Cash flow hedges, continued

When the hedged forecast transaction subsequently results in the recognition of a non-financial item such as inventory, the amount accumulated in the hedging reserve and the cost of hedging reserve is included directly in the initial cost of the non-financial item when it is recognized.

For other hedged expected transactions, the hedging reserve and the cost of hedging reserve are reclassified to profit or loss in the same period or in the period in which the expected hedged cash flows affect profit or loss.

If the 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.

In hedge transactions where non-financial items are recognized, the hedging reserve and the cost of hedging reserve are retained in the equity item until the non-financial item is initially recognized and included in the cost of the non-financial item when the cashflow hedge accounting is discontinued. For cash flow hedge transactions other than the above, the hedging reserve and the cost of hedging reserve are reclassified to profit or loss through reclassification adjustments during the period in which the hedged future expected 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.

(9) Impairment of financial assets

1) Financial assets and contract assets

The Company recognizes loss allowances for 'expected credit losses' (ECLs) on:
- financial assets measured at amortized cost
- debt investments measured at FVOCI; and
- contract assets defined by K-IFRS No.1115.

The Company 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
- Other debt securities and bank deposit 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

The Company measured loss allowances for lifetime ECLs on trade receivables and contract assets.

When determining whether the credit risk of a financial asset has increased significantly since initial recognition and when estimating ECLs, the Company 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 Company's historical experience and informed credit assessment and including forward-looking information.

The Company considers a financial asset to be in default when:
- the debtor is unlikely to pay its credit obligations to the Company in full, without recourse by the Company to actions such as realizing security (if any is held)

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 Company is exposed to credit risk.

4. Significant Accounting Policies, Continued

(9) Impairment of financial assets, continued

2) 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 Company expects to receive). ECLs are discounted at the effective interest rate of the financial asset.

3) Credit-impaired financial assets

At each reporting date, the Company 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;
- a breach of contract such as a default or past due;
- the restructuring of a loan or advance by the Company on terms that the Company 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.

4) 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.

5) Write-off

The gross carrying amount of a financial asset is written off when the Company has no reasonable expectations of recovering a financial asset in its entirety or a portion thereof. For corporate customers, the Company individually makes an assessment with respect to the timing and amount of write-off based on whether there is a reasonable expectation of recovery. The Company 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 Company's procedures for recovery of amounts due.

(10) Property, plant and equipment

All items of property, plant and equipment are initially recorded at cost. 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 and removing the item and restoring the site on which it is located.

Subsequent to initial recognition, an item of property, plant and equipment shall be carried at its cost less any accumulated depreciation and any accumulated impairment losses.

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 separately.

4. Significant Accounting Policies, Continued

(10) Property, plant and equipment, continued

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 net within other income in profit or loss.

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

	Estimated useful lives (Years)
Buildings	20 ~ 60
Structures	20 ~ 50
Machinery	4 ~ 20
Vehicles	2 ~ 12
Tools and equipment	2 ~ 8

Depreciation methods, useful lives and residual values are reviewed at the end of each reporting date and adjusted, if appropriate. If expectations differ from previous estimates, the changes are accounted for as a change in an accounting estimate.

Subsequent expenditures are capitalized only when it is probable that the economic benefits associated with the expenditure will flow to the Company.

(11) 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 is calculated on a straight-line basis over the estimated useful lives of intangible assets, as described below, with nil residual value from the dated that they are available for use. However, as there are no foreseeable limits to the periods over which club memberships are expected to be available for use, this intangible asset is determined as having indefinite useful lives and not amortized.

	Estimated useful lives (Years)
Intellectual property rights	5 ~ 20
Rights of utilization	10 ~ 20
Membership	5 ~ 20
Other intangible assets	According to the respective contract period

Amortization periods 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.

1) 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 development costs can be measured reliably, the product or process is technically and commercially feasible, future economic benefits are probable, and the Company intends to 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.

4. Significant Accounting Policies, Continued

(11) Intangible assets, continued

2) Intangible assets acquired in business combinations

The acquisition cost of an intangible asset acquired in a business combination and recognized separately from goodwill is measured at the acquisition date fair value, and the intangible asset acquired in a business combination after initial recognition is presented as the acquisition cost minus the accumulated amortization and impairment loss.

3) 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.

(12) Borrowing costs

The Company 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 Company borrows funds specifically for the purpose of obtaining a qualifying asset, the Company determines the amount of borrowing costs eligible for capitalization as the actual borrowing costs incurred on that borrowing during the period less any investment income on the temporary investment of those borrowings. To the extent that the Company borrows funds generally and uses them for the purpose of obtaining a qualifying asset, the Company shall determine the amount of borrowing costs eligible for capitalization by applying a capitalization rate to the expenditures on that asset. The capitalization rate shall be the weighted average of the borrowing costs applicable to the borrowings of the Company that are outstanding during the period, other than borrowings made specifically for the purpose of obtaining a qualifying asset. The amount of borrowing costs that the Company capitalizes during a period shall not exceed the amount of borrowing costs incurred during that period.

(13) Government grants

Government grants are not recognized until there is reasonable assurance that the Company will comply with the grant's conditions and that the grant will be received.

Government grants whose primary condition is that the Company purchase, construct or otherwise acquire long-term assets are deducted in calculating the carrying amount of the asset. The grant is recognized in profit or loss over the life of a depreciable asset as a reduced depreciation expense.

Other government grants are recognized in profit or loss on a systematic basis over the periods in which the Company recognizes as expenses the related costs for which the grants are intended to compensate.

Government grants that compensate for expenses or losses already incurred are recognized as other income during the period in which the right to receive government grants occurs. In this case, government grants are recognized when they become receivables.

4. Significant Accounting Policies, Continued

(14) Investment property

Property held for the purpose of earning rentals or benefiting from capital appreciation is classified as investment property. Investment property is initially measured at its cost. Transaction costs are included in the initial measurement. Subsequently, investment property is carried at depreciated cost less 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 Company 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 except for land, are depreciated on a straight-line basis over 20~60 years as estimated useful lives.

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

(15) Impairment of non-financial assets

The carrying amounts of the Company's non-financial assets, other than assets arising from 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 and 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.

The Company estimates the recoverable amount of an individual asset, if it is impossible to measure the individual recoverable amount of an asset, then the Company estimates the recoverable amount of cash-generating unit ("CGU"). A CGU is the smallest identifiable group of assets that generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets. The recoverable amount of an asset or CGU is the greater of its value in use and its fair value less costs to sell. The value in use is estimated by applying a proper discount rate that reflect current market assessments of the time value of money and the risks specific to the asset or CGU for which estimated future cash flows have not been adjusted, to the estimated future cash flows expected to be generated by 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 acquired in a business combination is allocated to each CGU that is expected to benefit from the synergies arising from the goodwill acquired. Any impairment identified at the CGU level will first reduce the carrying amount of goodwill and then be used to reduce the carrying amount of the other assets in the CGU on a pro rata basis. Except for impairment losses in respect of goodwill which are never reversed, an impairment loss is reversed if there has been 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 shall not exceed the carrying amount that would have been determined, net of depreciation or amortization, if no impairment loss had been recognized.

4. Significant Accounting Policies, Continued

(16) Lease

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.

1) As a lessee

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

The Company recognizes a right-of-use asset and a lease liability at the lease commencement date. The right-of-use asset is initially measured at cost, which comprises the initial amount of the lease liability adjusted for any lease payments made at or before the commencement date, plus any initial direct costs incurred and an estimate of costs to dismantle and remove the underlying asset or to restore the underlying asset or the site on which it is located, less any lease incentives received.

The right-of-use asset is subsequently depreciated using the straight-line method from the commencement date to the end of the lease term, unless the lease transfers ownership of the underlying asset to the Company by the end of the lease term or the cost of the right-of-use asset reflects that the Company will exercise a purchase option. In that case the right-of-use asset will be depreciated over the useful life of the underlying asset, which is determined on the same basis as those of property and equipment. In addition, the right-of-use asset is periodically reduced by impairment losses, if any, and adjusted for certain remeasurements of the lease liability.

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 Company's incremental borrowing rate. Generally, the Company uses its incremental borrowing rate as the discount rate.

The Company determines its incremental borrowing rate by obtaining interest rates from various external financing sources and makes certain adjustments to reflect the terms of the lease and type of the asset leased.

Lease payments included in the measurement of the lease liability comprise the following:
- fixed payments, including in-substance fixed payments;
- variable lease payments that depend on an index or a rate, initially measured using the index or rate as at the commencement date;
- amounts expected to be payable under a residual value guarantee; and
- the exercise price under a purchase option that the Company is reasonably certain to exercise, lease payments in an optional renewal period if the Company is reasonably certain to exercise an extension option, and penalties for early termination of a lease unless the Company is reasonably certain not to terminate early.

The lease liability is measured at amortized cost using the effective interest method. 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 Company's estimate of the amount expected to be payable under a residual value guarantee, if the Company changes its assessment of whether it will exercise a purchase, extension or termination option or if there is a revised in-substance fixed lease payment.

When the lease liability is remeasured in this way, a corresponding adjustment is made to the carrying amount of the right-of-use asset, or is recorded in profit or loss if the carrying amount of the right-of-use asset has been reduced to zero.

In light of Phase 2 of the Interest rate benchmark reform, the company shall remeasure a lease liability by discounting the lease expense using a revised discount rate based on the alternative benchmark rate if the criteria used to estimate a lease expense is changed.

4. Significant Accounting Policies, Continued

(16) Lease, continued

1) As a lessee, continued

The Company presents right-of-use assets that do not meet the definition of investment property in ‘property, plant and equipment’ and lease liabilities in ‘other debts’ in the statement of financial position.

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

2) As a lessor

At inception or on modification of a contract that contains a lease component, the Company allocates the consideration in the contract to each lease component on the basis of their relative standalone prices.

When the Company 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 Company 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. As part of this assessment, the Company considers certain indicators such as whether the lease is for the major part of the economic life of the asset.

When the Company is an intermediate lessor, it accounts for its interests in the head lease and the sub-lease separately. 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 a head lease is a short-term lease to which the Company applies the exemption described above, then it classifies the sub-lease as an operating lease.

If an arrangement contains lease and non-lease components, then the Company applies K-IFRS No. 1115 to allocate the consideration in the contract.

The Company applies the derecognition and impairment requirements in K-IFRS No. 1109 to the net investment in the lease. The Company further regularly reviews estimated unguaranteed residual values used in calculating the gross investment in the lease.

The Company recognizes lease payments received under operating leases as income on a straight-line basis over the lease term as part of ‘other revenue’.

(17) 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. In order to be classified as held for sale, the asset (or disposal groups) must be available for immediate sale in its present condition and its sale must be highly probable. The assets or disposal groups 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. The Company recognizes an impairment loss for any initial or subsequent write-down of an asset (or disposal groups) to fair value less costs to sell, and a gain for any subsequent increase in fair value less costs to sell up to the cumulative impairment loss previously recognized in accordance with K-IFRS No. 1036, ‘Impairment of Assets’.

4. Significant Accounting Policies, Continued

(17) Non-current assets held for sale, continued

Once non-current assets are classified as held-for-sale or part of disposal groups classified as held-for-sale, they are no longer amortized or depreciated.

(18) Non-derivative financial liabilities

The Company classifies non-derivative financial liabilities into financial liabilities measured at FVTPL or financial liabilities measured at amortized cost in accordance with the substance of the contractual arrangement and the definitions of financial liabilities. The Company recognizes financial liabilities in the statement of financial position when the Company becomes a party to the contractual provisions of the financial liability.

1) Financial liabilities measured at FVTPL

Financial liabilities measured at FVTPL 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.

2) Other financial liabilities

Non-derivative financial liabilities that are not classified as financial liabilities 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, financial liabilities are measured at amortized cost using the effective interest method and interest costs are recognized using the effective interest method.

3) Derecognition of financial liabilities

The Company derecognizes a financial liability when its contractual obligations are discharged, cancelled, or expire. The Company derecognizes a financial liability when its terms are modified and the cash flows of the modified liability are substantially different, in which 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 consideration paid including any non-cash assets transferred of liabilities assumed is recognized in profit or loss.

(19) Employee benefits

1) 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 Company during an accounting period, the Company recognizes the undiscounted amount of short-term employee benefits expected to be paid in exchange for that service as gain or loss.

4. Significant Accounting Policies, Continued

(19) Employee benefits, continued

2) 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 Company'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.

3) Retirement benefits: Defined contribution plans

When an employee has rendered service to the Company during a period, the Company recognizes the contribution payable to a defined contribution plan in exchange for that service as a liability (accrued expense), after deducting any contribution already paid. If the contribution already paid exceeds the contribution due for service before the end of the reporting period, the Company recognizes that excess as an asset (prepaid expense) to the extent that the prepayment will lead to a reduction in future payments or a cash refund.

4) Retirement benefits: Defined benefit plans

The Company's net obligation in respect of defined benefit plans is calculated by estimating the amount of future benefit that employees have earned in return for their service 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 an independent actuary using the projected unit credit method. When the calculation results in a potential asset for the Company, 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 OCI. The Company 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 Company recognizes gains and losses on the settlement of a defined benefit plan when the settlement occurs.

5) Termination benefits

Termination benefits are expensed at the earlier of when the Company can no longer withdraw the offer of those benefits and when the Company 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

(20) Provisions

Provisions are recognized when the Company 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.

Product warranty liabilities are recognized when the product is sold, and it was estimated by considering past warranty experience, warranty experience of overseas subsidiaries in the same industry, and set rate of the same industry. The Company estimates all possible outcomes and their associated probabilities by weighted averages.

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

(21) Emissions rights

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

1) Greenhouse Gases Emission Right

Greenhouse gas emission rights comprise emission rights allocated free of charge by the government and emission rights purchased for a fee. Free allocation emission rights are measured and recognized as zero (0), and purchase emission rights are recognized as acquisition costs by adding other costs that are directly related to acquisition and occur normally.

The company classifies greenhouse gas emission rights held to fulfill the obligations stipulated by the relevant system as intangible assets and measures the cumulative amount of damage losses deducted from costs after initial recognition, and classifies them as current assets within one year from the end of the reporting period.

Emissions held to obtain short-term trading gains are classified as current assets and measured at fair value at the end of each reporting period, and changes in fair value are recognized in profit or loss.

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

4. Significant Accounting Policies, Continued

(21) Emissions rights, continued

2) Emission liability

Emission liability is a present obligation of submitting emission rights to the government with regard to emission of greenhouse gas. The emission liability is measured by summing the expected expenditures required to fulfil the obligation for excess emission and carrying amount of emission rights held. Emissions liability is eliminated when submitted to the government.

(22) Foreign currency

Transactions in foreign currencies are translated to the functional currencies of the Company at exchange rates at the dates of the transactions.

Monetary assets and liabilities denominated in foreign currencies are translated to the functional currency using the reporting date’s closing rate. Non-monetary assets and liabilities denominated in foreign currencies that are measured at fair value are retranslated to the functional currency at the exchange rate at the date that the fair value was determined. Non-monetary items that are measured in terms of historical cost in a foreign currency are translated using the exchange rate at the date of the transaction. Foreign currency differences are generally recognised in profit or loss and presented within finance costs.

However, foreign currency differences arising from the translation of the following items are recognised in OCI:

- an investment in equity securities designated as at FVOCI (except on impairment, in which case foreign currency differences that have been recognised in OCI are reclassified to profit or loss);
- a financial liability designated as a hedge of the net investment in a foreign operation to the extent that the hedge is effective;
- qualifying cash flow hedges to the extent that the hedges are effective.

(23) Equity capital

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

Preferred stocks are classified as equity if they do not have to be repaid, if they are repaid only at the company's option, or if the payment of dividends is determined at the Company's discretion. Dividends are recognized when dividends are approved at the Company's shareholders' meeting. The preferred stocks are classified as liability, if stockholders are able to claim a fixed or determinable amount of redemption on or after a certain date, or if the company is obligated to repay. Relevant dividends are recognized in profit or loss as they are considered as interest expense at the time of occurrence.

When the Company repurchases its share capital, the amount of the consideration paid is recognized as a deduction from equity and classified as treasury shares. The profits or losses from the purchase, disposal, reissue, or retirement of treasury shares are not recognized as current profit or loss. If the Company acquires and retains treasury shares, the consideration paid or received is directly recognized in equity.

(24) Share based payments

The Company has granted shares or share options to its employees. For equity-settled share-based payment transactions, the Company measures the goods or services received, and the corresponding increase in equity as a capital adjustment at the fair value of the goods or services received, unless that fair value cannot be estimated reliably. If the Company cannot reliably estimate the fair value of the goods or services received, the Company measures their value, and the corresponding increase in equity, indirectly, by reference to the fair value of the equity instruments granted.

In the case of cash-settled share-based payment transactions that pay cash for goods or services received, the goods or services received and the liabilities borne in return are measured at fair value and recognized as employee benefit costs and liabilities during the vesting period. In addition, until the liability is settled, the fair value of the liability is remeasured at the end of each reporting period and at the final settlement date, and changes in the fair value are recognized as salaries.

4. Significant Accounting Policies, Continued

(25) Revenue from contracts with customers

Company's accounting policies relating to revenue from contracts with customers is described in Note 32.

(26) Finance income and finance costs

The Company's finance income and finance costs include:
- interest income;
- interest expense;
- dividends income;
- the net gain or loss arising from the disposal of debt investments measured at FVOCI;
- the net gain or loss on financial assets at FVTPL;
- the foreign currency gain or loss on financial assets and financial liabilities;
- impairment losses (or subsequent gains) arising from debt investments measured at FVOCI or financial assets measured at amortized cost (or reversal of impairment loss);
- re-measured gains on the fair value of the existing interest in the acquiree in a business combination
- loss of fair value on contingent consideration classified as a financial liability
- hedge ineffectiveness recognized in profit or loss
- the reclassified net income or loss previously recognized in other comprehensive income in cash flow hedge of interest risk and exchange risk for borrowing liabilities
- reversal of financial guarantee contracts

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 Company'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 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.

(27) Income taxes

Income tax expense comprises current and deferred tax. Current tax and deferred tax are 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 Company has determined whether interest and penalties related to income taxes meet the definition of income taxes or not, and accounted for them under K-IFRS No. 1012 'Income Taxes' if they meet the definition of income taxes, otherwise under K-IFRS No. 1037 'Provisions, Contingent Liabilities and Contingent Assets'.

4. Significant Accounting Policies, Continued

(27) Income taxes, continued

1) Current tax

Current tax is the expected tax payable or receivable on the taxable profit or loss for the year, using tax rates enacted or substantively enacted at the end of the reporting period and any adjustment to tax payable in respect of prior years. 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.

Current tax assets and current tax liabilities can be offset only if the Company :
- has the legally enforceable right to set off the recognized amounts; and
- intends either to settle on a net basis or realize the assets and settle the liabilities simultaneously.

2) 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 Company expects, at the end of the reporting period, to recover or settle the carrying amount of its assets and liabilities. The Company recognizes a deferred tax liability for all taxable temporary differences associated with investments in subsidiaries, associates, and interests in joint ventures, except to the extent that the Company is able to control the timing of the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future. The Company recognizes a deferred tax asset for all deductible temporary differences arising from investments in subsidiaries and associates, 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.

The Company shall recognize a deferred tax asset for the carryforward of unused tax losses, unused tax credits, and deductible temporary differences to the extent that it is probable that sufficient future taxable profit will be available to utilize the unused tax losses, unused tax credits and deductible temporary differences. The estimate of future taxable profit includes the expected expiry of the temporary differences.

Temporary differences in relation to right-of-use assets and lease liabilities are deemed a single transaction for the purpose of recognising deferred income tax.

The Company considers an expiry of existing temporary differences and the business plan in assessing the probable future The carrying amount of a deferred tax asset is reviewed at the end of each reporting period and reduces the carrying amount to the extent that it is no longer probable that sufficient taxable profit will be available to allow the benefit of part or all of that deferred tax assets to be utilized. The reduced amount will be reversed within the range where there is a high possibility of having sufficient taxable income to be utilized.

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

The Company accounts for the tax consequences in the same way that it accounts for the future recovery (settlement) of the carrying amount of assets (liabilities) when assessing deferred tax assets and liabilities as of the end of the reporting period.

4. Significant Accounting Policies, Continued

(27) Income taxes, continued

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. The income tax consequences of dividends are recognized when a liability to pay the dividend is recognized.

(28) Earnings per shared

The Company presents basic and diluted earnings per share ("EPS") data for its ordinary shares. Basic EPS is calculated by dividing the profit or loss attributable to ordinary shareholders of the Company by the weighted average number of ordinary shares outstanding during the period, adjusted for own shares held. Diluted EPS is determined by adjusting the profit or loss attributable to ordinary shareholders and the weighted average number of ordinary shares outstanding, adjusted for own shares held, for the effects of all dilutive potential ordinary shares, which comprise convertible notes and share options granted to employees.

(29) New standards and interpretations not yet adopted

The followings procurements are new and amended standards and interpretations that have been issued but are not yet effective. The Company has not applied the following standards or interpretations in the financial statements.

1) Deferred Tax related to Assets and Liabilities arising from a Single Transaction (Amendments to K-IFRS No. 1012 Income Taxes)
The amendments narrow the scope of the initial recognition exemption to exclude transactions that give rise to equal and offsetting temporary differences- e.g. right-of-use asset, leases and decommissioning liabilities. The amendments apply for annual reporting periods beginning on or after 1 January 2023.

For right-of-use asset, leases and decommissioning liabilities, the associated deferred tax asset and liabilities will need to be recognised from the beginning of the earliest comparative period presented, with any cumulative effect recognised as an adjustment to retained earnings or other components of equity at that date. For all other transactions, the amendments apply to transactions that occur after the beginning of the earliest period presented.

The Company accounts for deferred tax on right-of-use asset, leases and decommissioning liabilities applying the "integrally linked" approach, resulting in a similar outcomes to the amendments, except that the deferred tax asset or liability is recognised on a net basis. Under the amendments, the Company will recognise a separate deferred tax asset and a deferred tax liability.

The Company plans to apply the amendments on 1 January 2023. There will be no impact to prior and current period on adoption of the amendments

2) IAS 1 'Presentation of Financial Statements'- Classifications of liabilities as current or non-current
The amendments, as issued in 2020, aim to clarify the requirements on determining whether a liability is current or non-current, and apply for annual reporting periods beginning on or after 1 January 2023. However, the IASB has subsequently proposed further amendments to IAS 1 and the deferral of the effective date of the 2020 amendments to no earlier than 1 January 2024. KASB plans to amend GAAP by reflecting the amendments. The Company is unable to determine the impact of these amendments, and the Company is closely monitoring the developments.

3) The following enacted/ amended standards are expected to have no significant impact on the Company.
- K-IFRS No. 1117 Insurance Contracts and amendments to K-IFRS No. 1117 Insurance Contracts.
- Disclosure of Accounting Policies (Amendments to K-IFRS No. 1001 Presentation of Financial Statements).
- Definition of Accounting Estimates (Amendments to K-IFRS No. 1008).

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5. Financial Risk Management

(1) Financial risk management factors

The Company is exposed to a variety of financial risks, such as market risks (foreign exchange risks, interest rate risks), credit risk and liquidity risk due to its various activities. The Company's financial risk management focuses on minimizing market risk, credit risk, and liquidity risk arising from operating activities.

The Company carries out the financial risk management according to the policies approved by the board. The board evaluates and approves the risk management in overall, which includes foreign currency risk, interest rate risk, credit risk, derivatives and non-derivatives risks and liquidity risk.

(2) Financial risk management

1) Financial risk factor

The finance department of the Company manages operations, organizes access to domestic and international financial markets, and monitors and manages financial risks related to the Company's operations through an internal risk report that analyzes the extent and magnitude of each risk. These risks include market risk (including foreign exchange risk and interest rate risk), credit risk and liquidity risk.

There is no change in the Company's financial risk management purpose and risk management policy since the end of the previous year.

2) Market risk

(A) Foreign exchange risk

The Company's foreign exchange risk arises when future forecast transactions and recognized assets and liabilities are denominated in a currency other than the functional currency, and the major foreign currencies for which the exchange position occurs are USD, EUR, JPY, CNY and the others.

The Company selects the foreign exchange risk management policy of each company by considering the nature of the business and the existence of measures to cope with the exchange rate fluctuation risk of each company being connected. In addition, the Company regularly evaluates, manages and reports the risks of foreign exchange exposure, using the foreign exchange risk management model, so that the maximum amount of loss for foreign exchange risk exposure is within the allowable range. The Company uses derivatives for foreign exchange risk management purposes, if necessary.

The following table shows the sensitivity for each foreign currency on income before income tax, with all other variables held constant as of December 31, 2022 and 2021, when exchange rates change by 1% for the foreign exchange positions held by the Company.

In thousands of won		December 31, 2022		December 31, 2021	
		1% increase	1% decrease	1% increase	1% decrease
USD	₩	727,671	(727,671)	2,540,864	(2,540,864)
EUR		(3,213,089)	3,213,089	(2,312,045)	2,312,045
JPY		30,982	(30,982)	156,921	(156,921)
CNY		31,712	(31,712)	74,456	(74,456)
Others		358,804	(358,804)	498,455	(498,455)
	₩	(2,063,920)	2,063,920	958,651	(958,651)

5. Financial Risk Management, Continued

(2) Financial risk management, continued

The table above shows the sensitivity analysis performed on monetary assets and liabilities denominated in foreign currencies other than the Company's functional currency. The effect of changes in foreign exchange rates due to the hedging effectiveness of derivative instrument transactions was also considered.

(B) Interest rate risk

Interest rate risk is the risk that future changes in market interest rates will result in changes in interest income and interest costs, such as deposits and borrowing, mainly from deposits and borrowing in variable interest terms.

The purpose of the Company's interest rate risk management is to maximize the value of the company by seeking to minimize the uncertainty of interest rate changes and net interest costs.

If the interest rate on variable interest rate borrowings increased/decreased by 1% holding all other variables constant, income before income tax expense as of December 31, 2022, would have decreased/increased by ₩25,761 million (December 31, 2021: ₩17,023 million).

This analysis assumed that variables other than interest rates were constant, and the effect of interest rate fluctuations due to derivatives transactions that result in a hedge effect that is confirmed to be concluded was also considered.

3) Credit risk

The Company is exposed to credit risk that could result in financial loss to the other party due to the failure of one of the parties to the financial instrument to fulfill its obligations. The management of the Company is dealing with customers whose credit rating is above a certain level in order to manage credit risk. When a contract is made with a new customer, the Company evaluates the customer's creditworthiness by using financial information and information provided by the credit rating agency, and determines the credit limit based on this, and collateral or payment guarantee is provided. In addition, the company periodically re-evaluates the credit rating of customers, re-evaluates the credit limit, readjusts the collateral level, and quarterly reports present condition of collection being delayed, and measures for recovery, and takes appropriate actions according to the reasons for delay.

The Company's maximum exposure to credit risk is the same as carrying amount and maximum guarantee amount of all financial assets (excluding equity instruments), which include cash and cash equivalents deposited at financial institutions and trade receivables and other receivables.

As of December 31, 2022, the company provides payment guarantees to related parties and others, and the maximum amount exposed to credit risk is ₩3,239,454 million.

The Company maintains a reasonable level of unused borrowing limits (see Note 39) and monitors its liquidity forecasts at all times in order to meet operating capital requirements so that it does not violate borrowing limits or commitments. When estimating liquidity, the company consider such requirements if we have external legal or regulatory requirements, such as our financing plans, compliance with commitments, our target internal financial ratios, and restrictions on currencies.

5. Financial Risk Management, Continued

(2) Financial risk management, continued

4) Liquidity risk

(A) Expected cash flows of non-derivative liabilities by maturity

Maturity analysis of non-derivative liabilities according to their remaining maturities as of December 31, 2022 and 2021 are as follows:

In thousands of won		December 31, 2022			
		Within 1 year	**1 to 5 years**	**Over 5 years**	**Total**
Borrowings(*1)	₩	2,289,208,400	3,143,612,254	174,286,493	5,607,107,147
Trade payables and other payables(*1)		1,763,564,147	41,948,258	-	1,805,512,405
Other financial liabilities(*2)		339,490,267	272,902,200	313,767,353	926,159,820
	₩	4,392,262,814	3,458,462,712	488,053,846	8,338,779,372

(*1) Includes projected cash flows of related interest expense.
(*2) Expected cash flows from accrued interest and financial guarantee liabilities are not included.

In thousands of won		December 31, 2021			
		Within 1 year	**1 to 5 years**	**Over 5 years**	**Total**
Borrowings(*1)	₩	1,592,939,898	2,424,975,904	303,550,592	4,321,466,394
Trade payables and other payables(*1)		1,689,361,342	179,770,825	-	1,869,132,167
Other financial liabilities(*2)		218,204,944	246,013,811	347,773,382	811,992,137
	₩	3,500,506,184	2,850,760,540	651,323,974	7,002,590,698

(*1) Includes projected cash flows of related interest expense.
(*2) Expected cash flows from accrued interest and financial guarantee liabilities are not included.

5. Financial Risk Management, Continued

(2) Financial risk management, continued

(B) Expected cash flows of derivative liabilities by maturity

Expected cash flows of derivative liabilities by maturity as of December 31, 2022 and 2021 are as follows:

In thousands of won		December 31, 2022			
		Within 1 year	**1 to 5 years**	**Over 5 years**	**Total**
Derivatives liabilities(*)	₩	(38,093,386)	319,059	-	(37,774,327)

(*) Even if derivatives settled gross were classified as assets, expected cash flows are included in the liquidity risk analysis. Derivatives settled on a gross basis whose prices have not yet been determined are reflected in the expected net cash flows.

In thousands of won		December 31, 2021			
		Within 1 year	**1 to 5 years**	**Over 5 years**	**Total**
Derivatives liabilities(*)	₩	(7,066,500)	(20,684,495)	-	(27,750,995)

(*) Even if derivatives settled gross were classified as assets, expected cash flows are included in the liquidity risk analysis. Derivatives settled on a gross basis whose prices have not yet been determined are reflected in the expected net cash flows.

(C) In addition to the above financial liabilities, the company enters into financial guarantee contracts and fund supplement agreements for related parties and employees. Therefore, additional payment obligations may arise within one year if the related parties and employees provided with the guarantee fail to fulfill their payment obligations, and the maximum amount of the related liquidity risk is ₩ 3,239,454 million (December 31, 2021: ₩ 2,174,945 million). (see Note 39. (4) and Note 40. (6), (7), (8))

5. Financial Risk Management, Continued

(3) Capital risk management

The purpose of capital management is to have abilities to provide continuous profits to the shareholders and stakeholders as a going concern company, and to reduce cost of capital.

In order to maintain or to adjust the structure of the equity, the Company adjusts the dividends that are distributed to the shareholders. Also the Company issues shares and sells the assets in order to reduce its liabilities.

The Company manages its equity based on debt ratio. Debt ratio is calculated by dividing the total liabilities by the total equity of the Company. The total liabilities and the total equity are "total liabilities" and "total equity" in the statement s of financial position.

The debt ratio of the company as of December 31, 2022 and 2021, is as follows:

In thousands of won

		December 31, 2022	December 31, 2021
Liabilities (A)	₩	9,038,414,155	7,467,425,246
Equity (B)		8,836,430,524	7,842,634,457
Debt Ratio (A/B)		102.30%	95.20%

6. Fair value

(1) Fair value of financial instruments by category

Fair values and book value of financial instruments by category as of December 31, 2022 and 2021 are as follows:

In thousands of won		December 31, 2022		December 31, 2021	
		Book value	Fair Value(*)	Book value	Fair Value
Financial assets					
Cash and cash equivalents	₩	666,449,832	666,449,832	700,830,713	700,830,713
FVTPL – income financial assets		74,126,980	74,126,980	27,713,016	27,713,016
FVTOCI – income financial assets		11,732,240	11,732,240	11,355,815	11,355,815
Trade receivables and other receivables		2,542,446,946	2,542,446,946	1,627,695,991	1,627,695,991
Other financial assets					
Derivative assets		161,088,301	161,088,301	32,873,379	32,873,379
others		148,479,811	148,479,811	118,816,400	118,816,400
	₩	3,604,324,110	3,604,324,110	2,519,285,314	2,519,285,314
Financial liabilities					
Trade payables and other payables	₩	1,801,378,824	1,801,378,824	1,861,298,068	1,861,298,068
Borrowings		5,298,827,276	5,245,662,964	4,175,521,948	4,171,868,096
Other financial liabilities					
Derivative liabilities		123,313,974	123,313,974	5,122,384	5,122,384
others		859,519,418	859,519,418	696,669,737	696,669,737
	₩	8,083,039,492	8,029,875,180	6,738,612,137	6,734,958,285

(*) Acquisition costs were measured at fair values for trade receivables, other receivables, and unlisted stocks where the difference between fair value and acquisition cost is not important.

6. Fair value, Continued

(2) Fair value hierarchy

Financial instruments that are measured at fair values are separated by hierarchy level and defined levels are as follows:

- Level 1: quoted prices (unadjusted) in active markets for identical assets or liabilities.
- Level 2: inputs to an asset or liability that are observable either directly (e.g., price) or indirectly (e.g., derived from price), except for the quoted price included in Level 1.
- Level 3: inputs for the asset or liability that are not based on observable market data (unobservable inputs).

Financial instruments that are measured at fair values by hierarchy level as of December 31, 2022 and 2021, are as follows:

In thousands of won		December 31, 2022			
		Level 1	**Level 2**	**Level 3**	**Total**
Recurring fair value measurements					
FVTOCI – income financial assets	₩	-	-	11,732,240	11,732,240
FVTPL – income financial assets		-	-	74,126,980	74,126,980
Derivative assets		-	101,283,301	59,805,000	161,088,301
Derivative liabilities		-	27,018,974	96,295,000	123,313,974
Trade payables and other payables - contingent consideration(*)		-	-	37,406,845	37,406,845

(*) For the year ended December 31, 2021, contingent consideration related to the consideration transferred was recognized as fair value when acquiring the shares in WOS inc. (see Note 39(7)).

In thousands of won		December 31, 2021			
		Level 1	**Level 2**	**Level 3**	**Total**
Recurring fair value measurements					
FVTOCI – income financial assets	₩	-	-	11,355,815	11,355,815
FVTPL – income financial assets		-	-	27,713,016	27,713,016
Derivative assets		-	32,873,379	-	32,873,379
Derivative liabilities		-	5,122,384	-	5,122,384
Trade payables and other payables - contingent consideration(*)		-	-	37,711,894	37,711,894

(*) For the year ended December 31, 2021, contingent consideration related to the consideration transferred was recognized as fair value when acquiring the shares in WOS Inc. (see Note 39(7)).

The Company has not disclosed the fair value hierarchy for Accounts Receivables and Other Receivables whose carrying amounts are judged to be a reasonable approximation of their fair values.

(3) There was no transfer between Level 2 and Level 3 for the year ended December 31, 2022.

6. Fair value, Continued

(4) Changes in fair value of financial assets classified as Level 3 for the year ended December 31, 2022 are as follows:

In thousands of won		2022				
		FVTPL – income financial assets	FVTOCI – income financial assets	share option agreement between shareholders	Contingent consideration	Total
Balance at 1 January	₩	27,713,017	11,355,815	-	(37,711,894)	1,356,938
Acquisition		44,280,730	-	-	-	44,280,730
Disposal		(1,000,000)	-	-	-	(1,000,000)
Amount recognized in net income		808,233	-	(36,490,000)	305,049	(35,376,718)
Amount recognized in other comprehensive income		-	376,425	-	-	376,425
Others(*)		2,325,000	-	-	-	2,325,000
Balance at 31 December	₩	74,126,980	11,732,240	(36,490,000)	(37,406,845)	11,962,375

(*) Reclassified from long-term deposits, etc. to FVTPL- income financial assets.

(5) Valuation techniques and inputs used in the recurring fair value measurements of financial instruments categorized within Level 2 and Level 3 of the fair value hierarchy are as follows:

- Derivative instruments (currency forward, currency swap, interest rate swap)
Fair value of currency forwards is measured based on forward exchange rate quoted in the current market at the end of the reporting period, which has the same remaining period of derivatives to be measured. If the forward exchange rate, which has the same remaining period of currency forward, is not quoted in the current market, fair value is measured using estimates of similar period of forward exchange rate by applying interpolation method with quoted forward exchange rates. Fair value of currency forward, swap and interest rate swap, which has no quoted forward exchange rate, is measured based on reports received from banks. As the inputs used to measure fair value of derivative instruments are supported by observable market data, such as forward exchange rates, the Company classified the estimates of fair value measurements of the derivative instruments as Level 2 of the fair-value hierarchy.

- Unlisted equity securities
Fair value of unlisted equity securities is measured using discounted cash flow projection and certain assumptions not based on observable market prices or rates, such as sales growth rate, pretax operating income ratio and discount rate based on business plan and circumstance of industry are used to estimate the future cash flow. The weighted-average cost of capital used to discount the future cash flows, is calculated by applying the Capital Asset Pricing Model, using the data of similar listed companies. The Company determines that the effect of estimation and assumptions referred above affecting fair value of unlisted equity securities is significant and classifies fair value measurements of unlisted securities as Level 3 of the fair-value hierarchy.

- Contingent consideration
The fair value of contingent consideration is measured using a cash flow discount model, and some assumptions such as the feasibility of contingent consideration based on business plans and industry conditions and discount rates are used to estimate future cash flows. The discount rate used to discount future cash flows is the interest rate on corporate bonds considering the company's credit rating and term coefficient. The company classified the fair value measurement of the contingent consideration as Level 3 in the fair value hierarchy, judging that the effect of the above-mentioned major assumptions and estimates on the fair value of the contingent consideration is significant.

6. Fair value, Continued

(5) Valuation techniques and inputs used in the recurring fair value measurements of financial instruments categorized within Level 2 and Level 3 of the fair value hierarchy are as follows, continued:

- Share option agreement between shareholders

The fair value of share option agreement has been evaluated using the binomial model and Monte Carlo simulation method.

The binomial model is an evaluation model that derives the fair value of an option by assuming that the price of the underlying asset follows a binomial distribution. For modelling the binomial model, certain assumptions and estimates, such as volatility and risk-free interest rates, were used that were not based on observable market prices or ratios. The Company has determined that the significant assumptions and estimations mentioned above have a significant impact on the fair value of share option agreement, and has classified the fair value measurement of share option agreement as Level 3 in the fair value hierarchy.

The Monte Carlo simulation method is a way to probabilistically estimate the value of an option by using random numbers and increasing the number of simulations to approach uncertainty. To perform the simulation, some assumptions and estimations that do not rely on observable market prices or ratios, such as volatility and correlation coefficients, are used. The Company has determined that the significant assumptions and estimations mentioned above have a significant impact on the fair value of share option agreement, and has classified the fair value measurement of share option agreement as Level 3 in the fair value hierarchy.

7. Financial Instruments by Category

(1) Carrying amount of financial instruments by category

1) Carrying amount of financial assets by category as of December 31, 2022 and 2021, are as follows:

In thousands of won

		December 31, 2022			
		Financial assets at FVTPL	Financial assets at FVTOCI	Financial assets at amortized cost	Total
Current:					
Cash and cash equivalents	₩	-	-	666,449,832	666,449,832
Trade receivables and other receivables		-	35,557,653	2,475,348,425	2,510,906,078
Other financial assets		40,252,023	-	39,804,354	80,056,377
Non-current:					
FVTPL - financial assets		74,126,980	-	-	74,126,980
FVTOCI - financial assets		-	11,732,240	-	11,732,240
Trade receivables and other receivables		-	-	31,540,867	31,540,867
Other long-term financial assets		120,836,278	-	108,675,457	229,511,735
	₩	235,215,281	47,289,893	3,321,818,935	3,604,324,109

In thousands of won

		December 31, 2021				
		Financial assets at FVTPL	Financial assets at FVTOCI	Financial assets at amortized cost	Others(*)	Total
Current:						
Cash and cash equivalents	₩	-	-	700,830,713	-	700,830,713
Trade receivables and other receivables		-	62,746,815	1,552,133,185	-	1,614,880,000
Other financial assets		10,847,120	-	34,224,650	976,286	46,048,056
Non-current:						
FVTPL - financial assets		27,713,016	-	-	-	27,713,016
FVTOCI - financial assets		-	11,355,815	-	-	11,355,815
Trade receivables and other receivables		-	-	12,815,991	-	12,815,991
Other long-term financial assets		21,049,973	-	84,591,750	-	105,641,723
	₩	59,610,109	74,102,630	2,384,596,289	976,286	2,519,285,314

(*) Includes hedging derivative instruments.

7. Financial Instruments by Category, Continued

(1) Carrying amount of financial instruments by category, continued

2) Carrying amounts of financial liabilities by category as of December 31, 2022 and 2021, are as follows:

In thousands of won		December 31, 2022			
		Financial liabilities FVTPL	**Financial liabilities at amortized cost**	**Others(*)**	**Total**
Current:					
Trade payables and other payables	₩	-	1,762,023,722	-	1,762,023,722
Short-term borrowings		-	2,179,078,125	-	2,179,078,125
Other financial liabilities		2,158,637	360,965,824	71,371,704	434,496,165
Non-current:					
Trade payables and other payables		37,406,845	1,948,258	-	39,355,103
Long-term borrowings		-	3,119,749,152	-	3,119,749,152
Other long-term financial liabilities		121,155,337	427,181,890	-	548,337,227
	₩	160,720,819	7,850,946,971	71,371,704	8,083,039,494

(*) It includes financial guarantee liabilities(see Note 23).

In thousands of won		December 31, 2021			
		Financial liabilities FVTPL	**Financial liabilities at amortized cost**	**Others(*)**	**Total**
Current:					
Trade payables and other payables	₩	4,902,203	1,682,983,406	-	1,687,885,609
Short-term borrowings		-	1,535,303,660	-	1,535,303,660
Other financial liabilities		4,756,906	225,399,935	56,577,986	286,734,827
Non-current:					
Trade payables and other payables		32,809,691	140,602,768	-	173,412,459
Long-term borrowings		-	2,640,218,288	-	2,640,218,288
Other long-term financial liabilities		365,478	414,691,816	-	415,057,294
	₩	42,834,278	6,639,199,873	56,577,986	6,738,612,137

(*) It includes financial guarantee liabilities(see Note 23).

7. Financial Instruments by Category, Continued

(2) Net profit or loss of financial instruments by category

Details of net profit or loss of financial instruments by category for the years ended December 31, 2022 and 2021, are as follows:

In thousands of won	2022						
	Financial assets at FVTPL	**Financial assets at FVTOCI**	**Financial assets at amortized cost**	**Financial liabilities at FVTPL**	**Financial liabilities at amortized cost**	**Others**	**Total**
Bad debt expense	₩ -	-	(14,687,186)	-	-	-	(14,687,186)
Other bad debt expense	-	-	(362,576)	-	-	-	(362,576)
Reversal of other bad debt expense	-	-	591	-	-	-	591
Reversal of Allowance for Doubtful Accounts	-	-	3,763	-	-	-	3,763
Gain on foreign currency transactions	-	-	231,513,674	-	26,153,285	-	257,666,959
Gain on foreign currency translation	-	-	870,645	-	88,162,141	-	89,032,786
Gain on valuation of derivatives	140,515,434	-	-	-	-	-	140,515,434
Gain on transactions of derivatives	65,674,271	-	-	-	-	-	65,674,271
Loss on foreign currency transactions	-	-	(66,475,950)	-	(151,367,842)	-	(217,843,792)
Loss on foreign currency translation	-	-	(131,006,047)	-	(55,795,442)	-	(186,801,489)
Gain on valuation of financial asset	1,544,991	-	-	-	-	-	1,544,991
Loss on valuation of financial asset	(736,757)	-	-	-	-	-	(736,757)
Loss on valuation of derivatives	(123,425,603)	-	-	-	-	-	(123,425,603)
Loss on transactions of derivatives	(19,955,164)	-	-	-	-	-	(19,955,164)
Interest income (expense)	-	-	15,533,156	(746,730)	(162,472,912)	-	(147,686,486)
Loss on disposal of financial asset	(153,049)	(2,870,106)	-	-	-	-	(3,023,155)
Reversal of financial guarantee liabilities	-	-	-	-	-	16,905,824	16,905,824
Dividend income	1,414,875	421,297	-	-	-	-	1,836,172
Subtotal: Profit(loss) before income tax	64,878,998	(2,448,809)	35,390,070	(746,730)	(255,320,770)	16,905,824	(141,341,417)
Other comprehensive income:							
FVTOCI – income financial assets gain (loss) on valuation	-	376,425	-	-	-	-	376,425
Gain (loss) on valuation of derivatives	-	-	-	-	-	(4,286)	(4,286)
Subtotal: Other comprehensive income before tax	-	376,425	-	-	-	(4,286)	372,139
Total: comprehensive income before tax	₩ 64,878,998	(2,072,384)	35,390,070	(746,730)	(255,320,770)	16,901,538	(140,969,278)

7. Financial Instruments by Category, Continued

(2) Net profit or loss of financial instruments by category, continued

In thousands of won		2021						
		Financial assets at FVTPL	Financial assets at FVTOCI	Financial assets at amortized cost	Financial liabilities at FVTPL	Financial liabilities at amortized cost	Others	Total
Bad debt expense	₩	-	-	(8,183,205)	-	-	-	(8,183,205)
Other bad debt expense		-	-	(1,014,830)	-	-	-	(1,014,830)
Gain on foreign currency transactions		-	-	65,312,365	-	5,446,224	-	70,758,589
Gain on foreign currency translation		-	-	11,718,739	-	6,472,229	-	18,190,968
Loss on foreign currency transactions		-	-	(12,291,590)	-	(55,193,405)	-	(67,484,995)
Loss on foreign currency translation		-	-	(3,278,069)	-	(79,162,473)	-	(82,440,542)
Gain on valuation of financial asset		2,290,740	-	-	-	-	-	2,290,740
Loss on valuation of financial asset		(15,225)	-	-	-	-	-	(15,225)
Loss on disposal of financial asset		(123,756)	(558,112)	-	-	-	-	(681,868)
Gain on transactions of derivatives		19,024,719	-	-	-	-	-	19,024,719
Loss on valuation of derivatives		(3,539,195)	-	-	-	-	-	(3,539,195)
Loss on transactions of derivatives		(41,374,032)	-	-	-	-	-	(41,374,032)
Gain on valuation of derivatives		83,917,279	-	-	-	-	-	83,917,279
Interest income (expense)		-	-	10,336,965	(249,122)	(88,123,741)	-	(78,035,898)
Reversal of financial guarantee liabilities		-	-	-	-	-	12,744,101	12,744,101
Dividend income		900,774	421,297	-	-	-	-	1,322,071
Subtotal: Profit(loss) before income tax		61,081,304	(136,815)	62,600,375	(249,122)	(210,561,166)	12,744,101	(74,521,323)
Other comprehensive income:								
FVTOCI – income financial assets gain (loss) on valuation		-	113,629	-	-	-	-	113,629
Gain (loss) on valuation of derivatives		-	-	-	-	-	1,058,623	1,058,623
Subtotal: Other comprehensive income before tax		-	113,629	-	-	-	1,058,623	1,172,252
Comprehensive income before tax	₩	61,081,304	(23,186)	62,600,375	(249,122)	(210,561,166)	13,802,724	(73,349,071)

8. Transfer of Financial Assets

1) If the counterparty holds the right to recourse the transferred asset, it will be proceeded in the way of not derecognising whole financial assets, and the debt related to the transferred financial asset is recorded as a short-term loan. As of the end of the current year, there are no financial assets that have been transferred but have not been completely derecognized.

2) As of December 31, 2022, there is no continuous involvement in transferred financial assets that have been derecognized.

9. Cash and Cash Equivalents

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

In thousands of won		December 31, 2022	December 31, 2021
Cash	₩	3,433,995	759,868
Cash deposits		16,588,450	343,456,618
Cash equivalents(*)		646,427,387	356,614,227
	₩	666,449,832	700,830,713

(*) Other cash equivalents of ₩1,300 million are provided as transaction performance guarantee as of December 31, 2022.

10. Trade Receivables and Other Receivables

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

In thousands of won		December 31, 2022		December 31, 2021	
		Current	Non-current	Current	Non-current
Trade receivables	₩	2,460,301,410	2,011,337	1,576,269,413	2,875,372
Less : present value discount		(9,647)	(48,290)	(9,647)	(57,937)
Allowances for doubtful accounts		(38,546,561)	-	(26,630,680)	(12,081)
		2,421,745,202	1,963,047	1,549,629,086	2,805,354
Other receivables		90,457,357	30,993,960	66,548,533	11,838,450
Less : present value discount		-	-	-	(411,673)
Allowances for doubtful account		(1,296,481)	(1,416,140)	(1,297,619)	(1,416,140)
		89,160,876	29,577,820	65,250,914	10,010,637
	₩	2,510,906,078	31,540,867	1,614,880,000	12,815,991

10. Trade Receivables and Other Receivables, Continued

(2) The aging analysis of trade receivables and other receivables as of December 31, 2022 and 2021, are as follows:

In thousands of won		**December 31, 2022**	**December 31, 2021**
Receivables not past due(*1):	₩	2,382,358,209	1,406,897,617
Past due but not impaired:			
Less than 3 months		144,783,899	159,384,983
Less than 6 months		8,683,751	15,232,849
Less than 1 year		5,425,585	31,945,911
Over 1 year		7,525,427	26,896,011
		166,418,662	233,459,754
Impaired(*1):			
Less than 1 year		2,433,838	1,227,853
Over 1 year		32,553,355	15,946,544
		34,987,193	17,174,397
Total(*2)	₩	2,583,764,064	1,657,531,768

(*1) The above classification of non-impaired and impaired receivables is the result of the individual assessment.
(*2) The total amount of trade receivables and other receivables before deducting the present value discount.

10. Trade Receivables and Other Receivables, Continued

(3) Changes in allowance for doubtful accounts for the years ended December 31, 2022 and 2021, are as follows:

In thousands of won

		2022		
		Non-impaired receivables	**Impaired receivables**	**Total**
Balance at 1 January 2022	₩	12,182,123	17,174,397	29,356,520
Spin-off		(1,080,975)	(858,527)	(1,939,502)
Business combination		688	-	688
Write-offs		(1,397,885)	(85,400)	(1,483,285)
Reversal		554,354	-	554,354
Changes by increases or collecting of receivables		(3,986,316)	18,756,723	14,770,407
Balance at 31 December 2022(*)	₩	6,271,989	34,987,193	41,259,182

(*) As of December 31, 2022, the Company applies the practical expedient of K-IFRS 1109 and measures loss allowance of trade and other accounts receivable at lifetime expected credit losses.

In thousands of won

		2021		
		Non-impaired receivables	**Impaired receivables**	**Total**
Balance at 1 January 2021	₩	2,578,105	12,898,632	15,476,737
Business combination		4,800,016	1,512,823	6,312,839
Write-offs		(1,463,880)	(151,641)	(1,615,521)
Reversal		259,432	-	259,432
Changes by increases or collecting of receivables		6,008,450	2,914,583	8,923,033
Balance at 31 December 2021(*)	₩	12,182,123	17,174,397	29,356,520

(*) As of December 31, 2021, the Company applies the practical expedient of K-IFRS 1109 and measures loss allowance of trade and other accounts receivable at lifetime expected credit losses.

11. Other Financial Assets

(1) Other financial assets as of December 31, 2022 and 2021, are as follows:

In thousands of won		December 31, 2022		December 31, 2021	
		Current	Non-current	Current	Non-current
Financial instruments(*)	₩	26,916,377	4,883,500	27,309,041	2,593,500
Loans		4,310,129	62,447,875	2,143,680	39,577,886
Accrued revenue		664,502	-	402,770	-
Deposits		7,913,346	41,344,082	4,369,159	42,420,364
Derivative assets		40,252,023	120,836,278	11,823,406	21,049,973
	₩	80,056,377	229,511,735	46,048,056	105,641,723

(*) Restricted other financial assets as of December 31, 2022 are ₩31,062 million (2021: ₩26,574 million).

(2) Derivatives

The Company entered into currency forwards, cross currency swaps and other contracts to hedge exchange rate risk of trade receivables denominated in foreign currencies. In addition, sale of shares owned by the Company includes share option agreements signed with investors. The fair value of related derivatives and options as of the end of the current and prior periods are as follows. Derivatives and options as of December 31, 2022 and 2021, are as follows:

In thousands of won		December 31, 2022		December 31, 2021	
		Assets	Liabilities	Assets	Liabilities
Current Derivatives:					
Currency forwards	₩	40,216,198	2,158,637	356,228	3,173,717
Currency swaps		-	-	11,467,178	1,583,189
Interest swaps		35,825	-	-	-
		40,252,023	2,158,637	11,823,406	4,756,906
Non-current Derivatives:					
Currency forwards		-	15,143,368	-	-
Currency swaps		61,031,278	9,716,969	20,941,668	365,478
Interest swaps		-	-	108,305	-
Other derivatives(*)		59,805,000	96,295,000	-	-
		120,836,278	121,155,337	21,049,973	365,478
	₩	161,088,301	123,313,974	32,873,379	5,122,384

(*) Fair value of the share option agreement signed with investors upon sale of shares owned by the Company.

12. Other Assets

Other assets as of December 31, 2022 and 2021, are as follows:

In thousands of won		December 31, 2022		December 31, 2021	
		Current	Non-current	Current	Non-current
Advance payments	₩	78,586,943	72,668,756	69,581,950	4,048,924
Prepaid construction cost		704,830	-	1,289,810	-
Prepaid expenses		13,626,296	1,387,242	12,435,006	1,944,064
Prepaid value-added tax and others		47,679,673	-	36,727,675	-
Emission rights		2,974,246	-	4,229,097	-
Refundable assets		65,956	-	80,913	-
Contract assets		34,651,129	-	3,183,137	-
	₩	178,289,073	74,055,998	127,527,588	5,992,988

13. Inventories

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

In thousands of won		December 31, 2022			December 31, 2021		
		Acquisition cost	Valuation reserve	Book value	Acquisition cost	Valuation reserve	Book value
Merchandise	₩	40,912,273	(3,745,721)	37,166,552	59,643,132	(1,310,867)	58,332,265
Finished goods		587,261,216	(24,698,823)	562,562,393	518,482,862	(44,212,963)	474,269,899
Work in process		5,222,292	-	5,222,292	4,321,253	-	4,321,253
Raw materials		188,933,783	(1,628,646)	187,305,137	136,580,139	(5,443,037)	131,137,102
Supplies		52,220,876	-	52,220,876	43,257,377	-	43,257,377
Goods in transit		82,842,135	-	82,842,135	67,456,324	-	67,456,324
	₩	957,392,575	(30,073,190)	927,319,385	829,741,087	(50,966,867)	778,774,220

(2) The loss(reversal) on valuation of inventories included in cost of sales in the separate statements of comprehensive income ended December 31, 2022, amounts to (-) ₩20,305 million (December 31, 2021: ₩39,866 million).

14. Fair Value Financial Assets

(1) Fair value financial assets through other comprehensive income as of December 31, 2022 and 2021, are as follows:

In thousands of won		December 31, 2022	December 31, 2021
Equity securities Unlisted securities(*)	₩	11,732,240	11,355,815

(*) The Company has employed an irrevocable option, designating equity instrument for the purpose of strategic investment, not for trading, as financial assets at FVTOCI.

(2) Fair value financial assets through profit or loss as of December 31, 2022 and 2021, are as follows:

In thousands of won		December 31, 2022	December 31, 2021
Equity securities	₩	73,680,567	27,362,363
Beneficiary certificate		2,387	2,387
Debt instruments		444,026	348,266
	₩	74,126,980	27,713,016

(3) Acquisition cost was measured at fair value for unlisted stocks where the difference between fair value and acquisition cost is not important.

(4) Changes in Fair value through other comprehensive income financial assets for the years ended December 31, 2022 and 2021, are as follows:

In thousands of won		2022	2021
Balance at 1 January	₩	11,355,815	11,248,925
Gain (loss) on valuation as equity		376,425	113,629
Others		-	(6,739)
Balance at 31 December	₩	11,732,240	11,355,815

15. Investments in Subsidiaries, Associates and Joint Ventures

(1) Investments in subsidiaries, associates and joint ventures as of December 31, 2022 and 2021, are as follows:

In thousands of won

Investees	Location	December 31, 2022 Ownership (%)	December 31, 2022 Book value	December 31, 2021 Ownership (%)	December 31, 2021 Book value
Subsidiaries:					
Hanwha City Development Co., Ltd.	Korea	100.00%	₩ 98,374,528	100.00%	₩ 98,374,528
Hanwha Compound Co., Ltd.	Korea	100.00%	57,850,875	100.00%	57,850,875
Hanwha Global Asset Corporation (*1)(*2)	Korea	100.00%	902,786,676	100.00%	1,000,114,865
HAM Holdings Co., Ltd.(*2)	Korea	52.76%	218,645,005	-	-
Hanwha Chemical Overseas Holdings, Co., Ltd.	Korea	100.00%	95,014,350	100.00%	95,014,350
HCC Holdings Co., Ltd. (*3)	Korea	51.00%	133,644,618	-	-
Haeorum PV Plant Corporation	Korea	100.00%	3,805,000	100.00%	3,805,000
WOS Inc. (*4)	Korea	100.00%	222,556,775	100.00%	102,056,795
NXEF CO.,LTD (*5)	Korea	100.00%	13,000,000	100.00%	3,000,000
Hanwha Galleria Timeworld Co., Ltd.	Korea	99.99%	163,275,050	99.99%	163,275,050
Hanwha B&B Co., Ltd.	Korea	100.00%	3,407,276	100.00%	3,407,276
Gyeonggi Yongin Techno Valley Co., Ltd.	Korea	75.00%	6,149,392	75.00%	6,149,392
Gimhae Techno Valley Co., Ltd.	Korea	80.00%	2,454,720	80.00%	2,454,720
SEOSAN TECHNO VALLEY	Korea	65.00%	7,920,713	65.00%	7,920,713
H-Techno Valley Co.,Ltd	Korea	80.00%	3,536,226	80.00%	3,536,226
The Second Yong In Techno Valley Co, Ltd	Korea	70.00%	3,011,908	70.00%	3,011,908
West Ochang Techno Valley Co., Ltd.	Korea	73.00%	-	73.00%	-
Anseong Techno Valley	Korea	75.00%	-	75.00%	-
H-Valley Co.,Ltd.(*6)	Korea	51.00%	1,122,139	51.00%	-
Anseong Techno Logistics Co., Ltd. (*7)	Korea	100.00%	17,816,131	-	-
Hanwha NxMD Co., Ltd. (*8)	Korea	100.00%	115,000,000	-	-
Hanwha Advanced Materials Corporation(*9)	Korea	52.76%	181,738,226	-	-
Gobokjumin Taeyanggwangbaljeon Co., Ltd(*10)	Korea	90.00%	900,000	-	-
Hadong Haetpinnaum Taeyanggwangbalkeon Co., Ltd.(*11)	Korea	100.00%	300,000	-	-
Hanwha Chemical Trading (Shanghai) Co., Ltd.	China	100.00%	3,209,559	100.00%	3,209,559
HHR Development B GK (*12)	Japan	100.00%	3,024,451	-	-
HANWHA CHEMICAL INDIA PRIVATE LIMITED	India	99.99%	168,991	99.99%	168,991
Hanwha Chemical Malaysia Sdn. Bhd.	Malaysia	100.00%	3,314,400	100.00%	3,314,400
Hanwha Chemical (Ningbo) Co., Ltd. (*3)	China	-	-	100.00%	262,048,271
Hanwha Chemical (Thailand) Co., Ltd.	Thailand	99.99%	24,907,971	99.99%	24,907,971
Hanwha International Corp.	USA	100.00%	55,314,190	100.00%	55,314,190
Hanwha Q CELLS Co., Ltd. (*13)	England	100.00%	1,972,163,626	100.00%	1,829,283,117
Q CELLS ASSET MANAGEMENT LIMITED	England	100.00%	3,571,026	100.00%	3,571,026
HAMC Holdings Corp.	USA	100.00%	69,639,912	100.00%	69,639,912
HANWHA SOLUTIONS USA HOLDINGS CORPORATION (*14)	USA	100.00%	191,989,910	100.00%	158,380,000
Q Energy Mediterranee(formerly, RES Mediterranee) (*15)	France	-	-	100.00%	1,014,247,609
Q Energy Solutions SE (formerly, Hanwha EU ENERGY Solutions SE) (*15)	Germany	100.00%	1,171,483,542	100.00%	179,659
Hanwha Solutions Insight Holdings Corporation (*16)	USA	100.00%	53,364,000	-	-
Hanwha Cimarron Europe GmBH (*17)	Germany	100.00%	39,106	-	-
Associates:					
Hanwha Eagles Professional Baseball Club	Korea	40.00%	-	40.00%	-
Hanwha Impact Corporation	Korea	47.93%	1,021,440,817	47.93%	1,021,440,817
Hanwha Hotels and Resorts Co., Ltd.(*18)(*30)	Korea	49.65%	297,015,149	47.98%	270,356,369
Smile Ventures Co., Ltd.(*26)	Korea	17.69%	1,947,426	17.69%	1,947,426
Hanwha Connect Co., Ltd.	Korea	40.01%	64,713,166	40.01%	64,713,166
Envisioning Climate Solutions Fund (*19)	Korea	-	-	22.49%	2,250,000
HANWHA FUND INVESTMENT 1 HO (*20)	Korea	20.00%	4,969,434	20.00%	5,335,468
DaNAgreen CO., LTD. (*21)(*27)	Korea	3.76%	1,092,624	-	-
Crystal Solar Inc.	USA	29.09%	-	29.09%	-
REC Silicon ASA (*22)	Norway	21.33%	242,302,249	-	-
Joint ventures:					
YEOCHUN NCC Co., Ltd.	Korea	50.00%	370,135,400	50.00%	370,135,400
Ulsan Complex City Development Co., Ltd.(*28)	Korea	45.00%	6,750,000	45.00%	6,750,000
Premium Hirafu Properties TMK (*23)(*29)	Japan	24.95%	14,143,433	-	-
GK Summit Apollo Eleven (*24)	Japan	50.00%	3,213,531	-	-
H Properties TMK (*25)(*29)	Japan	24.95%	16,519,000	-	-
			₩ 7,848,742,521		W 6,717,165,049

15. Investments in Subsidiaries, Associates and Joint Ventures, Continued

(1) Investments in subsidiaries, associates and joint ventures as of December 31, 2022 and 2021, are as follows, continued:

(*1) The Company has participated in the paid-in capital increase of Hanwha Global Asset Corporation and has invested ₩202,356 million. During the current period, Hanwha Global Asset Corporation has spin-off. Hanwha Global Asset Corporation is the surviving company, and HAM Holdings Co., Ltd. is the newly established company upon the spin-off. It has made contribution in kind of ₩62,898 million of shares in Hanwha Q CELLS America Inc. to the Hanwha Global Asset Corporation.

(*2) HAM Holdings Co., Ltd. is established through a spin-off of the Hanwha Global Asset Corporation, and subsequently sold a portion of its shares (holds shareholding ratio of 60.3% after the sale). After then, The shareholding ratio has decreased to 52.76% due to disproportionate paid-in capital increase.

(*3) The Company has invested all shares issued by Hanwha Chemical (Ningbo) Co., Ltd. in HCC Holdings Co., Ltd (100% subsidiary). In addition, 2,940,000 convertible preferred shares (shareholding ration of 49%) of HCC Holdings Co., Ltd. were disposed to Hegel Limited.

(*4) The Company invested ₩120,500 million in WOS Inc. for the year ended December 31, 2022.

(*5) The Company has invested ₩10,000 million in NXEF CO.,LTD for the year ended December 31, 2022.

(*6) The Company has invested ₩7,650 million in H-Valley Co.,Ltd. for the year ended December 31, 2022. After the investment, the Company offset it against other provisions of ₩6,528 million.

(*7) The Company has invested ₩17,816 million in Anseong Techno logistics Co., Ltd. for the year ended December 31, 2022.

(*8) The Company has established Hanwha NxMD Co., Ltd. for the year ended December 31, 2022 (has invested ₩9,200 million upon the establishment). Subsequently, it has invested ₩105,800 million.

(*9) The company has newly established Hanwha Advanced Materials Corporation by spinning-off Advanced Materials business division from Hanwha Solution Corporation. After the spin-off, the Company sold a portion of its shares (shareholding ratio of 60.3% after the sale). The shareholding ratio decreased to 52.76% due to disproportionate paid-in capital increase afterward.

(*10) The Company has acquired Gobokjumin Taeyanggwangbaljeon Co., Ltd for the year ended December 31, 2022 (has invested ₩9 million upon acquisition). Subsequently, it has invested ₩891 million.

(*11) The Company has newly established Hadong Haetpinnaum Taeyanggwangbalkeon Co., Ltd. for the year ended December 31, 2022. (Capital contribution of ₩300 million)

(*12) T he Company has acquired a shares in HHR Development B GK from Hanwha Hotels and Resorts Co., Ltd. for the ended December 31, 2022. Subsequently, it has invested ₩2,508 million.

(*13) The Company has participated in paid-in capital increase of Hanwha Q CELLS Co., Ltd, and has invested ₩368,717 million for the year ended December 31, 2022. It has reduced capital of ₩219,954 million in kind. However, due to factors such as the adjustment of the guarantee rate with its subsidiary Hanwha Q CELLS Malaysia Sdn Bhd, which has resulted in adjustment in investment in associate, ₩5,882 million has reduced for the year ended December 31, 2022.

(*14) The Company has invested ₩33,610 million in HANWHA SOLUTIONS USA HOLDINGS CORPORATION for the year ended December 31, 2022.

(*15) The Company has invested (total of ₩1,014,248 million) all of its issued shares of Q Energy Mediterranee (formerly, RES Mediterranee) in Q Energy Solutions SE (formerly, Hanwha EU ENERGY Solutions SE) (wholly owned), and has acquired all of shares newly issued by Q Energy Solutions SE (formerly, Hanwha EU ENERGY Solutions SE). After then, the Company has invested its interests in Q Energy Europe GmbH amounting to ₩157,056 million in Q Energy Solutions SE.

(*16) The Company has newly established Hanwha Solutions Insight Holdings Corporation for the year ended December 31, 2022 (Capital contribution of ₩53,364 million).

(*17) The Company has newly established Hanwha Cimarron Europe GmBH for the year ended December 31, 2022 (Capital contribution of ₩39 million).

(*18) The Company has acquired an additional shares in Hanwha Hotels and Resorts Co., Ltd. For the year ended December 31, 2022 (acquisition cost: ₩26,659 million).

15. Investments in Subsidiaries, Associates and Joint Ventures, Continued

(1) Investments in subsidiaries, associates and joint ventures as of December 31, 2022 and 2021, are as follows, continued:

(*19) Envisioning Climate Solutions Fund is excluded from the associate due to a loss of significant influence, and reclassified as financial asset measured at fair value through profit or loss.
(*20) The Company has invested ₩624 million in HANWHA FUND INVESTMENT 1 HO, and has terminated ₩990 million for the year ended December 31, 2022.
(*21) The Company has acquired common shares amounting to ₩1,093 million and redeemable convertible preferred shares amounting to ₩1,105 million in DaNAgreen CO., LTD. for the year ended December 31, 2022. Preferred shares are classified as financial asset measured at fair value through profit or loss, and the company's shareholding ratio, including preferred shares, is 7%.
(*22) The company has acquired shares in REC Silicon ASA for the year ended December 31, 2022 (acquisition cost: ₩242,302 million).
(*23) The Company has acquired shares in Premium Hirafu Properties TMK from Hanwha Hotels and Resorts Co., Ltd. for the year ended December 31, 2022. Subsequently, it has invested ₩1,722 million.
(*24) The Company has acquired shares in GK Summit Apollo Eleven from Hanwha Hotels and Resorts Co., Ltd for the year ended December 31, 2022. Subsequently, it has invested ₩1,036 million.
(*25) The Company has acquired shares in H Properties TMK from Hanwha Hotels and Resorts Co., Ltd for the year ended December 31, 2022.
(*26) The Company has classified as an associate company, considering that the director appointed by the Company holds right of nominating CFO through agreement that it has significant influence.
(*27) The Company has classified as an associate company, considering that the director appointed by the Company holds right to consent and discussion for matters regarding management that it has significant influence.
(*28) The Company has classified as a joint venture as decision shall be made by board meeting by having all the directors to attend and agree.
(*29) The Company has classified as a joint venture as voting right is exercised jointly.
(*30) The effective shareholding ratio based on the number of outstanding shares.

15. Investments in Subsidiaries, Associates and Joint Ventures, Continued

(2) Changes in investments in subsidiaries, associates and joint ventures for the years ended December 31, 2022 and 2021, are as follows:

In thousands of won		2022	2021
Balance at 1 January	₩	6,717,165,049	4,553,433,984
Business combination		-	(350,823,240)
Acquisition		3,398,040,710	2,518,393,029
Disposal		(2,251,803,354)	(2,312,151)
Impairment		-	(1,526,573)
Others(*1,*2,*3)		(14,659,884)	-
Balance at 31 December	₩	7,848,742,521	6,717,165,049

(*1) Envisioning Climate Solutions Fund was excluded from associate company and classified as financial asset measured at fair value through profit and loss due to lose of significant influence during the current year.

(*2) The Company has invested ₩7,650 million in H-Valley Co.,Ltd. during the current year. After the investment, the Company has offset against other provisions of ₩6,528 million.

(*3) The Company has decreased by ₩5,882 million due to adjustment in investment in associate company by adjusting guarantee rate with Hanwha Q CELLS Co., Ltd., which is a subsidiary of Hanwha Q CELLS Co., Ltd., etc.

(3) The fair value of the significant subsidiaries, associates and joint ventures with marketability as of the end of the current year are as follows.

In thousands of won		2022	
		Carrying amount	**Fair value**
REC Silicon ASA	₩	242,302,249	160,780,686

(4) Impairment test for investments in subsidiaries, associates and joint ventures

1) The cost method is applied to investments in subsidiaries, associates and joint ventures, and the Company is reviewing the existence of signs indicating the impairment of the investments. When there are any signs that may be impaired, the recoverable amount is estimated using the discounted cash flow method, and if the recoverable amount is lower than carrying amount, an impairment loss is immediately recognized as cost by reducing the carrying amount to recoverable amount.

2) The company has determined that there were no signs of impairment related to investments in subsidiaries, associate companies, and joint ventures during the current period. Therefore, the Company did not conduct impairment test.

Hanwha Q CELLS Co., Ltd., which holds a 100% share in the company for the year ended December 31, 2021. It was judged that there were signs of asset damage in relation to subsidiary investment stocks, and the damage assessment was performed in accordance with K-IFRS No. 1036.

The recoverable amount of the cash flows generating unit (group) as of December 31, 2021, are determined based on the estimated value of use based on the five-year financial budget approved by the management. The carrying amount and recoverable amount of the investment in subsidiary are as follows:

15. Investments in Subsidiaries, Associates and Joint Ventures, Continued

(4) Impairment test for investments in subsidiaries, associates and joint ventures, continued

i) Carrying amount and recoverable amount of the Hanwha Q CELLS Co., Ltd as of December 31, 2021, are as follows:

In thousand won		**December 31, 2021**
Carrying amount	₩	1,829,238,117
Recoverable amount		2,160,996,450

ii) Key assumptions applied in calculating recoverable amount(value in use) as of December 31, 2021, are as follows:

	December 31, 2021
Pre-tax discount rate	10.00%
Nominal permanent growth rate	-

16. Investment Property

(1) Investment properties as of December 31, 2022 and 2021, are as follows:

In thousands of won		December 31, 2022			December 31, 2021		
		Acquisition cost	Accumulated depreciation(*)	Book value	Acquisition cost	Accumulated depreciation(*)	Book value
Land	₩	41,581,010	-	41,581,010	53,991,478	-	53,991,478
Buildings		49,744,466	(14,318,645)	35,425,821	50,299,490	(13,403,596)	36,895,894
	₩	91,325,476	(14,318,645)	77,006,831	104,290,968	(13,403,596)	90,887,372

(*) Includes accumulated impairment losses.

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

In thousands of won		2022		
		Land	Buildings	Total
Balance at 1 January 2022	₩	53,991,478	36,895,894	90,887,372
Business combination		37,125	112,347	149,472
Spin-off		-	(324,056)	(324,056)
Disposal		(12,447,593)	-	(12,447,593)
Depreciation		-	(1,258,364)	(1,258,364)
Balance at 31 December 2022	₩	41,581,010	35,425,821	77,006,831

In thousands of won		2021		
		Land	Buildings	Total
Balance at 1 January 2021	₩	37,993,837	34,576,368	72,570,205
Business combination		15,128,339	3,549,781	18,678,120
Disposal		(353,748)	-	(353,748)
Depreciation		-	(1,230,255)	(1,230,255)
Reclassified to non-current assets held for sale		(7,377,750)	-	(7,377,750)
Transfer		8,600,800	-	8,600,800
Balance at 31 December 2021	₩	53,991,478	36,895,894	90,887,372

(3) The rent income from investment property for the years ended December 31, 2022 and 2021, are ₩3,887 million and ₩3,800 million, respectively, and rental fee for the years ended December 31, 2022 and 2021, are ₩109 million and ₩85 million, respectively.

(4) The fair value of investment property of the Company as of December 31, 2022 is ₩161,353 million, and it is determined based on the evaluation of an independent real estate valuation firm with appropriate qualifications and experience in relation to the property assessment in the region.

17. Property, Plant and Equipment

(1) Property, plant and equipment as of December 31, 2022 and 2021, are as follows:

In thousands of won		December 31, 2022				December 31, 2021			
		Acquisition Cost	Accumulated depreciation(*)	Government grants	Book value	Acquisition Cost	Accumulated depreciation(*)	Government grants	Book value
Land	₩	1,565,639,443	-	-	1,565,639,443	1,501,482,357	-	-	1,501,482,357
Buildings		1,044,564,557	(327,588,788)	(68,030)	716,907,739	1,095,364,544	(305,793,667)	(72,112)	789,498,765
Structures		449,379,942	(208,839,964)	-	240,539,978	453,926,867	(190,785,198)	(51,353)	263,090,316
Machineries		4,120,428,093	(2,396,938,051)	(3,347,355)	1,720,142,687	4,419,178,422	(2,642,645,051)	(1,046,918)	1,775,486,453
Tools and equipment		247,983,881	(158,012,131)	(13,438)	89,958,312	277,909,969	(207,794,955)	(42,122)	70,072,892
Vehicles		43,600,335	(41,266,756)	-	2,333,579	43,152,725	(38,702,259)	-	4,450,466
Construction in progress		438,546,305	-	(321,453)	438,224,852	237,237,710	-	(205,137)	237,032,573
Machinery in transit		261,181	-	-	261,181	295,234	-	-	295,234
Others		919,893	(273,683)	-	646,210	18,922	-	-	18,922
	₩	7,911,323,630	(3,132,919,373)	(3,750,276)	4,774,653,981	8,028,566,750	(3,385,721,130)	(1,417,642)	4,641,427,978

(*) Includes accumulated impairment losses.

17. Property, Plant and Equipment, Continued

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

In thousands of won

	2022									
	Land	Buildings	Structures	Machineries	Vehicles	Tools and equipment	Construction In progress	Machinery In transit	Others	Total
Balance at 1 January 2022	₩ 1,501,482,357	789,498,765	263,090,316	1,775,486,453	4,450,466	70,072,892	237,032,573	295,234	18,922	4,641,427,978
Business combination	149,726,809	19,490,211	6,373,809	704,610	280,805	2,211,416	7,940,866	-	647,690	187,376,216
Spin-off	(68,707,519)	(59,388,328)	(17,833,739)	(35,379,975)	(63,274)	(8,340,777)	(19,944,533)	(41,373)	-	(209,699,518)
Acquisition(*2)	16,600,658	13,201,888	66,576	374	58,210	1,361,444	598,956,814	6,957,345	-	637,203,309
Transfers	48,690	12,703,401	8,609,433	244,065,548	580,616	57,956,390	(367,999,893)	(6,950,025)	-	(50,985,840)
Disposal	(207,666)	(1,539,365)	(196,759)	(3,221,199)	(63,923)	(2,443,669)	(3,285,151)	-	-	(10,957,732)
Depreciation	-	(52,774,980)	(19,330,725)	(248,856,761)	(2,909,321)	(30,859,384)	-	-	(20,402)	(354,751,573)
Impairment loss(*1)	-	(333,732)	(238,933)	(12,656,363)	-	-	(14,475,824)	-	-	(27,704,852)
Reclassified to non-current assets held for sale	(33,303,886)	(3,950,121)	-	-	-	-	-	-	-	(37,254,007)
Balance at 31 December 2022	₩ 1,565,639,443	716,907,739	240,539,978	1,720,142,687	2,333,579	89,958,312	438,224,852	261,181	646,210	4,774,653,981

(*1) The Company recognized the unrecoverable amount as impairment losses.
(*2) The replacement amount from retirement benefits and other long-term employee benefits is included (see Note 26).

17. Property, Plant and Equipment, Continued

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

In thousands of won		2021									
		Land	**Buildings**	**Structures**	**Machineries**	**Vehicles**	**Tools and equipment**	**Construction In progress**	**Machinery In transit**	**Others**	**Total**
Balance at 1 January 2021	₩	758,475,018	589,797,521	206,928,372	1,680,832,207	6,331,086	39,102,348	333,012,347	588,862	-	3,615,067,761
Business combination		752,298,184	170,687,211	7,600,425	-	316,624	20,192,867	827,755	-	18,922	951,941,988
Acquisition(*2)		82,519	15,860,922	35,300	-	-	2,507,745	450,756,384	5,057,357	-	474,300,227
Transfers		(7,885,511)	59,656,853	65,837,602	381,935,863	1,336,827	30,608,723	(547,563,913)	(5,350,985)	-	(21,424,541)
Disposal		(1,487,853)	(5,082,279)	(262,400)	(1,914,167)	-	(764,513)	-	-	-	(9,511,212)
Depreciation		-	(41,261,082)	(17,029,190)	(238,393,624)	(3,534,071)	(21,312,147)	-	-	-	(321,530,114)
Impairment loss(*1)		-	(160,381)	(19,793)	(46,973,826)	-	(262,131)	-	-	-	(47,416,131)
Balance at 31 December 2021	₩	1,501,482,357	789,498,765	263,090,316	1,775,486,453	4,450,466	70,072,892	237,032,573	295,234	18,922	4,641,427,978

(*1) The Company recognized the unrecoverable amount as impairment losses.
(*2) The replacement amount from retirement benefits and other long-term employee benefits is included (see Note 26).

(3) Capital borrowing costs are ₩6,842 million and ₩4,931 million for the years ended December 31, 2022 and 2021, respectively, and the weighted-average capitalization rates of interest for the years ended December 31, 2022 and 2021, are 2.45% and 1.89%, respectively.

17. Property, Plant and Equipment, Continued

(4) Line items which include depreciation expenses of property, plant and equipment for the years ended December 31, 2022 and 2021 are as follows:

In thousands of won		2022	2021
Manufacturing cost and others	₩	287,783,900	271,542,652
Selling and administrative expenses(*)		66,967,673	49,987,462
	₩	354,751,573	321,530,114

(*) Includes amounts allocated to ordinary research and development expense.

(5) Property, plant and equipment are provided as collateral ₩1,016,355 million for borrowings as of December 31, 2022 (2021: ₩1,244,958 million) (see Note 39. (2)).

18. Intangible Assets

(1) Intangible assets as of December 31, 2022 and 2021, are as follows:

In thousands of won		December 31, 2022			December 31, 2021		
		Acquisition cost	Accumulated depreciation(*)	Book value	Acquisition cost	Accumulated depreciation(*)	Book value
Goodwill	₩	35,018,051	(35,018,051)	-	35,018,051	(9,542,646)	25,475,405
Industrial property rights		20,171,522	(4,938,716)	15,232,806	6,997,705	(4,085,362)	2,912,343
Development costs		77,943,840	(70,707,006)	7,236,834	71,276,324	(51,341,040)	19,935,284
Membership		13,059,018	(1,204,962)	11,854,056	37,100,001	(1,370,246)	35,729,755
Emission rights		-	-	-	76,763	-	76,763
Other intangible assets		90,644,852	(50,618,271)	40,026,581	59,407,044	(40,262,409)	19,144,635
	₩	236,837,283	(162,487,006)	74,350,277	209,875,888	(106,601,703)	103,274,185

(*) Includes accumulated impairment losses.

18. Intangible Assets, Continued

(2) Changes in intangible assets for the years ended December 31, 2022 and 2021, are as follows:

In thousands of won

		2022						
		Goodwill	Industrial property rights	Development costs	Membership	Emission rights	Other intangible assets	Total
Balance at 1 January 2022	₩	25,475,405	2,912,343	19,935,284	35,729,755	76,763	19,144,635	103,274,185
Business combination		-	1,871	-	(22,055,365)	-	460	(22,053,034)
Spin-off		-	(328,841)	-	(3,384,510)	-	(362,326)	(4,075,677)
Acquisition		-	2,289,260	-	1,083,600	71,989	21,767	3,466,616
Disposal		-	(10,350)	-	(358)	(26,463)	(247,725)	(284,896)
Amortization		-	(1,306,640)	(12,698,450)	(146,577)	-	(11,019,593)	(25,171,260)
Impairment loss(*)		(25,475,405)	-	-	-	-	-	(25,475,405)
Transfer		-	11,675,163	-	627,511	(122,289)	32,489,363	44,669,748
Balance at 31 December 2022	₩	-	15,232,806	7,236,834	11,854,056	-	40,026,581	74,350,277

(*) During the current period, the Company has recognised impairment losses for the cash-generating units of the Hydrogen Tank business unit and FM business unit

In thousands of won

		2021						
		Goodwill	Industrial property rights	Development costs	Membership	Emission rights	Other intangible assets	Total
Balance at 1 January 2021	₩	35,018,051	2,017,686	32,866,685	22,296,145	-	23,983,790	116,182,357
Business combination		-	31,411	-	11,902,970	-	95,495	12,029,876
Acquisition		-	1,025,375	-	3,630,494	224,292	-	4,880,161
Disposal		-	(357)	-	(2,585,416)	(147,529)	-	(2,733,302)
Amortization		-	(409,145)	(12,931,401)	(177,078)	-	(11,497,394)	(25,015,018)
Impairment loss(*)		(9,542,646)	-	-	-	-	-	(9,542,646)
Transfer		-	247,373	-	662,640	-	6,562,744	7,472,757
Balance at 31 December 2021	₩	25,475,405	2,912,343	19,935,284	35,729,755	76,763	19,144,635	103,274,185

(*) The subsequent measurement of the goodwill acquired through business combination has been completed during the current period, resulting in an adjustment to the amount of the goodwill.

18. Intangible Assets, Continued

(3) Emission rights

1) The quantity of free allocation emission rights for the 3rd planned period (2021-2025) is as follows:

In quantity in tCO2-eq	2021	2022	2023	2024	2025	Total
Free Allocation Emission Rights	2,584,299	2,584,299	2,584,299	2,560,095	2,560,095	12,873,087

2) Changes in emission rights and emission liabilities for the years ended December 31, 2022 and 2021, are as follows:

i) Emission rights

In thousands of won, quantity in tCO2-eq	2022			2021		
	Quantity		Amount(*1)	Quantity		Amount(*2)
Balance at 1 January	122,674	₩	4,305,860	198,329	₩	4,441,305
Increase	131,098		1,888,940	571		7,802
Decrease	(27,317)		(3,220,554)	(76,226)		(143,247)
Balance at 31 December	226,455	₩	2,974,246	122,674	₩	4,305,860

(*1) The entire amount has been fully classified as carbon emission rights in current assets.
(*2) The amount includes ₩4,229,097 thousand in emission rights classified as current assets.

ii) Emission liabilities

In thousands of won, quantity in tCO2-eq	2022			2021		
	Quantity		Amount	Quantity		Amount
Balance at 1 January	-	₩	-	-	₩	-
Increase	127,637		442,704	154,677		2,444,139
Decrease	(127,637)		(442,704)	(154,677)		(2,444,139)
Balance at 31 December	-	₩	-	-	₩	-

(4) Capitalisation rate applied for capitalisation of borrowing cost is 2.45% (prior year: 1.89%), and the borrowing cost of ₩175 million was capitalised as intangible asset (prior year: ₩75 million).

18. Intangible Assets, Continued

(5) Valuation of goodwill impairment

1) The Company's goodwill is distributed according to the unit(cash-generating units or groups of cash-generating units), which is the category allocated by the Company's board as of December 31, 2022 and 2021, are as follows:

In thousands of won		December 31, 2022	December 31, 2021
FM Unit in the chemical part	₩	-	8,967,569
Composite Pressure Vessel Unit in the chemical part		-	16,507,836
	₩	-	25,475,405

2) The recoverable amount of the unit is measured by the value in use based on the assumption of five year financial budgets set by the board of directors, and the calculation of such value in use is as below :

In thousands of won	December 31, 2022		December 31, 2021	
	The Chemical Sector	The Chemical Sector	The Chemical Sector	The Chemical Sector
	FM Unit	Composite Pressure Vessel Unit in the chemical part (*4)	FM Unit	Composite Pressure Vessel Unit in the chemical part (*4)
Profit to turnover ratio(*1)	3.30%	-	3.70%	2.10%
Growth of sales ratio(*2)	0.50%	-	3.10%	37.90%
Discount ratio(*3)	11.40%	-	12.50%	14.20%

(*1) The average profit to turnover ratio in order to predict the cash flow in the future.
(*2) The average growth of annual sales in order to predict the cash flow in the future.
(*3) discount ratio reflecting specific risks associated with the CGU and country.
(*4) The domestic business of the Hydrogen Tank business unit for the year ended December 31, 2022 was determined to have no recoverable amount due to the limitations of the acquired technology.

3) As a result of the impairment test on goodwill, it is judged that the carrying amount of the cash-generating units (group) of the Hydrogen Tank business unit and the FM business unit of the Hanwha Chemical exceeded the recoverable amount, and therefore the entire amount has been recognised as impairment loss.

19. Lease

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

In thousands of won		2022					
		Land	**Buildings**	**Structures**	**Vehicles**	**Others**	**Total**
Balance at 1 January 2022	₩	138,659	294,579,281	6,492,855	4,380,636	3,840,000	309,431,431
Business combination		754,258	745	-	-	-	755,003
Spin-off		-	(623,699)	-	(577,806)	-	(1,201,505)
Increase		691,587	24,416,385	1,686,162	4,791,283	258,629	31,844,046
Decrease		(589,349)	(12,943,041)	(505,569)	(714,051)	(59)	(14,752,069)
Depreciation		(348,995)	(38,599,845)	(2,639,798)	(3,342,130)	(2,297,641)	(47,228,409)
Balance at 31 December 2022	₩	646,160	266,829,826	5,033,650	4,537,932	1,800,929	278,848,497

In thousands of won		2021					
		Land	**Buildings**	**Structures**	**Vehicles**	**Others**	**Total**
Balance at 1 January 2021	₩	166,072	96,221,886	8,708,240	2,052,389	1,946,249	109,094,836
Business combination		-	246,077,467	-	2,493,920	-	248,571,387
Increase		133,530	51,208,188	530,323	3,897,727	8,245,172	64,014,940
Decrease		(10,081)	(63,429,260)	(15,188)	(926,216)	(4,060,276)	(68,441,021)
Depreciation		(150,862)	(33,720,420)	(2,730,520)	(3,137,184)	(2,291,145)	(42,030,131)
Impairment loss		-	(1,778,580)	-	-	-	(1,778,580)
Balance at 31 December 2021	₩	138,659	294,579,281	6,492,855	4,380,636	3,840,000	309,431,431

(2) The amounts recognized as profit and loss for the years ended December 31, 2022 and 2021, are as follows:

In thousands of won		**2022**	**2021**
Depreciation of right-of-use asset	₩	47,228,409	42,030,131
Interest expense of lease liabilities		24,685,195	21,065,170
Expenses of short term lease		2,415,017	1,313,796
Expenses of leases of low value asset		2,548,399	2,024,351
Expenses of variable lease payments not included in lease liabilities measures		12,149,438	10,324,224
Revenue of sublease of right-of-use asset		3,368,269	1,914,338

Total amount of cash outflow due to lease is ₩93,731 million and ₩77,847 million for the years ended December 31, 2022 and 2021, respectively.

19. Lease, Continued

(3) The maturity analysis of lease liabilities as of December 31, 2022 and 2021, are as follows:

In thousands of won		**December 31, 2022**	**December 31, 2021**
Less than 1 year	₩	68,121,450	73,740,317
Over 1 year and less than 5 years		215,803,316	229,021,490
Over 5 years		301,871,908	339,489,164
		585,796,674	642,250,971
Less: present value discount		(160,253,934)	(181,351,485)
Present value of lease liabilities	₩	425,542,740	460,899,486

(4) The classification of liquidity of lease liabilities as of December 31, 2022 and 2021, are as follows:

In thousands of won		**December 31, 2022**	**December 31, 2021**
Current liabilities	₩	65,785,284	71,483,660
Non-Current liabilities		359,757,456	389,415,826
	₩	425,542,740	460,899,486

20. Assets Classified as Held for Sale

Assets classified as held for sale as of December 31, 2022 and 2021 are as follows:

In thousands of won		December 31, 2022(*1)	December 31, 2021(*2)
Land	₩	33,303,886	7,337,750
Buildings		3,950,121	-
	₩	37,254,007	7,337,750

(*1) During the current year, the Company has classified land and certain assets in 6 blocks of the Yeosu National Industrial Complex expansion site as non-current assets held for sale based on a decision made by the board of directors to sell the assets to HANWHA CORP.

(*2) In the prior year, as part of the land disposal plan to Anseong Techno Valley, some of the land being held by Hanwha Solutions Insight Division (formerly Hanwha City Development) were classified as non-current assets held for sale according to a board resolution on May 11, 2021. However, due to delays in the planned sale, the land disposal plan to Anseong Techno Valley was cancelled, and the ownership of the land was transferred to Anseong Techno Logistics Co., Ltd. through a contribution in kind during the current year.

21. Trade Payables and Other Payables

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

In thousands of won		December 31, 2022		December 31, 2021	
		Current	Non-current	Current	Non-current
Trade payables	₩	1,354,048,862	-	1,182,506,527	-
Other payables		407,974,860	41,948,258	505,476,879	176,035,671
Less : present value discount		-	(2,593,155)	(97,797)	(2,623,212)
	₩	1,762,023,722	39,355,103	1,687,885,609	173,412,459

22. Borrowings and Debentures

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

In thousands of won		December 31, 2022		December 31, 2021	
		Current	Non-current	Current	Non-current
Borrowings from financial institutions(*)	₩	1,699,229,613	1,117,216,600	975,547,664	1,113,597,620
Debentures		480,000,000	2,010,210,000	560,490,000	1,532,029,000
Less: discount on debentures		(151,488)	(7,677,448)	(734,004)	(5,408,332)
	₩	2,179,078,125	3,119,749,152	1,535,303,660	2,640,218,288

(*) Property, plant and equipment are provided as collateral ₩1,016,355 million for borrowings from financial institutions as of December 31, 2022(see Note 39. (2)).

(2) Borrowings from financial institutions as of December 31, 2022 and 2021, are as follows:

In thousands of won	Financial Institutions	Interest rate (%)		December 31, 2022	December 31, 2021
Borrowings in local currency	KDB and others	2.13 ~ 5.53	₩	1,906,038,221	1,358,588,600
Borrowings in foreign currency	KDB and others	2.57 ~ 6.18		910,407,992	730,556,684
			₩	2,816,446,213	2,089,145,284

22. Borrowings and Debentures, Continued

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

In thousands of won	Maturity date	Interest rate (%)		December 31, 2022	December 31, 2021
254-2th public bonds	2023.11.29	2.50	₩	90,000,000	90,000,000
255th public bonds	2024.01.31	2.31		150,000,000	150,000,000
256th FRN private bonds	-	-		-	237,100,000
257th FRN private bonds	-	-		-	59,275,000
258th FRN private bonds	-	-		-	59,275,000
259th FRN private bonds	-	-		-	59,275,000
260-1th public bonds	-	-		-	110,000,000
260-2th public bonds	2024.10.24	1.98		80,000,000	80,000,000
260-3th public bonds	2026.10.24	2.28		60,000,000	60,000,000
269-1th public bonds	2023.01.20	1.83		140,000,000	140,000,000
269-2th public bonds	2025.01.22	2.04		140,000,000	140,000,000
270th public bonds	2023.04.21	2.38		210,000,000	210,000,000
271th private bonds	2023.06.30	2.63		40,000,000	40,000,000
273th FRN private bonds	-	-		-	35,565,000
274th Green public bonds	2024.04.19	3.00		181,440,000	186,260,000
275-1th public bonds	2024.06.17	1.70		70,000,000	70,000,000
275-2th public bonds	2026.06.17	2.06		30,000,000	30,000,000
276th Green private bonds	2026.10.07	3M EL+1.20		135,120,000	134,234,000
277th FRN private bonds	2024.11.23	3ML+1.04		126,730,000	118,550,000
278th FRN private bonds	2024.12.30	3ML+0.81		88,711,000	82,985,000
279-1th public bonds	2025.01.24	2.77		275,000,000	-
279-2th public bonds	2027.01.22	3.03		105,000,000	-
280th FRN private bonds	2025.03.31	3M Term SOFR+1.50		63,365,000	-
281th FRN private bonds	2025.05.07	3M Term SOFR+1.42		101,384,000	-
282th FRN private bonds	2025.05.13	3M Term SOFR+1.50		63,365,000	-
283th private bonds	2025.10.14	3M Term SOFR+1.13		126,730,000	-
284th private bonds	2025.10.17	3M Term SOFR+1.18		63,365,000	-
285-1th public bonds	2024.10.25	6.04		100,000,000	-
285-2th public bonds	2025.10.27	6.18		50,000,000	-
				2,490,210,000	2,092,519,000
Less: Discount on debentures				(7,828,936)	(6,142,336)
Less: Current portion of debentures				(479,848,512)	(559,755,996)
			₩	2,002,532,552	1,526,620,668

The debentures are to be repaid temporarily after the issue date, and the interest payment condition is a three-month advance or past payment, and six-month post payment. Discounts on debentures are amortized using the effective interest rate method over the repayment

22. Borrowings and Debentures, Continued

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

period of the debentures and added to finance costs. On the other hand, the above bonds are subject to limitations such as keeping the debt ratio below 300% or 400% until the obligation to pay the principal of the debentures is completed according to the agreement, and restrictions on the lien. If the Company fail to fulfill the obligations, the Company will immediately lose the benefit of the due date for the debentures, and must notify the "bondholders" and "bond management companies" that the Company knows of.

(4) Changes in borrowings and debentures for the years ended December 31, 2022 and 2021, are as follows:

In thousands of won		2022	2021
Balance at 1 January	₩	4,175,521,948	3,228,191,278
Business combination		-	318,843,379
Increase in debentures		963,772,696	606,205,147
Repayment of debentures		(560,490,000)	(296,325,000)
Increase in borrowing from financial institutions		3,031,270,616	2,304,478,099
Repayment of borrowing from financial institutions		(2,331,572,716)	(2,057,896,464)
Others(*)		20,324,733	72,025,509
Balance at 31 December	₩	5,298,827,277	4,175,521,948

(*) Includes the effects of changes in foreign exchange rates.

(5) Some of the Company's borrowings and debentures include acceleration clause in the event of reasons such as a drop in credit ratings.

23. Other Financial Liabilities

Other financial liabilities as of December 31, 2022 and 2021, are as follows:

In thousands of won		December 31, 2022		December 31, 2021	
		Current	Non-current	Current	Non-current
Lease liabilities	₩	67,843,676	517,963,602	73,740,317	568,510,654
Less: discount on lease liabilities		(2,058,392)	(158,206,146)	(2,256,657)	(179,094,828)
Accrued expense		189,899,360	49,624,250	144,604,685	24,269,690
Deposits		105,281,976	19,081,700	9,313,765	1,006,848
Less: discount on deposit		(796)	(1,281,516)	(2,175)	(548)
Derivatives liabilities		2,158,637	121,155,337	4,756,906	365,478
Financial guarantee liabilities(*)		71,371,704	-	56,577,986	-
	₩	434,496,165	548,337,227	286,734,827	415,057,294

(*) The Company provides payment guarantees to related parties as of December 31, 2022 (See Note 40). There are no change regarding estimate method or significant assumptions to evaluate financial guarantee liabilities for year ended December 31, 2022.

24. Provisions

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

In thousands of won

		2022					
		Provisions for repairs and renewals	**Product warranties**	**Provision for litigation**	**Construction warranties**	**Others**	**Total**
Balance at 1 January 2022	₩	1,385,873	38,678,828	2,444,000	393,681	6,527,861	49,430,243
Spin-off		-	-	-	-	(207,805)	(207,805)
Recognition of provision		730,873	13,358,104	6,022	-	1,546,328	15,641,327
Reversal		(244,217)	-	(2,450,022)	-	(4,722)	(2,698,961)
Used		(43,000)	(5,669,881)	-	-	-	(5,712,881)
Transfer		-	366	-	569,000	(6,527,860)	(5,958,494)
Balance at 31 December 2022	₩	1,829,529	46,367,417	-	962,681	1,333,802	50,493,429

In thousands of won

		2021					
		Provisions for repairs and renewals	**Product warranties**	**Provision for litigation**	**Construction warranties**	**Others**	**Total**
Balance at 1 January 2021	₩	1,193,591	31,234,783	2,444,000	-	11,381,094	46,253,468
Business combination		-	-	-	-	6,527,861	6,527,861
Recognition of provision		648,966	8,460,617	-	393,681	-	9,503,264
Reversal		(453,934)	-	-	-	(1,250,902)	(1,704,836)
Used		(2,750)	(1,016,572)	-	-	(9,500,000)	(10,519,322)
Transfer		-	-	-	-	(630,192)	(630,192)
Balance at 31 December 2021	₩	1,385,873	38,678,828	2,444,000	393,681	6,527,861	49,430,243

25. Other Liabilities

Other liabilities as of December 31, 2022 and 2021, are as follows:

In thousands of won		December 31, 2022		December 31, 2021	
		Current	**Non-current**	**Current**	**Non-current**
Withholdings	₩	11,271,045	-	8,763,138	-
Value-added tax withheld		4,547,275	-	2,366,992	-
Advances from customers		1,662,518	13,681	1,938,711	193,744
Unearned Revenues		790	-	24,553	542
Refund liabilities		1,181,630	22,998,584	1,208,154	21,669,677
	₩	18,663,258	23,012,265	14,301,548	21,863,963

26. Net Defined Benefit Liabilities

(1) Net defined benefit liabilities as of December 31, 2022 and 2021, are as follows:

In thousands of won		December 31, 2022	December 31, 2021
Present value of defined benefit obligation	₩	484,435,466	562,408,197
Fair value of plan assets		(165,395,399)	(135,112,288)
Net defined benefit liabilities	₩	319,040,067	427,295,909

(2) Changes in the present value of defined benefit obligation for the years ended December 31, 2022 and 2021, are as follows:

In thousands of won		2022	2021
Balance at 1 January	₩	562,408,197	479,412,843
Business combination		1,854,710	59,198,861
Spin-off		(53,905,992)	-
Current service cost		69,997,371	69,097,794
Interest expense		19,886,051	16,094,094
Remeasurements		(64,638,880)	(25,795,974)
Benefits paid		(48,175,603)	(33,032,005)
Transfer from/to affiliates		(2,990,388)	(2,567,416)
Balance at 31 December	₩	484,435,466	562,408,197

(3) Remeasurement of defined benefit obligation as of December 31, 2022 and 2021, are as follows:

In thousands of won		2022	2021
Actuarial (gains) losses due to empirical adjustments	₩	30,012,834	12,488,046
Actuarial (gains) losses due to demographic assumptions		15,221,652	(1,713,922)
Actuarial (gains) losses due to changes in financial assumptions		(109,973,939)	(29,903,881)
Actuarial (gains) losses due to changes in retirement age		100,573	(6,666,217)
	₩	(64,638,880)	(25,795,974)

26. Net Defined Benefit Liabilities, Continued

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

In thousands of won		2022	2021
Balance at 1 January	₩	135,112,288	119,791,165
Business combination		-	1,341,104
Spin-off		(2,110,233)	-
Interest income		4,767,635	3,534,477
Remeasurements			
Return on plan assets(excluding amounts included in interest income)		(2,017,193)	(1,679,468)
Contributions by the employer		40,789,036	21,058,070
Benefits paid		(10,536,212)	(8,635,883)
Transfer from/to affiliates		(45,685)	(93,570)
Administration fees		(564,237)	(203,607)
Net defined benefit liabilities	₩	165,395,399	135,112,288

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

In thousands of won		2022	2021
Principal guaranteed financial instruments	₩	164,856,242	134,450,570
Transferred to national pension fund		539,157	661,718
	₩	165,395,399	135,112,288

(6) Expenses recognized in the condensed separate statements of comprehensive income for the years ended December 31, 2022 and 2021, are as follows:

In thousands of won		2022	2021
Current service cost	₩	69,997,371	69,097,794
Net interest cost		15,118,415	12,559,617
Administration fees		564,237	203,607
Total(*)	₩	85,680,023	81,861,018

(*) Retirement benefits of ₩685 million and ₩952 million were transferred to construction in progress under property, plant and equipment for the years ended December 31, 2022 and 2021, respectively.

(7) Key actuarial assumptions as of December 31, 2022 and 2021, are as follows:

	December 31, 2022	December 31, 2021
Discount rate	6.22%	3.73%
Expected salary growth rate	4.05%	4.12%

26. Net Defined Benefit Liabilities, Continued

(8) Sensitivity analysis of defined benefit obligation due to changes in key actuarial assumptions as of December 31, 2022 is as follows:

In thousands of won	**Change in assumption**		**Increase in assumption**	**Decrease in assumption**
Discount rate	1.00%	₩	(30,397,418)	34,906,633
Expected salary growth rate	1.00%		36,082,047	(31,859,461)

(9) The maturity of pension benefit payments not discounted as of December 31, 2022 is as follows:

In thousands of won		**Within 1 year**	**1 to 2 years**	**2 to 5 years**	**More than 5 years**
Benefits payments	₩	17,854,078	111,919,041	185,436,170	1,760,020,947

The weighted-average maturity of defined benefit obligation is 7.51 years.

27. Capital Stock and Surplus

(1) Capital stock as of December 31, 2022 and 2021, are as follows:

In thousands of won, except for share data		December 31, 2022		December 31, 2021	
		Common shares	Preferred shares(*)	Common shares	Preferred shares(*)
Number of authorized shares		200,000,000	100,000,000	200,000,000	100,000,000
Par value per share	₩	5,000	5,000	5,000	5,000
Number of issued shares		191,278,497	1,123,737	191,278,497	1,123,737
Capital	₩	972,621,970	5,618,685	972,621,970	5,618,685

(*) Non-cumulative preferred shares are eligible to receive cash dividends equal to cash dividends for common shares plus an additional 1%.

As the Company has retired 3,245,897 shares until December 31, 2022, there is a difference of ₩16,229 million between the common shares capital and the total face value of issued shares.

(2) Changes in the number of outstanding shares for the years ended December 31, 2022 and 2021, are as follows:

In shares	December 31, 2022		December 31, 2021	
	Common shares	Preferred shares	Common shares	Preferred shares
Balance at 1 January	190,580,380	1,123,737	159,464,937	1,123,737
Acquisition of treasury stock	(1,962,800)	(10,500)	(300,000)	-
Disposal of treasury stock	8,927	-	1,443	-
Paid-in capital increase	-	-	31,414,000	-
Balance at 31 December	188,626,507	1,113,237	190,580,380	1,123,737

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

In thousands of won		December 31, 2022	December 31, 2021
Paid-in capital in excess of par value	₩	1,668,350,654	1,668,350,654
Gain from merger		75,670,859	75,670,859
Revaluation reserve		218,556,235	218,556,235
Other capital surplus		(25,644,662)	(47,613,408)
	₩	1,936,933,086	1,914,964,340

28. Capital Adjustments

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

In thousands of won		December 31, 2022	December 31, 2021
Losses on Sale of Treasury Stock	₩	(90,429)	-
Treasury Stock		(111,763,552)	(21,154,754)
Other Capital Adjustments		(48,719,769)	(9,395,173)
	₩	(160,573,750)	(30,549,927)

29. Accumulated Other Comprehensive Income

Accumulated other comprehensive income consists of gain(loss) on valuation of FVTOCI–financial assets(equity instrument), gain(loss) on valuation of cash flow hedges derivatives and revaluation surpluses, etc. as of December 31, 2022 and 2021.

Changes in accumulated other comprehensive income for the years ended December 31, 2022 and 2021 are as follows:

In thousands of won		2022	2021
Balance at 1 January (before tax)	₩	(2,520,844)	(2,638,759)
Business combination		-	(1,054,337)
Valuation		372,139	1,173,646
Reclassification		-	(1,394)
Balance at 31 December (before tax)		(2,148,705)	(2,520,844)
Income tax effect		569,407	694,746
Balance at 31 December (after tax)	₩	(1,579,298)	(1,826,098)

30. Retained Earnings

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

In thousands of won		December 31, 2022	December 31, 2021
Legal reserves(*1)	₩	68,399,058	107,999,058
Voluntary reserves(*2)		4,124,032,516	3,742,431,385
Retained earnings from equity method investees		141,619,699	145,358,676
Revaluation surplus		643,966,811	643,966,811
Unappropriated retained earnings		1,105,391,747	342,049,557
	₩	6,083,409,831	4,981,805,487

(*1) The Commercial Law of the Republic of Korea requires the Company to appropriate for each financial period an amount equal to a minimum of 10% of cash dividends paid until such reserve equals 50% of its issued capital stock. The reserve is not available for cash dividends payment, but may be transferred to capital stock or used to reduce accumulated deficit. When the accumulated legal reserves (the sum of capital reserves and earned profit reserves) are greater than 1.5 times the paid-in capital amount, the excess legal reserves may be distributed.

(*2) The Company appropriates a certain portion of its retained earnings as reserves for research and development which are provided in order to obtain tax benefits under Tax Reduction and Exemption Control Act of Korea. Among these reserves, the reversed amount according to the terms of related tax laws may be distributed.

(2) Statement of appropriation of retained earnings for the years ended December 31, 2022 and 2021, are as follows:

In thousands of won		December 31, 2022		December 31, 2021	
Retained earnings before appropriations:	₩		1,105,391,747		342,049,557
Net income		1,059,364,807		547,461,607	
Remeasurement of net defined benefit liabilities		46,026,940		17,696,310	
Business combination		-		(223,108,360)	
Transfer from voluntary reserve:			-		39,600,000
Legal reserves(effect of Business combination)		-		39,600,000	
			1,105,391,747		381,649,557
Appropriations of retained earnings:			1,105,391,747		381,649,557
Voluntary reserves		1,105,391,747		381,649,557	
Dividends		-		-	
Unappropriated retained earnings to be carried forward to subsequent year	₩		-		-

31 Dividends

(1) No dividends on common shares and preferred shares for the year ended December 31, 2021.

(2) No dividends on common shares and preferred shares for the year ended December 31, 2022 are to be proposed at the regular general shareholders' meeting scheduled for March 23, 2023.

32. Revenue

(1) The Company makes profits as below by transferring goods according to the types of goods and sales regions at one point or over time.

In thousands of won			2022	2021
Revenue recognized at a point in time				
Finished goods revenue	Domestic	₩	2,596,082,301	2,542,194,584
	Export		4,964,009,644	3,501,299,633
Merchandise revenue	Domestic		504,190,220	416,582,701
	Export		1,155,982,152	631,845,671
Other revenue			200,303,719	149,409,748
Subtotal			9,420,568,036	7,241,332,337
Revenue recognized over time				
Construction contract revenue			205,579,565	118,243,401
Other revenue			60,251,864	36,109,116
Subtotal			265,831,429	154,352,517
Total		₩	9,686,399,465	7,395,684,854

(2) Receivables, contract assets and contract liabilities arising from contracts with customers for the year ended December 31, 2022 and 2021, are as follows:

In thousands of won		December 31, 2022	December 31, 2021
Trade Receivables and Other Receivables	₩	2,423,708,248	1,552,434,440
Contract assets			
Due from customers for contract work		34,651,129	3,183,137
Total Contract assets	₩	34,651,129	3,183,137
Contract liabilities			
Due to customers for contract work		11,823,376	9,472,624
Advances for construction work		782,000	4,662,900
Advances for others		74,359,333	76,506,078
Unearned Revenues		1,443,256	-
Customer options for additional goods or services		29,767,241	26,134,246
Total Contract liabilities	₩	118,175,206	116,775,848

32. Revenue, Continued

(3) Performance obligations and revenue recognition policies

Revenue is measured based on the consideration specified in a contract with a customer. The Company recognizes revenue when it transfers control over a good or service to a customer.

The following table provides information about the nature and timing of the satisfaction of performance obligations in contracts with customers, including significant payment terms, and the related revenue recognition policies.

Type of product / service	Nature and timing of fulfillment of performance obligations, including significant payment terms	Revenue recognition policies
Product and commodity sales	Controls are transferred at the time of delivery to the customer. At this point, the bill is issued and the revenue is recognized.	The company recognizes the revenue from the sale of the goods at the time when the control is transferred to the customer and the performance obligation is fulfilled. Sales-related advance payments received prior to delivery of goods are included in the contract liabilities.
Obligation to perform transport / insurance services included in export	The company provides transportation / insurance services to customers under some INCOTERMS when exporting. In these transactions, the consideration for the sale of goods includes the consideration for transportation / insurance services. This performance obligation is fulfilled upon delivery to the customer after the shipment.	The company provides transportation / insurance services as an agent to the customer and deducts transportation / insurance related expenses from the product and merchandise sales, assuming that there is no profit derived from transportation / insurance services.
Construction sales	According to the contract with the customer, the company performs the construction of the solar power plant on the customer's land and recognizes the profit by applying the percentage of completion. Bills are issued over period of time contracted, and consideration for milestone and related bills are issued to the customers once reached to certain percentage of completion or milestone. Dues from customers for construction work are recognized as contract asset and classified as receivables at the time of claiming dues from the customers. If amounts to be claimed based on the percentage of completion have exceeded the revenue recognized in accordance with cost-based input method, the difference shall be recognized as contract liability(Due to customers for contract work).	Revenue is recognized based on progression percentage according to cost input method over period of transferring performance obligation.
Direct sales / Specific sales / Rental sales	The company sells various products. The revenue from the sale of the product is recognized by the transfer of control at the time the customer takes over the product.	Revenue associated with the sale of the goods is recognized at the time of delivery of the goods, when control of the assets is transferred to the customer. On the other hand, the company recognizes revenue from sales of products at certain stores acting as agents on behalf of the company, minus specific purchase costs from sales considerations at the time of delivery of the delivery of the products to the customer.

32. Revenue, Continued

(3) Performance obligations and revenue recognition policies, continued

Type of product / service	Nature and timing of satisfaction of performance obligations, including significant payment terms	Revenue recognition policies
Loyalty program	Under the Customer Loyalty Program, the company allocates a portion of its sales to provide points that can be used to purchase future products.	The company operates customer loyalty systems such as customer compensation points (hereinafter referred to as "points") and VIP systems in relation to the customer choice to acquire additional goods or services, which allow customers to accumulate points, discount, and provide additional services. Customer loyalty schemes provide customers with important rights and are therefore separate performance obligations. The company allocates a portion of the consideration received to the customer loyalty system. This allocation is measured according to the relative stand-alone selling price. The amount allocated to the loyalty system is deferred and recognized as revenue when points are used or expired. Deferred revenue is included in the contractual liabilities. When estimating the fair value of a customer option, the company considers the likelihood that the customer will use the benefit.
Marketing and Land Development Services	The company provides customers with pre-sale services for industrial complex construction and business agency services related to land construction. The consideration of the business agency service is determined at the time of the initial contract, and various tasks related to the construction of the industrial complex are performed during the contract period.	Revenue is recognized over the period in which the service is provided.

33. Selling and Administrative Expenses

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

In thousands of won

		2022	2021
Salaries Expenses	₩	238,837,983	178,674,298
Retirement benefits		33,447,239	32,702,718
Other long-term employee benefits		3,268,535	(137,329)
Golden handshake		402,381	48,128
Welfare expenses		32,414,409	24,392,754
Bad debt expenses		14,687,186	8,183,205
Travel expenses		12,789,121	5,260,342
Advertising expenses		36,654,497	28,151,107
Outsourcing expenses		86,237,794	60,011,004
Commissions		115,277,214	81,163,627
Research expenses		141,763,319	104,175,289
Ordinary development expenses		56,069,483	35,601,263
Training expenses		7,177,093	4,363,328
Market development expenses		2,756,489	2,499,934
Rental expenses		9,625,851	7,090,313
Lease expenses		8,686,285	7,573,928
Freight and warehousing expenses		106,872,934	91,004,079
Export selling expenses		45,453,033	38,159,021
Sales commissions		14,961,169	12,609,911
Depreciation		57,654,949	42,071,879
Depreciation - right-of-use asset		42,414,997	37,449,185
Amortization		8,274,575	5,777,465
Taxes and dues		21,209,420	30,654,696
Warranty expenses		13,366,350	9,171,611
Others		43,344,876	36,739,355
	₩	1,153,647,182	883,391,111

34. Other Non-Operating Income and Expenses

(1) Other non-operating income for the years ended December 31, 2022 and 2021, are as follows:

In thousands of won

		2022	2021
Gain on foreign currency transactions	₩	257,666,959	70,758,589
Gain on foreign currency translations		89,032,786	18,190,968
Gain on valuation of derivatives		140,515,434	83,917,279
Gain on transactions of derivatives		65,674,271	19,024,719
Gain on valuation of FVTPL – financial assets		1,544,991	2,290,740
Gain on disposal of investment in associates		771,506,126	53,468
Gain on disposal of property, plant and equipment		6,452,113	15,798,667
Gain on disposal of investment property		8,569,366	3,987
Gain on disposal of intangible assets		252	-
Reversal of Allowance for Doubtful Accounts		3,763	-
Reversal of Other Bad Debt Expenses		591	-
Gain on commissions (non-operating)		-	16,015
Reversal of other allowance for bad debts		2,450,022	-
Reversal of financial guarantee liabilities		16,905,824	12,744,101
Miscellaneous		7,800,007	10,454,618
	₩	1,368,122,505	233,253,151

(2) Other non-operating expenses for the years ended December 31, 2022 and 2021, are as follows:

In thousands of won

		2022	2021
Loss on foreign currency transactions	₩	217,843,792	67,484,995
Loss on foreign currency translations		186,801,489	82,440,542
Loss on valuation of derivatives		123,425,603	3,539,195
Loss on transactions of derivatives		19,955,164	41,374,032
Loss on valuation of FVTPL—financial asset		736,757	15,225
Loss on transactions of FVTPL—financial asset		153,049	123,756
Loss on inventory abandoned		480,370	1,052,006
Loss on disposal of trade receivables		2,870,106	558,112
Loss on disposal of property, plant and equipment		5,252,829	4,510,216
Loss on disposal of intangible assets		799,441	85,745
Impairment loss on property, plant and equipment		27,704,853	47,416,132
Impairment loss on intangible assets		25,475,405	9,542,646
Impairment loss on right-of-use assets		-	1,778,581
Loss on disposal of investment in associates		-	627
Impairment loss on investment in associates		-	1,526,573
Other bad debt expenses		362,576	1,014,830
Commissions (non-operating)		7,174,434	4,645,141
Donations		6,342,977	3,975,601
Miscellaneous		27,646,150	5,311,900
	₩	653,024,995	276,395,855

35. Financial Income and Expenses

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

In thousands of won		2022	2021
Interest income	₩	15,533,156	10,336,965
Dividends income		41,562,418	237,426,732
	₩	57,095,574	247,763,697

(2) Financial expenses for the years ended December 31, 2022 and 2021, are as follows:

In thousands of won		2022	2021
Interest expense	₩	163,219,642	88,372,863

36. Expenses by Nature

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

In thousands of won		2022	2021
Changes in finished goods, semi finished goods, work in process	₩	(89,193,533)	(180,365,689)
Sales merchandise		1,258,007,024	942,326,704
Use of raw materials and supplies		4,990,162,709	4,042,175,289
Employee benefits(*1)		820,699,771	674,044,825
Welfare expenses		110,494,249	89,309,291
Rental expenses		17,816,138	10,203,053
Lease expenses		17,112,854	13,662,371
Depreciation(*2)		403,238,346	364,790,501
Amortization		25,171,259	25,015,018
Freight and warehousing expenses		118,764,443	99,983,830
Utility expenses		102,403,730	71,917,964
Outsourcing expenses		483,281,531	385,732,974
Export selling expenses		45,463,989	38,210,363
Taxes and dues		38,124,689	44,155,556
Others		424,488,888	216,414,320
Total(*3)	₩	8,766,036,087	6,837,576,370

(*1) Includes salaries and wages, and retirement benefits.
(*2) Includes depreciation of investment property and right-of-use assets.
(*3) The total amount is the sum of cost of sales and selling and administrative expenses in the separate financial statements of comprehensive income.

37. Income Tax Expense

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

In thousands of won		2022	2021
Current income tax:			
Current income taxes(*)	₩	420,090,924	183,007,575
Adjustments for prior years		1,235,576	(2,825,789)
		421,326,500	180,181,786
Deferred income tax:			
Changes of temporary differences		63,850,908	(75,505,312)
Income tax charged directly to equity		(15,205,395)	22,218,533
Income tax expense	₩	469,972,013	126,895,007

(*) The Company adjusts income tax expense due to Corporate Income Refund Tax to current income tax.

(2) The differences between the amount calculated theoretically using the corporate tax expense and the corporate tax rate for the net profit before the corporate tax expense deduction are as follows:

In thousands of won		2022	2021
Profit(loss) before income tax	₩	1,529,336,820	674,356,614
Statutory tax rate		27.5%	27.5%
Income tax based on statutory tax rate		420,567,625	185,448,069
Adjustments:			
Effects due to application of tax in different phases		(10,362,000)	(10,362,000)
Permanent differences		8,367,093	(17,040,845)
Adjustments for prior years		1,235,576	(2,825,789)
Tax credit		(9,247,149)	(25,162,959)
Effects of unrecognized deferred tax		58,484,538	(5,670,435)
Others		926,330	2,508,966
		49,404,388	(58,553,062)
	₩	469,972,013	126,895,007
Effective tax rate		30.7%	18.8%

37. Income Tax Expense, Continued

(3) Income tax credited(charged) directly to equity for the years ended December 31, 2022 and 2021, are as follows:

In thousands of won		2022	2021
Remeasurement of net defined benefit liabilities	₩	(16,594,747)	(6,420,196)
Gain (Loss) on valuation of equity investments at FVTOCI		(125,463)	(31,248)
Equity method capital surplus		5,253,792	28,669,977
Other capital surplus for equity method of accounting		(3,738,977)	-
	₩	(15,205,395)	22,218,533

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

In thousands of won		2022					
		Balance at January 1, 2022	Spin-off	Profit or loss	Other comprehensive income	Equity	Balance at December 31, 2022
Allowance for doubtful accounts	₩	8,232,815	(97,592)	332,163	-	-	8,467,386
Loss on valuation of inventories		14,015,888	(155,914)	(5,890,579)	-	-	7,969,395
Gain (loss) on valuation of derivatives		2,539,325	-	(7,367,843)	-	-	(4,828,518)
FVTOCI - financial assets		1,029,188	-	(11,715)	(125,463)	-	892,010
Investments in associates and joint ventures		(55,536,952)	-	(3,745,277)	-	1,514,815	(57,767,414)
Bonuses		31,773,216	-	2,582,619	-	-	34,355,835
Defined benefit obligation		154,480,282	(14,267,766)	5,149,698	(17,129,303)	-	128,232,911
Plan assets		(36,973,907)	542,489	(7,790,431)	534,556	-	(43,687,293)
Revaluation reserve		(26,887,403)	-	977,724	-	-	(25,909,679)
Revaluation surplus		(213,815,422)	-	7,651,552	-	-	(206,163,870)
Impairment loss on property, plant and equipment (Polysilicon)		17,982,010	-	(10,903,510)	-	-	7,078,500
Right-of-use asset/Lease liabilities		47,142,627	(3,938)	(8,264,715)	-	-	38,873,974
Others		64,934,162	(361,766)	(21, 365,199)	-	-	43,207,197
Balance at December 31, 2022	₩	8,915,829	(14,344,487)	(48,645,513)	(16,720,210)	1,514,815	(69,279,566)

37. Income Tax Expense, Continued

(4) Changes in deferred income tax for the years ended December 31, 2022 and 2021, are as follows, continued:

In thousands of won		2021					
		Balance at January 1, 2021	Business combination	Profit or loss	Other comprehensive income	Equity	Balance at December 31, 2021
Allowance for doubtful accounts	₩	6,170,868	1,200,018	861,929	-	-	8,232,815
Loss on valuation of inventories		2,205,730	847,052	10,963,106	-	-	14,015,888
Gain (loss) on valuation of derivatives		109,968	281,697	2,147,660	-	-	2,539,325
FVTOCI - financial assets		1,060,436	-	-	(31,248)	-	1,029,188
Investments in associates and joint ventures		(79,045,699)	(11,569,618)	6,408,388	-	28,669,977	(55,536,952)
Bonuses		12,969,516	-	18,803,700	-	-	31,773,216
Defined benefit obligation		131,644,579	14,827,496	14,890,257	(6,882,050)	-	154,480,282
Plan assets		(32,748,617)	(365,222)	(4,321,922)	461,854	-	(36,973,907)
Revaluation reserve		(27,504,811)	-	617,408	-	-	(26,887,403)
Revaluation surplus		(80,698,697)	(134,927,265)	1,810,540	-	-	(213,815,422)
Impairment loss on property, plant and equipment (Polysilicon)		51,727,961	-	(33,745,951)	-	-	17,982,010
Right-of-use asset/Lease liabilities		(189,460)	45,869,548	1,462,539	-	-	47,142,627
Others		23,005,849	8,539,187	33,389,126	-	-	64,934,162
Balance at December 31, 2021	₩	8,707,623	(75,297,107)	53,286,780	(6,451,444)	28,669,977	8,915,829

(5) Deductible(taxable) temporary differences not recognized as deferred income tax as of December 31, 2022 and 2021 are as follows:

In thousands of won		Balance at December 31, 2022	Balance at December 31, 2021
Investments in associates and joint ventures(*)	₩	437,174,405	159,175,229

(*) Temporary differences on investments in associates and joint ventures which are not likely to be reversed.

38. Earnings Per Share

(1) Basic earnings per common shares from continuing operations for the years ended December 31, 2022 and 2021, are as follows:

In thousands of won, except for share data and eps		2022	2021
Profit from continuing operations	₩	1,059,364,807	547,461,607
Profit from continuing operations available to common shares		1,053,110,882	544,106,110
Weighted average number of common shares (In shares)		190,565,942	185,321,202
Basic earnings per common shares from continuing operations (In won)	₩	5,526	2,936

(2) Basic earnings per preferred shares from continuing operations for the years ended December 31, 2022 and 2021, are as follows:

In thousands of won, except for share data and eps		2022(*)	2021(*)
Profit from continuing operations	₩	1,059,364,807	547,461,607
Profit from continuing operations to preferred shares		6,253,925	3,355,497
Weighted average number of preferred shares (In shares)		1,121,608	1,123,737
Basic earnings per preferred shares from continuing operations (In won)	₩	5,576	2,986

(*) Preferred shares were issued under former commercial law prior to amendments in 1997. These preferred shares hold the same priority as common shares in terms of dividends pay out and distribution of residual properties. Thus, earning per share was calculated accordingly.

(3) Potential ordinary shares as of December 31, 2022 and 2021, are as follows:

In shares	Balance at 31 December 2022	Balance at 31 December 2021
Restricted Stock Unit(RSU)(*)	1,050,529	561,820

(*) Basic and diluted earnings per for the years ended December 31, 2022 and 2021, are identical due to the antidilutive effect of RSU shares.

39. Commitments and Contingencies

(1) As of the end of current year, the details of the borrowing limits agreed with financial institutions are as follows:

In thousands of won, In USD, EUR	Currency	Limit
Overdraft	KRW	6,000,000
Usance	USD	386,500,000
	EUR	50,000,000
D/A, D/P, Local and foreign trade	USD	65,000,000
Others	KRW	2,361,000,000
	USD	792,650,000
	EUR	268,000,000
Total	KRW	2,367,000,000
	USD	1,244,150,000
	EUR	318,000,000

(2) Details of assets provided as a collateral for borrowing as of December 31, 2022 are as follows:

In thousands of won		Guaranteed amount	Collateral right holder
Property, plant and equipment	₩	1,016,355,075	KDB
Investments in subsidiaries		73,548,000	INDUSTRIAL BANK OF KOREA, KFCC

(3) Details of Guarantees provided by others as of December 31, 2022 are as follows:

In thousands of won, In USD, EUR, CNY

Guarantee details	Guaranteed by	Currency	Limit	Execution Amount
Contract performance guarantee	KEB Hana Bank	USD	5,000,000	4,512,600
	Standard Chartered Bank Korea Ltd	KRW	55,246,500	48,675,000
FRN Payment guarantee	KEB Hana Bank	USD	120,000,000	120,000,000
	Shinhan Bank	USD	100,000,000	100,000,000
		EUR	100,000,000	100,000,000
Foreign currency payment guarantee	CGIF	CNY	1,000,000,000	1,000,000,000
	KEB Hana Bank	KRW	29,500,000	29,500,000
Total		USD	225,000,000	224,512,600
		EUR	100,000,000	100,000,000
		CNY	1,000,000,000	1,000,000,000
		KRW	84,746,500	78,175,000

As of the end of the current year, the Company has received guarantees totaling ₩76,244 million from institutions such as Seoul Guarantee Insurance Co., Ltd. for construction performance guarantees and repair guarantees for solar power plants.

39. Commitments and Contingencies, Continued

(4) Guarantees provided to others

As of the end of the current year, the Company is obligated to provide construction performance guarantees and repair guarantees for solar power plants to companies such as TACE Inc. The Company specifies responsibility for compensation if it fails to complete the construction and fails to meet the guaranteed power supply for five project operators, including TACE Inc.

As of December 31, 2022, the Company provides payment guarantees totaling ₩26,201 million for loans taken out by employees from financial institutions.

As of the end of the current year, the Company is providing payment guarantee for the Win-win loan as follows:

In thousands of won

Company being provided	Payment guarantee details	Currency	Credit limit amount	Executed amount	Payment guarantee provider
Vendor/ supplier	win-win loan	KRW	₩9,000,000	-	Woori Bank

As of December 31, 2022, the Company provides payment guarantees and supplementary funding arrangements for related parties (see Note 40).

(5) Legal proceedings in process

The Company is a plaintiff in seven pending litigations involving an aggregate litigation amount of ₩2,780 million and is a defendant in eight pending litigations involving an aggregate amount of ₩3,798 million for the year ended December 31, 2022. The company expects that the results of the lawsuit will not have a significant impact on the financial statements, and the results of the above pending lawsuit as of December 31, 2022 cannot be predicted.

(6) Contractual terms of the stock sale and purchase agreement

On July 30, 2021, the Company has acquired shares in Hanwha Impact Corporation from Samsung C&T Corporation and Samsung SDI Co., Ltd. Of the consideration paid for share acquisition and interest of about ₩479,319 million, ₩335,523 million was paid in instalment (first and second payment), and third payments of ₩143,796 million will be paid by July 2023. It has pledged some of the shares acquired to secure the third payments.

On April 8, 2022, the Company sold its shares in (49%) in HCCHOLDINGS CORPORATION, a subsidiary, to Hegel Limited (hereinafter referred to as the "investor"). The shareholder agreement between the controlling company, the largest shareholder, and the investor singed at the time of the sale of HCCHOLDINGS CORPORATION includes the following terms and conditions.

- Tag-along Right
- Right of First Offer
- Co-sale Right
- Call option for the largest shareholder based on certain conditions
- Penalty put option for the investor based on certain conditions

39. Commitments and Contingencies, Continued

(6) Contractual terms of the stock sale and purchase agreement, continued

	Exercise conditions	Exercise details
- Tag-along Right	When selling the shares held by the controlling shareholder to a third party	The right to participate in a tag-along sale at the same price and conditions as the controlling shareholder's sale of shares
- Co-sale Right	In the event of a failed IPO within a predetermined period or when all shares cannot be sold to a third party	Able to sell all of shares held and shares held by the largest shareholder together, and prioritises expected rate of return of the investment to the investors
- Put Option	Intentional non-compliance with specific contractual obligations agreed upon with investors	The ability to exercise a put option to purchase some or all of the shares held at a price that includes a 10% IRR premium on the invested capital

The Company sold its holdings (39.7%) in Hanwha Advanced Materials Co., Ltd. and HAM Holdings Co., Ltd., both of which are subsidiaries, to Mandarin Holdings Co., Ltd. and BCC Mandarin Investments, L.P. (hereinafter referred to as the "Investor") on December 29, 2022. The share purchase agreement includes granting the Investor new share acquisition rights, resulting in the Investor's final investment shares of 47.24%. The shareholder agreement between the controlling company, which is the majority shareholder at the time of the sale of the shares of Hanwha Advanced Materials Co., Ltd. and HAM Holdings Co., Ltd., and the Investor includes the following key terms:

- Tag-along Right
- Right of First Offer
- Co-sale Right
- Call option for the largest shareholder based on certain conditions
- Penalty put option for the investor based on certain conditions

	Exercise conditions	Exercise details
- Tag-along Right	When selling the shares held by the controlling shareholder to a third party	The right to participate in a tag-along sale at the same price and conditions as the controlling shareholder's sale of shares
- Co-sale Right	In the event of a failed IPO within a predetermined period or when all shares cannot be sold to a third party	Able to sell all of shares held and shares held by the largest shareholder together, and prioritises expected rate of return of the investment to the investors
- Put Option	Intentional non-compliance with specific contractual obligations agreed upon with investors	The ability to exercise a put option to purchase some or all of the shares held at a price that includes a 10% IRR premium on the invested capital

(7) Contingent consideration

On August 19, 2021, the company acquired a 100% stake in WOS Inc. from Wave Electronics Co.,Ltd. and gained control. An additional ₩40 billion contingent consideration (Earn-out) clause is included in relation to the relocation consideration, and up to ₩40 billion will be paid in installments from 2024 to 2026, when achieving orders, sales and productivity targets.

39. Commitments and Contingencies, Continued

(8) Mid/Long-term discount promissory note agreement

The Company has issued commercial papers with a maturity of three months through financial institutions and has entered into a mid/long-term discount promissory note agreement that will be rolled over for three years. However, if the credit rating is downgraded, the roll-over may be suspended and the promissory notes may be repaid temporarily. As the year ended December 31, 2022, the company has issued commercial paper amounting to ₩270 billion, which are recognised as short-term borrowings.

(9) The Company has sold land and buildings to a structured company and is currently leasing and using them.

In 2021, the Company sold the land and building of the Galleria Department Store in Gwanggyo to KORAMCO VALUE-INVEST REAL ESTATE NO.3-2 JA-REIT at a price of ₩653.4 billion and are currently being leased to be used. The Company has the right to purchase the land and building of the Store at a fair value when the lease term expires. In addition, the Company has acquired ₩20 billion worth of shares in KORAMCO VALUE-INVEST REAL ESTATE NO.3-2 JA-REIT, and in the event of a loss arising from the sale taken place by the real estate to the third party, the company has an obligation to compensate up to ₩20 billion, which is the investment amount.

40. Related Parties

(1) Details of related parties as of December 31, 2022 are as follows:

Description		Company name
Parent company		Hanwha Corporation
Subsidiaries	Domestic	Gyeonggi Yongin Techno Valley Co., Ltd.
		Gimhae Techno Valley Co., Ltd.
		SEOSAN TECHNO VALLEY
		West Ochang Techno Valley Co., ltd.
		Anseong Techno Logistics Co., Ltd.
		H-Valley Co.,Ltd
		The Second Yong In Techno Valley Co, Ltd
		Hanwha Galleria Timeworld Co., Ltd.
		Hanwha City Development Co., Ltd.
		Hanwha B&B Co., Ltd.
		Hi-pass Solar Corporation
		Hanwha Global Asset Corporation
		Hanwha Compound Co., Ltd.
		Hanwha Chemical Overseas Holdings, Co., Ltd.
		Haeorum PV Plant Corporation
		H-Techno Valley Co.,Ltd
		Youngam Q Power Solarfarm 1 Co., Ltd.
		Goheung Q Power Solarfarm 1 Co., Ltd.
		WOS Inc.
		Hanwha Savings Bank Co., Ltd.
		NXEF CO.,LTD
		Hanwha NxMD Co., Ltd.
		HCC Holdings Co., Ltd.
		Anseong Techno Logistics Co., Ltd.
		HAM Holdings Co., Ltd.
		Gobokjumin Taeyanggwangbaljeon Co., Ltd
		Hadong Haetpinnaum Taeyanggwangbalkeon Co.,Ltd.
		Hanwha Advanced Materials Corporation
	Overseas	Hanwha Chemical Trading (Shanghai) Co., Ltd.
		Aceka 2 Gunes Enerjisi A.S.
		Aceka 3 Gunes Enerjisi A.S.
		Alkin Enerji Uretim Ltd. Sti.
		ARBECA SOLAR SLU
		Aslan Gunes Enerjisi A.S.
		Avenir el Divisadero SpA
		Bilgidar 2 Gunes Enerjisi Limited Sirketi
		Buselik 2 Gunes Enerjisi Limited Sirketi
		Buselik 3 Gunes Enerjisi Limited Sirketi
		CASTELLDANS SOLAR SLU
		CASTELLNOU SOLAR SLU
		Dimetoka 2 Gunes Enerjisi Limited Sirketi
		Dimetoka 3 Gunes Enerjisi Limited Sirketi

40. Related Parties, Continued

(1) Details of related parties as of December 31, 2022 are as follows, continued

Description		Company name
Subsidiaries	Overseas	Don Rodrigo Hive SL
		Elcin Enerji Uretim Ltd. Sti.
		Fior Gunes Enerjisi Anonim Sirketi
		Fnt Gida Turizm Ic Ve Dis Ticaret Sanayi Ltd. Sti.
		Garnet Solar Power Generation 1, LLC
		Guadajoz Hive SL
		Hanwha Advanced Materials America LLC
		Hanwha Advanced Materials Beijing Co., Ltd.
		Hanwha Advanced Materials Chongqing Co., Ltd.
		Hanwha Advanced Materials Europe, s.r.o.
		Hanwha Advanced Materials Germany GmbH
		Hanwha Advanced Materials Holdings USA LLC
		Hanwha Advanced Materials Mexico S. De R.L. De C.V.
		Hanwha Advanced Materials Shanghai Co., Ltd.
		Hanwha America Development Inc.
		Hanwha AZDEL, Inc.
		Hanwha Chemical (Ningbo) Co., Ltd.
		Hanwha Chemical (Thailand) Co., Ltd.
		HANWHA CHEMICAL INDIA PRIVATE LIMITED
		Hanwha Chemical Malaysia Sdn. Bhd.
		Hanwha Holdings (USA), Inc.
		Hanwha International Corp.
		Hanwha International LLC
		Hanwha Machinery Americas, Inc.
		Hanwha Parcel O LLC
		Hanwha Property USA LLC
		Hanwha PVPLUS LLC
		Hanwha Q CELLS (Nantong) Co., Ltd.
		Hanwha Q CELLS (Qidong) Co., Ltd.
		Hanwha Q CELLS America Inc.
		Hanwha Q CELLS America Project Holdings LLC
		Hanwha Q CELLS Americas Holdings. Corp.
		Hanwha Q CELLS Australia Pty Ltd.
		Hanwha Q CELLS Canada, Corp.
		Hanwha Q CELLS Chile SpA
		Hanwha Q CELLS Co., Ltd.
		Hanwha Q CELLS EPC USA, LLC
		Q Energy France SAS(formerly, RES SAS)
		Hanwha Q CELLS GmbH
		Hanwha Q CELLS Hong Kong Limited
		Hanwha Q CELLS Investment Co., Ltd.
		Hanwha Q CELLS Malaysia Sdn. Bhd.

40. Related Parties, Continued

(1) Details of related parties as of December 31, 2022 are as follows, continued

Description		Company name
Subsidiaries	Overseas	Hanwha Q CELLS Servicios Comerciales, S DE RL DE CV
		HANWHA Q CELLS SOLAR POWER SDN. BHD.
		Hanwha Q CELLS Technology (Shanghai) Co., Ltd.
		Hanwha Q CELLS Til Til Uno SPA
		Hanwha Q CELLS Turkey
		Hanwha Q CELLS USA Corp.
		Hanwha Q CELLS USA, INC.
		Hanwha Resources (USA) Corporation
		Hanwha Solar Electric Power Engineering Co., Ltd.
		Hanwha SolarOne (Laiyang) Co., Ltd
		Hanwha SolarOne (Rugao) Co., Ltd
		Hanwha SolarOne GmbH
		Hanwha SolarOne Investment Holding Ltd.
		Hanwha SolarOne Power Generation (Wuxi) Co., Ltd.
		Hanwha Solarone(beipiao)Co.,Ltd
		Hanwha Village Market, LLC
		Hanwha West Properties LLC
		Hiprom Enerji Yatirlmlari A.S.
		HQ MEX, LLC
		HQ MEXICO HOLDINGS S DE RL DE CV
		HQ MEXICO Solar I S DE RL DE CV
		HQ MEXICO Solar II S DE RL DE CV
		HQC Maywood, LLC
		HQC Rock River Solar Holdings, LLC
		HQC Rock River Solar Power Generation Station, LLC
		HSEA HVES, LLC
		HSESM American Union LLC
		HSESM LeGrandUHS LLC
		HSESM PlanadaES LLC
		Huoqiu Hanrui New Energy Power Generation Co., Ltd.
		INCOGNITWORLD, LDA.
		Isfahan 3 Gunes Enerjisi Limited Sirketi
		Kalaeloa Renewable Energy Park, LLC
		Kartal Enerji Uretim Ltd. Sti.
		KMPT Solarpark Verwaltung GmbH
		Las Coronadas Hive SL
		Malhada Green S.A
		Marel Bilisim Muhendislik Enerji Insaat Iletisim Turizm GidaSan. Ve Dis Tic. Ltd. Sti.
		Meva Muhendislik Bilisim Enerji Insaat Iletisim Turizm San.Ve Dis Tic. Ltd. Sti.
		Moravia Enerji Sanayi ve Ticaret Ltd. Sti.
		Mutlak Enerji Uretim Ltd. Sti.

40. Related Parties, Continued

(1) Details of related parties as of December 31, 2022 are as follows, continued

Description		Company name
Subsidiaries	Overseas	Onan 2 Gunes Enerji Uretim A.S.
		Onan 3 Gunes Enerji Uretim A.S.
		PV Jagodne Sp. z.o.o.
		PV Vallenar Uno SpA
		Q CELLS ASSET MANAGEMENT LIMITED
		Q CELLS DO BRASIL CONSULTORIA EMPRESARIAL LTDA
		HQC PORTUGAL HOLDINGS, LDA
		QSUN PORTUGAL 2, UNIPESSOAL LDA
		QSUN PORTUGAL 3, UNIPESSOAL LDA
		QSUN PORTUGAL 4, UNIPESSOAL LDA
		QSUN PORTUGAL 5, UNIPESSOAL LDA
		QSUN PORTUGAL 6, UNIPESSOAL LDA
		QSUN PORTUGAL 7, UNIPESSOAL LDA
		REUS SOLAR SLU
		Q CELLS SPAIN HOLDINGS, S.L.
		Sema Enerji Uretim Ltd. Sti.
		Serimer Optik Medikal Kirtasiye Temizlik Insaat Ithalat Ihracat Sanayi Tic. Ltd. Sti.
		SFH Solarpark GmbH
		QSUN 25 Sp. z o.o.(formerly, Silesian Sun Energy Sp. z o.o.)
		Solar Monkey 1, LLC
		Solar Monkey 2, LLC
		Toprakkale Altyapi ve Malzeme Hizmetleri A.S.
		Ulu Gunes Enerjisi AnonimSirketi
		Universal Bearings LLC
		Uno Enerji A.S.
		VECIANA SOLAR SLU
		WSE Bradley Road Ltd
		Rippey Solar Holdings, LLC
		Coniglio Solar Holdings, LLC
		Kellam Solar Holdings, LLC
		HQC Solar Holdings 1, LLC (formerly, H-Flats Solar Holdings, LLC)
		GREEN RIC ENERGY, S.L.
		SILVER RIC ENERGY, S.L.
		REAL ENERGY POWER, S.L.
		GALAXY ENERGY, S.L.
		LASTRAFI POWER, S.L.
		HESTIA SUN, S.L.
		CAPRICORNIO ENERGY, S.L.
		SPRING POWER, S.L.
		GALGO POWER, S.L.
		LEBREL POWER, S.L.
		PODENCO POWER, S.L.

40. Related Parties, Continued

(1) Details of related parties as of December 31, 2022 are as follows, continued

Description		Company name
Subsidiaries	Overseas	Kellam Solar Class B, LLC
		HAMC Holdings Corp.
		Growing Energy Labs, Inc.
		INCOGNITWORLD 2, UNIPESSOAL LDA
		INCOGNITWORLD 3, UNIPESSOAL LDA
		INCOGNITWORLD 4, UNIPESSOAL LDA
		INCOGNITWORLD 5, UNIPESSOAL LDA
		MALHADA GREEN 2, UNIPESSOAL LDA
		BOLERO ENERGY, S.L.
		VALS ENERGY POWER, S.L.
		PALOMA POWER, S.L.
		CLAVE DE SOL ENERGY, S.L.U
		IRON POWER ENERGY, S.L.U
		LINE ENERGY, S.L.U
		RIMA ENERGY, S.L.U
		GAVILAN POWER, S.L.U
		GERIFALTE POWER, S.L.U
		HARRIER POWER, S.L.U
		ALDGATE EAST INVESTMENTS, SL
		ALFAZ DIRECTORSHIP, SL
		ALQUIZAR INVESTMENTS, SL
		ANNAPURNA SERVICIOS EMPRESARIALES, SL
		BENIF INVESTMENTS, SL
		BURETE DIRECTORSHIP, SL
		CABUYA CORPORATE SERVICES, SL
		CANARY WHARF INVESTMENTS, SL
		CANNING TOWN INVESTMENTS, SL
		COMBA DIRECTORSHIP, SL
		CONVENT GARDEN INVESTMENTS, SL
		DICKSON SERVICIOS EMPRESARIALES, SL
		EMPER INVESTMENTS, SL
		ENDINO SERVICIOS EMPRESARIALES, SL
		GARDAYA INVESTMENTS, SL
		KADOK CORPORATE SERVICES, SL
		KAMPALA CORPORATE SERVICES, SL
		MONTALBAN DIRECTORSHIP, SL
		NEPAL SERVICIOS EMPRESARIALES, SL
		OTERO DIRECTORSHIP, SL
		AZOR POWER SL
		Espardell Directorship, SL
		CONIGLIO SOLAR CLASS B, LLC
		Johnson City Solar, LLC

40. Related Parties, Continued

(1) Details of related parties as of December 31, 2022 are as follows, continued

Description		Company name
Subsidiaries	Overseas	Johnson City Solar, LLC
		Johnson City Storage, LLC
		Plateau Solar, LLC
		Plateau Storage, LLC
		Purvis Solar, LLC
		Purvis Storage, LLC
		South Cheyenne Solar, LLC
		NUN SUN POWER S.L.
		ISIS SUN POWER S.L.
		DONALLY CORPORATE SERVICES, SL
		FAIRLEAD CORPORATE SERVICES, SL
		FFNEV DESARROLLORS ESPANA I, SL
		FFNEV DESARROLLORS ESPANA II, SL
		NORWOOD CORPORATE SERVICES, S.L.
		HANWHA SOLUTIONS USA HOLDINGS CORPORATION
		HSHC NAM INV LLC
		HSHC LIBRA INV LLC
		HANWHA Q CELLS US O&M LLC
		Hanwha Cimarron LLC
		HSHC FF INV LLC
		Hanwha Advanced Materials USA Corp
		HES America Ltd.
		Axia Solar Corp.(formerly, HESAL System Solutions Corp.)
		EnFin Corp.
		HQCA Energy Solutions LLC
		VGES Project LLC
		HAU Cheshire Project LLC
		HAU Newington Project LLC
		HQCA Grid Equity LLC
		Q CELLS Germany Holdings GmbH
		ENVIRIA IPP DevCO1 GmbH & Co. KG
		Q ENERGY Solutions SE(formerly, Hanwha EU ENERGY Solutions SE)
		Q Energy Mediterranee(formerly, RES Mediterranee)
		CEPE BEL AIR SUD
		CEPE BOIS DE L´AIGUILLE
		CEPE Champs Carres S.A.R.L
		CEPE CHAMPS PAILLE
		CEPE CHARMONSEL
		CEPE CHAUMES DES COMMUNES
		CEPE Chesnots
		CEPE COTE DES VAUZELLES
		CEPE COTE RENARD

40. Related Parties, Continued

(1) Details of related parties as of December 31, 2022 are as follows, continued

Description		Company name
Subsidiaries	Overseas	CEPE Croix des Trois
		CEPE Croix du Picq
		CEPE DE BRAQUETTE
		CEPE DE CHATILLONNAIS
		CEPE DE L´ESCUR
		CEPE de Mirebellois
		CEPE des Grunes S.A.R.L
		CEPE du Souleilla S.A.R.L
		CEPE Fleur du Nivernais S.A R.L
		CEPE FORET DE MARSANNE
		CEPE FOSSE A LOUP
		CEPE FRETTES
		CEPE GRAND CERISIER
		CEPE GRANDS COMMUNAUX
		CEPE HAUT PERRON
		CEPE LA TIRROYE
		CEPE LE LANGROIS
		CEPE LES LORETTES
		CEPE LES VACANTS
		CEPE MERELLEs
		CEPE MONT DE CONDY
		CEPE NOUVELLOIS
		CEPE NOYER BERGER
		CEPE ORAIN
		CEPE Plaine de Pericaud
		CEPE Plo du Laurier
		CEPE RENOUVELLEMENT HAUT CABARDES
		CEPE Sud vesoul SARL
		CEPE TERRIERS DE LA POINTE
		CEPE TROIS PROVINCES
		CEPE VAL D´YONNE EN FORTERRE
		CEPE Val de Vingeanne EST
		CEPE VENTS DE LOIRE
		CEPES JUGE
		Chaume Solar
		CPES AUCHES
		CPES BASSE MONTAGNE
		CPES BOIS SOLEIL
		CPES BORY
		CPES BRECHE
		CPES CAHUZAC SUR ADOUR
		CPES CALENTA

40. Related Parties, Continued

(1) Details of related parties as of December 31, 2022 are as follows, continued

Description		Company name
Subsidiaries	Overseas	CPES CAUSSES PERIGORD
		CPES CHAMPS DE LA COUR
		CPES CHAPUS
		CPES COURSIADA
		CPES COUSSEAU
		CPES CRASSIER LAUDUN
		CPES CROUEE
		CPES FONT DE LA LEVE
		CPES FONTANILLE
		CPES GANDOLLE
		CPES GARDIOLE
		CPES GENEBRE
		CPES GRAND OUSTATOU
		CPES GRIFFOUL
		CPES HOMME DE PIERRE
		CPES Juncarot
		CPES LA BREDE
		CPES la Gineste
		CPES LAC DE CLOYES
		CPES LAC DE LONGCHAMPS
		CPES LAC DE ROUAN
		CPES LAROQUE
		CPES LASCOURS
		CPES LAURAGAIS
		CPES LE PLAN
		CPES LES CROUZOURETS
		CPES LIBAROS
		CPES LUE
		CPES MAS D´EN RAMIS
		CPES MILHAT
		CPES MONDONNE
		CPES MORAS
		CPES MORILLON
		CPES MURES BASSES
		CPES OMBRIPARK
		CPES PASCARATE
		CPES PAYS THIBERIEN
		CPES PEROLERA
		CPES PERRIERE
		CPES PEYROLE LAC
		CPES PLACE ROYALE
		CPES PLAN DE BANON

40. Related Parties, Continued

(1) Details of related parties as of December 31, 2022 are as follows, continued

Description		Company name
Subsidiaries	Overseas	CPES RENARDEYRE
		CPES ROMEGUERAR
		CPES SABLE ROUGE
		CPES SAINT ANGE
		CPES SEBENS
		CPES SUR L ´EPINE
		CPES TALLER
		CPES THUILIERES
		CPES TREMEGE
		CPES VILLAGE SOLAIRE
		Cret meuron Suisse
		CSE AMPERE
		CSE ARMAND
		CSE COULOMB
		CSE GAULARD
		CSE JOULE
		CSE LECLANCHE
		CSE PLANTE
		CSE TARASCON
		CSE VOLTA
		LASCOVENT
		Les Eoliennes Entre Loire et Rhone
		Q Energy France SAS
		CPES LIGNE SOLAIRE HAUTE LANDE
		CPES MARDALOU
		NAUTILUS ENERGIES
		CEPE BOIS DE LA LONDE
		CPES LANDE DE MUSSET
		Larrey des Vignes
		SPV LOCANERGY TWO
		CPES MAGNILS
		CEPE Sapinois
		CPES RIVAILLES
		HESAL System Solutions USA LLC
		HSHC NOV INV LLC
		HHR Development B GK
		H-SUMMIT
		Enviria IPP DevCo 2 GmbH & Co. KG
		Bauernenergie Solarpark Illmersdorf UG Co.KG
		Aberdeen Corporate Services S.L.
		Albany Directorship, S.L.
		Amberes Corporate Services, S.L.

40. Related Parties, Continued

(1) Details of related parties as of December 31, 2022 are as follows, continued

Description		Company name
Subsidiaries	Overseas	Appleton Corporate Services, S.L.
		DES Energy PV1 GmbH
		DES Energy Kom GmbH
		Hanwha Advanced Materials Georgia Inc.
		HSHC ZIP INV LLC
		Hanwha NxMD (Thailand) Co., Ltd.
		Q Energy Europe GmbH
		CPES MALAGA
		C.P.E.S. VIGORDANE FLOTTANT
		Deergrass Energy Storage LLC
		Ponderosa Energy Storage LLC
		Ryegrass Energy Park LLC
		Project Bolt Holdco LLC
		Lavender Storage Project LLC
		Adelite Storage Project LLC
		Ardesia Storage Project LLC
		Camellia Storage Project LLC
		Coneflower Storage Project LLC
		Petunia Storage Project LLC
		Shoshana Storage Project LLC
		DES Energy PV 2 GmbH & Co.KG
		QCELLS ENABLE LLC
		CDG BNS 136 LLC
		CDG BNS Commerce LLC
		CDG Forest Mall
		CDG MRP 136 LLC
		WPL10 Solar, LLC
		WPL4 Solar, LLC
		Brainum Solar, LLC
		BNS Willow Solar, LLC
		Fairview Solar, LLC.
		CDG Innovo Queens, LLC.
		Carco Solar, LLC.
		Abbot Solar, LLC.
		Linden Solar, LLC.
		Maurice Solar, LLC.
		Bartlett JFK Solar, LLC
		Bartlett Newark Solar, LLC
		Liberty Distributors, LLC

40. Related Parties, Continued

(1) Details of related parties as of December 31, 2022 are as follows, continued

Description		Company name
Subsidiaries		Alondra Foods Project, LLC
		Q ENERGY (EUROPE) UK HOLDINGS LIMITED
		CPES EMOROTS
		CPES GARENNES
		CEPE MELUSINE
		CPES LA GRANDE GORGE
		CPES MOUCHIT
		CPES RADAR
		CPES SIGNORET
		CPES LES PLAINES de Haute Montagne
		CPES MAS THIBERT
		CPES CHENET
		Q ENERGY Europe NL Holdings B.V.
		QEE Solarpark Matzlow GmbH & Co. KG
		QEE Solarpark Garwitz GmbH & Co. KG
		Tomorrow Energy Ontwikkelung 31 B.V.
		Daffodil Storage Project LLC
		Taormina Storage Project LLC
		Staghorn Energy Storage LLC
		Hanwha Cimarron Europe GmbH
		Hanwha Solutions Insight Holdings Corporation
		HSIH NHH INV LLC
		HSHC AMP INV LLC
		5 CUT ROAD SOLAR PROJECT LLC
		1050 DAY HILL RD PROJECT, LLC
		Solar FlexRack LLC
		CE Cell Engineering GmbH
		LYNQTECH GmbH
		Zonnepark de Weijer B.V.
		Whinfield High Grange Solar Farm Limited
		CPES Montans
		CPES Volieres Charente
		CPES Volieres Deux Sevres
		CPES Saint-Lys
		CPES Volieres Sarraguzan
Associates/Joint ventures	Domestic	Smile ventures Co., Ltd.
		HANWHA Eagles Professional Baseball Club
		YEOCHUN NCC Co., Ltd.
		EaglesEnergy Co.,Ltd

40. Related Parties, Continued

(1) Details of related parties as of December 31, 2022 are as follows, continued

Description		Company name
Associates/Joint ventures	Domestic	H2 Co., Ltd
		Hanwha Connect Co., Ltd.
		Hanwha Impact Corporation
		Hanwha Hotels and Resort Co., Ltd.
		Ulsan Complex City Development Co., Ltd.
		HANWHA FUND INVESTMENT 1 HO
		DaNAgreen CO., LTD.
	Overseas	Burdur Enerji A.S.
		Crystal Solar Inc.
		GRANSOLAR ATOTONILCO, S.A. DE C.V.
		GRANSOLAR OCOTLAN, S.A. DE C.V.
		Gulf Advanced Cables Insulation Company
		HSP TW TE, LLC
		International Polymers Company
		Lakeshore East Retail LLC
		Parcel O LLC
		SwitchDin Pty Limited
		Kellam Tax Equity Partnership, LLC
		JV Cooke Solar, LLC
		CONIGLIO TAX EQUITY PARTNERSHIP, LLC
		Q&G PV Solutions GmbH
		Simply Foods Inc.
		Lancium Technologies Corporation
		Finless Foods Inc.
		H Properties TMK
		Premium Hirafu Properties TMK
		GK Summit Apollo Eleven
		REC Silicon ASA
		Ampcera Inc
Conglomerate(*)	Domestic	HANWHA TOTALENERGIES PETROCHEMICAL Co., Ltd. (formerly, HANWHA TOTAL PETROCHEMICAL Co., Ltd.
		Hanwha LIFE INSURANCE CO., LTD.
		Hanwha General Insurance Co., Ltd.
		Hanwha Energy Corporation
		HANWHA 63 CITY CORPORATION
		HANWHA AEROSPACE CO., LTD
		DEOKYANG ENERGEN and others
	Overseas	Hanwha Q CELLS Japan Co., Ltd.
		Hanwha Europe GmbH
		Hanwha Impact Partners INC.
		Hanwha BCGE O&M Limited Liability Company and others

(*) Although these companies are not applicable to related parties defined in K-IFRS No. 1024 Paragraph 9, a group of large-size affiliates designated by the Korea Fair Trade Commission are classified as related parties according to the resolution by the Securities & Futures Commission in accordance with substantial relationship defined in K-IFRS No. 1024 Paragraph 10.

40. Related Parties, Continued

(2) Transactions with related parties for the years ended December 31, 2022 and 2021, are as follows:

In thousands of won		2022			
Company name		**Sales**	**Disposal on fixed assets**	**Purchase**	**Acquisition of fixed assets**
Parent company:					
Hanwha Corporation	₩	81,044,572	-	33,591,446	36,997,854
Subsidiaries:					
West Ochang Techno Valley Co., ltd.		3,043,414	-	-	-
Anseong Techno Logistics Co., Ltd.		32,802	-	-	-
Anseong Techno Valley		4,382,480	-	-	-
H-Techno Valley Co.,Ltd		2,787,028	-	-	-
The Second Yong In Techno Valley Co, Ltd		1,106,000	-	-	-
Hanwha Galleria Timeworld Co., Ltd.		33,411,480	-	5,246,241	-
Hanwha City Development Co., Ltd.		845	-	-	-
Hanwha Savings Bank Co., Ltd.		125,759	-	-	-
Young Am Techno Solar Corporation(*1)		113,395	-	-	-
Young Am Hae-oh-rm Solar Corporation(*1)		72,837	-	-	-
Hanwha B&B Co., Ltd.		252,794	-	371,428	-
Hadong Haetpinnaum Taeyanggwangbalkeon Co.,Ltd.		60,000	-	-	-
Hi-pass Solar Corporation(*1)		155,231	-	-	-
Hanwha Global Asset Corporation		1,905,123	10,578,578	-	-
Hanwha NxMD Co., Ltd.		4,798,716	-	-	-
Hanwha Advanced Materials Corporation		1,071,206	-	7,551,089	-
Hanwha Compound Co., Ltd.		94,210,838	110,000	11,366,526	-
Hanwha Chemical Overseas Holdings, Co., Ltd.(*2)		78,212	-	-	-
Hanwha Chemical Trading (Shanghai) Co., Ltd.		125,922,971	-	2,635,102	-
Sunrise Solar(*1)		19,786	-	-	-
Hae Sarang Solar Corporation(*1)		182,048	-	-	-
Garnet Solar Power Generation Station 1, LLC		44,175	-	-	-
Growing Energy Labs, Inc.		-	-	17,060,036	-
Hanwha Advanced Materials America LLC		39,013,267	-	43,436	-
Hanwha Advanced Materials Beijing Co., Ltd.		6,552,011	-	-	-
Hanwha Advanced Materials Chongqing Co.,Ltd.		1,778,581	-	9,272	-
Hanwha Advanced Materials Europe, s.r.o.		41,987,192	-	85,768	-
Hanwha Advanced Materials Holdings USA LLC		224,062	-	-	-
Hanwha Advanced Materials Mexico S. De R.L. De C.V.		7,878,630	-	-	-
Hanwha Advanced Materials Shanghai Co., Ltd.		7,325,208	-	16,384	-
Hanwha AZDEL, Inc.		386,589	-	-	-
Hanwha Chemical (Ningbo) Co., Ltd.		29,377,618	-	-	-
Hanwha Chemical (Thailand) Co.,Ltd.		782,877	-	-	-
HANWHA CHEMICAL INDIA PRIVATE LIMITED		-	-	1,112,922	-
Hanwha Chemical Malaysia Sdn. Bhd.(*3)		-	-	10,938	-
Hanwha Holdings(USA), Inc.		-	-	109,286	-

40. Related Parties, Continued

(2) Transactions with related parties for the years ended December 31, 2022 and 2021 are as follows, continued

In thousands of won	2022			
Company name	**Sales**	**Disposal on fixed assets**	**Purchase**	**Acquisition of fixed assets**
Subsidiaries:				
Hanwha International LLC.	67,998,132	-	3,902,943	-
Hanwha Q CELLS (Qidong) Co., Ltd.	6,682,251	-	154,452,790	-
Hanwha Q CELLS America Inc.	1,981,433,684	-	22,758	-
Hanwha Q CELLS Americas Holdings. Corp.	2,223,641	-	-	-
Hanwha Q CELLS Australia Pty Ltd.	51,589,243	-	104,517	-
Hanwha Q CELLS Canada, Corp.	29,507,577	-	-	-
Hanwha Q CELLS Gmbh	231,854,086	-	64,405,622	-
Hanwha Q CELLS Malaysia Sdn. Bhd.	20,510,162	-	888,363,179	-
Hanwha Q CELLS Turkey	15,483,644	-	-	-
Hanwha Q CELLS USA, INC.	759,936,544	-	-	-
HHR Development B GK	92,683	-	-	-
Hanwha Cimarron LLC	2,218,366	-	-	-
Hanwha Q CELLS EPC USA, LLC	15,228,122	-	-	-
Joint ventures:				
YEOCHUN NCC Co., Ltd.	29,645,588	-	1,806,365,144	-
GK Summit Apollo Eleven	223,432	-	-	-
H Properties TMK	834,245	-	-	-
Associates				
HANWHA Eagles Professional Baseball Club	853,342	-	1,362,145	-
EaglesEnergy Co.,Ltd	65,071	-	-	-
Hanwha Impact Corporation	8,967,767	-	35,288,802	-
Hanwha Connect Co., Ltd.(*4)	29,850	-	-	-
Hanwha Hotels and Resort Co., Ltd.	2,150,238	680,874	22,066,426	1,988,720
Conglomerate:				
DEOKYANG ENERGEN and others	25,152,317	-	2,094,837	-
Seoulyeokbukbuyeoksegwon Development Co.	250,210	-	-	-
SIT TECH Co.,Ltd.	18,475	-	-	-
Yeosu sea world corporation	134	-	-	-
Ilsan Seaworld,Co.,Ltd.	122	-	-	-
HANWHA 63 CITY CORPORATION	290,724	-	4,119	-
Hanwha Engineering & Construction Corporation(*5)	1,910,995	-	201,796	1,997,549
HANWHA ESTATE SERVICE	11,302	-	-	-
The Tastable Co., Ltd	338,886	-	41,375	-
Aqua planet Co.,Ltd.	250,663	-	436	-
Eco E&O corporation	26,491	-	-	-
Jeju ocean science museum corporation	252	-	-	-
Enterprise Blockchain Co., Ltd	13,853	-	-	-
Hanwha Munitions Corporation	81,733	-	-	-
LAKEPARK-H Co., Ltd.	3,613	-	-	-
Carrot Co., Ltd	77,253	-	367,330	-

40. Related Parties, Continued

(2) Transactions with related parties for the years ended December 31, 2022 and 2021, are as follows, continued

In thousands of won		2022			
Company name		**Sales**	**Disposal on fixed assets**	**Purchase**	**Acquisition of fixed assets**
Conglomerate:					
Hanwha Next Co. Ltd.	₩	10,698	-	400,000	-
Hanwha Defense(*6)		1,311,614	-	-	-
Hanwha Life Lab Co., Ltd		104,585	-	-	-
Hanwha Life Financial Service. Co, Ltd		960,872	-	-	-
Hanwha LIFE INSURANCE CO., LTD.		6,431,113	-	14,124,537	64,966
Hanwha General Insurance Co., Ltd.		3,341,877	-	11,420,304	-
HANWHA I&A Co., Ltd.		191,497	-	-	-
HANWHA SYSTEMS Co., Ltd.		2,065,686	-	53,233,244	23,499,977
Hanwha Energy Corporation		907,703	-	188,029,522	-
HANWHA AEROSPACE CO., LTD		2,887,483	-	-	-
Hanwha Intelligence Co.,Ltd		9,949	-	-	-
Hanwha Asset Management Co., Ltd.		110,128	-	-	-
Hanwha Precision Machinery Co., Ltd.		552,290	-	21,065	736,794
SIT CO.,LTD		100,820	-	1,400	53,000
HANWHA TECHWIN CO., LTD.		558,083	-	184	22,650
HANWHA TOTALENERGIES PETROCHEMICAL Co., Ltd. (formerly, HANWHA TOTAL PETROCHEMICAL Co., Ltd.		6,495,860	-	155,468,681	-
HANWHA INVESTMENT&SECURITIES CO.,LTD		968,080	-	142,795	-
Hanwha Power Systems Co., Ltd.		467,888	-	255,982	582,410
Hanwha BCGE O&M Limited Liability Company		-	-	24,953	-
Hanwha Europe GmbH		208,534,485	-	1,067,175	-
Hanwha Impact Partners INC.		-	-	253,828	-
Hanwha Q CELLS Japan Co., Ltd.		45,332,480	-	64,512,204	-
	₩	4,027,425,629	11,369,452	3,547,209,967	65,943,920

(*1) Young Am Techno Solar Corporation, Young Am Hae-oh-rm Solar Corporation, Hae Sarang Solar Corporation and Sunrise Solar were merged and absorbed into Hi-pass Solar Corporation as of December 31, 2022. These transactions are the details of the transactions which have taken place before the date of merger.

(*2) For the year ended December 31, 2022, the dividends of ₩28,098 million received from Hanwha Chemical Overseas Holdings, Co, Ltd. are recognised as finance income.

(*3) For the year ended December 31, 2022, the dividends of ₩10,782 million received from Hanwha Chemical Malaysia Sdn. Bhd. are recognised as finance income.

(*4) For the year ended December 31, 2022, the dividends of ₩786 million received from Hanwha Station Development Co., Ltd. are recognised as finance income.

(*5) Hanwha Engineering & Construction Corporation was merged and absorbed into Hanwha Corporation as of November 1, 2022. These transactions are the details of the transactions which have taken place before the date of merger.

(*6) Hanwha Defense was merged and absorbed into HANWHA AEROSPACE CO., LTD as of November 1, 2022. These transactions are the details of the transactions which have taken place before the date of merger.

In addition to the above details, for the year ended December 31, 2022, the dividends of ₩60 million received from associates HANWHA FUND INVESTMENT 1 HO are recognized as financial income.

40. Related Parties, Continued

(2) Transactions with related parties for the years ended December 31, 2022 and 2021, are as follows, continued

In thousands of won		2021			
Company name		**Sales**	**Disposal on fixed assets**	**Purchase**	**Acquisition of fixed assets**
Parent company:					
Hanwha Corporation	₩	83,207,249	-	22,712,329	44,587,802
Subsidiaries:					
West Ochang Techno Valley Co., ltd.		426,618	-	-	-
Anseong Techno Valley		473,347	-	-	-
H-Techno Valley Co.,Ltd		109,056	-	-	-
Hanwha Galleria Co., Ltd.(*1)		284,066	-	135,128	-
Hanwha Galleria Timeworld Co., Ltd.		23,346,033	-	3,019,440	-
Hanwha Savings Bank Co., Ltd.		37,673	-	-	-
Yungam Techno Solar Power Corp.		143,817	-	-	-
Yungam Hae-oreum Solar Power Corp.		115,418	-	-	-
WOS Inc		353,440	-	-	-
Hanwha B&B Co., Ltd.		209,483	-	317,614	-
Hi-pass Solar Corporation		147,849	-	-	-
Hanwha Global Asset Corporation		542,078	-	-	-
Hanwha Compound Co., Ltd.		84,317,632	-	11,970,102	-
Hanwha Chemical Trading (Shanghai) Co., Ltd.		132,898,068	-	2,041,292	-
Sunrise Solar		18,111	-	-	-
Haesarang Solar Power Corp.		177,251	-	-	-
Garnet Solar Power Generation 1, LLC		94,888	-	-	-
Growing Energy Labs, Inc.		-	-	7,380,331	-
Hanwha Advanced Materials America LLC		23,645,281	-	38,613	-
Hanwha Advanced Materials Beijing Co., Ltd.		5,994,155	-	-	-
Hanwha Advanced Materials Chongqing Co., Ltd.		2,188,845	-	29,256	-
Hanwha Advanced Materials Europe, s.r.o.		47,099,978	-	185,733	-
Hanwha Advanced Materials Germany GmbH		844,843	-	-	-
Hanwha Advanced Materials Holdings USA LLC		130,045	-	-	-
Hanwha Advanced Materials Mexico S. De R.L. De C.V.		6,618,159	-	-	-
Hanwha Advanced Materials Shanghai Co., Ltd.		8,385,648	-	6,425	-
Hanwha AZDEL, Inc.		914,527	-	9,073	-
Hanwha Chemical (Ningbo) Co., Ltd. (*2)(*3)		25,183,856	-	-	-
Hanwha Chemical (Thailand) Co., Ltd.		1,549,530	-	-	-
HANWHA CHEMICAL INDIA PRIVATE LIMITED		-	-	892,384	-
Hanwha Chemical Malaysia Sdn. Bhd. (*4)		-	-	34,805	-
Hanwha Holdings(USA), Inc.		-	-	1,092,138	-
Hanwha International LLC.		93,962,906	-	2,855,086	-
Hanwha Q CELLS (Qidong) Co., Ltd.		8,756,921	-	128,643,681	37,160
Hanwha Q CELLS America Inc.		636,124,675	-	22,875	-
Hanwha Q CELLS Americas Holdings. Corp.		62,107	-	-	-

40. Related Parties, Continued

(2) Transactions with related parties for the years ended December 31, 2022 and 2021, are as follows, continued

In thousands of won		2021			
Company name		**Sales**	**Disposal on fixed assets**	**Purchase**	**Acquisition of fixed assets**
Subsidiaries:					
Hanwha Q CELLS Australia Pty Ltd.	₩	23,875,796	-	11,755	-
Hanwha Q CELLS Canada, Corp.		29,460,393	-	-	-
Hanwha Q CELLS EPC USA, LLC		278,395	-	-	-
Hanwha Q CELLS GmbH		261,972,038	-	54,860,141	-
Hanwha Q CELLS Malaysia Sdn. Bhd.		18,595,602	-	582,206,771	-
Hanwha Q CELLS Turkey		53,814,807	-	-	-
Hanwha Q CELLS USA, INC.		297,591,792	-	1,793,533	-
Joint ventures:					
YEOCHUN NCC Co., Ltd.(*5)		28,461,682	-	1,652,051,777	-
Ulsan Complex City Development Co., Ltd.		172,594	-	-	-
Gulf Advanced Cables Insulation Company		157,619	-	-	-
Associates:					
HANWHA Eagles Professional Baseball Club		37,112	-	913,960	-
Eagles Energy Co.,Ltd		83,917	-	-	-
Hanwha Station Development Co., Ltd.		50,466	-	-	-
Hanwha Impact Corporation (formerly, Hanwha General Chemical Co., Ltd.)		7,213,967	-	33,153,493	-
Hanwha Hotels and Resort Co., Ltd.		1,602,111	2,959,473	15,025,616	147,000
International Polymers Company		23,552	-	-	-
Conglomerate:					
Data Analytics Lab		630	-	-	-
Seoulyeokbukbuyeoksegwon Development Co.		490	-	-	-
Hanwha Convergence Co.,Ltd. (formerly, SIT CO.,LTD)		58,088	-	-	-
SIT Tech CO.,LTD		10,929	-	-	-
Yeosu sea world corporation		90	-	-	-
Ilsan sea world corporation		67	-	-	-
HANWHA 63 CITY CORPORATION		226,061	-	54,228	-
Hanwha Engineering & Construction Corporation		1,849,489	-	38,510	56,196,932
Hanwha Estate Co., Ltd.(*6)		131,531	-	8,760,370	55,300
Hanwha Estate Service Co., Ltd.		5,880	-	-	-
The Tastable Co., Ltd		274,088	-	134,901	-
Hanwha aqua planet		188,240	-	-	-
H-Solution Corporation(*7)		210	-	-	-
Eco E&O corporation		16,660	-	-	-
Jeju Ocean Science Museum Corporation		23	-	-	-
HPND Co., Ltd.		7,250	-	-	-
Carrot Co., Ltd		39,365	-	485,215	-

40. Related Parties, Continued

(2) Transactions with related parties for the years ended December 31, 2022 and 2021, are as follows, continued

In thousands of won		2021			
Company name		**Sales**	**Disposal on fixed assets**	**Purchase**	**Acquisition of fixed assets**
Conglomerate:					
DNC Plaza	₩	9	-	-	-
Hanwha Defense		1,735,387	-	-	-
HANWHA LIFE LAB Co., Ltd.		44,732	-	-	-
Hanwha Life Financial Service Co, Ltd.		914,003	-	-	-
Hanwha LIFE INSURANCE CO., LTD.		6,993,225	-	13,339,922	-
Hanwha General Insurance Co., Ltd.		2,773,606	-	11,693,574	263
HANWHA I&A Co., Ltd.		119,218	-	-	-
HANWHA SYSTEMS Co., Ltd.		1,697,132	-	39,853,399	23,591,463
Hanwha Energy Corporation		712,402	-	159,446,246	-
HANWHA AEROSPACE CO., LTD		2,196,602	-	-	-
Hanwha Asset Management Co., Ltd.		73,736	-	-	-
Hanwha Precision Machinery Co., Ltd.		481,379	-	60,100	545,985
HANWHA TECHWIN CO., LTD.		534,609	-	-	80,200
HANWHA TOTAL PETROCHEMICALS Co., Ltd.		6,668,013	-	119,124,461	-
HANWHA INVESTMENT AND SECURITIES CO., LTD.		790,345	-	220,592	-
Hanwha Power System Co. Ltd.		190,888	-	279,094	138,390
Hanwha Europe GmbH		131,624,075	-	285,577	-
Hanwha Impact Partners INC.		-	-	450,916	-
Hanwha Q CELLS Japan Co., Ltd.		103,796,028	-	54,548,526	-
	₩	2,175,909,876	2,959,473	2,930,178,982	125,380,495

(*1) This is the transaction amount made before the merger (21.04.01) of Hanwha Galleria Co., Ltd.
(*2) For the year ended December 31, 2021, the total transaction amount was ₩23,450 million in relation to the proxy agreement for purchase of raw material with Hanwha Chemical (Ningbo) Co., Ltd.
(*3) For the year ended December 31, 2021, the dividend of ₩43,880 million received from Hanwha Chemical (Ningbo) Co., Ltd. was recognized as financial income.
(*4) For the year ended December 31, 2021, the dividend of ₩5,665 million received from Hanwha Chemical Malaysia Sdn.bhd. was recognized as financial income.
(*5) For the year ended December 31, 2021, the dividends of ₩170,000 million received from YEOCHUN NCC Co., Ltd. are recognized as financial income.
(*6) This is the transaction amount made before the merger (21.07.01) of Hanwha Estate Co., Ltd.
(*7) This is the transaction details before the merger with HANWHA ENERGY CORPORATION.

In addition to the above details, for the year ended December 31, 2021, the dividends of ₩16,544 million received from subsidiary Hanwha Chemical Overseas Holdings, Co., Ltd are recognized as financial income.

40. Related Parties, Continued

(3) Outstanding receivables and payables from transactions with related parties as of December 31, 2022 and 2021, are as follows:

In thousands of won		December 31, 2022				
		Receivables			Payables	
		Accounts receivable	Loans	Other receivables	Accounts payable	Other payables
Parent company:						
Hanwha Corporation	₩	9,350,318	-	1,786,714	8,088,866	13,334,569
Subsidiaries:						
West Ochang Techno Valley Co., ltd.		-	5,002,301	208,435	-	-
Anseong Techno Logistics Co., Ltd.		-	900,784	-	-	-
Anseong Techno Valley		-	40,011,616	195,539	-	-
H-Techno Vallet Co., Ltd		2,852,300	-	213,431	-	-
The Second Yong In Techno Valley Co, Ltd		1,216,600	-	-	-	-
Hanwha Galleria Timeworld Co., Ltd.		322,922	-	4,216,017	-	14,273,690
Hanwha B&B Co., Ltd.		-	-	325	-	233,880
Hadong Haetpinnaum Taeyanggwangbalkeon Co.,Ltd.		66,000	-	-	-	-
Hi-pass Solar Corporation		98,019	-	262,220	-	-
Hanwha Global Asset Corporation		194,836	-	35,742	-	-
Hanwha Advanced Materials Corporation		1,177,818	-	1,150	-	8,306,198
Hanwha Compound Co., Ltd.		7,692,898	-	-	769,607	438,846
Hanwha Chemical Trading (Shanghai) Co., Ltd.		7,599,264	-	-	-	-
Growing Energy Labs, Inc.		-	-	-	-	1,184,085
Hanwha Advanced Materials Europe, s.r.o.		-	-	227,597	-	-
Hanwha AZDEL, Inc.		-	-	26,613	-	-
Hanwha Chemical (Ningbo) Co., Ltd.		953,774	-	1,020,484	-	-
Hanwha Chemical (Thailand) Co., Ltd.		774,073	-	-	-	-
HANWHA CHEMICAL INDIA PRIVATE LIMITED		-	-	-	-	126,797
Hanwha Cimarron LLC		-	-	887,110	-	-
Hanwha International LLC.		7,456,781	-	-	-	132,869
Hanwha Q CELLS (Qidong) Co., Ltd.		1,298,672	-	-	56,861,979	-
Hanwha Q CELLS America Inc.		1,180,501,545	-	-	-	-
Hanwha Q CELLS Americas Holdings. Corp.		-	-	1,330,665	-	-
Hanwha Q CELLS Australia Pty Ltd.		12,855,273	-	-	-	-
Hanwha Q CELLS Canada, Corp.		9,475,956	-	-	-	-
Hanwha Q CELLS Chile SpA		-	-	-	-	105,115
Hanwha Q CELLS EPC USA, LLC		14,170,259	-	-	-	-
Hanwha Q CELLS GmbH		21,485,327	-	1,378,224	-	16,410,171
Hanwha Q CELLS Malaysia Sdn. Bhd.		2,430,670	-	23,112,068	297,533,364	-
Hanwha Q CELLS Turkey		2,189,538	-	-	-	4,323
Hanwha Q CELLS USA Corp.		-	-	1,774,220	-	-
Hanwha Q CELLS USA, INC.		331,636,792	-	1,197,599	-	-
Q Energy Europe GmbH		-	-	1,048,139	-	-
Q ENERGY Solutions SE (formerly, Hanwha EU ENERGY Solutions SE)		-	-	16,260,511	-	-
Joint ventures:						
YEOCHUN NCC Co., Ltd.		3,997,987	-	312,935	213,201,016	8,700,682
Gulf Advanced Cables Insulation Company (*1)		-	16,216,125	478,283	-	-
H Properties TMK		-	-	1,204,611	-	-
Associates:						
EaglesEnergy Co.,Ltd		-	-	165,162	-	-
Hanwha Impact Corporation		2,151,092	-	113,965	1,650,030	5,998,663
Hanwha Connect Co., Ltd.		-	-	-	-	830,000
Hanwha Hotels and Resort Co., Ltd.		394,366	-	7,487,117	-	2,414,312
Crystal Solar Inc. (*2)		-	1,866,931	329,066	-	-
International Polymers Company		-	-	1,970,790	-	-

40. Related Parties, Continued

(3) Outstanding receivables and payables from transactions with related parties as of December 31, 2022 and 2021, are as follows, continued

In thousands of won		December 31, 2022				
		Receivables			Payables	
		Accounts receivable	Loans	Other receivables	Accounts payable	Other payables
Conglomerate:						
DEOKYANG ENERGEN	₩	4,668,051	-	-	428,798	1,810
HANWHA 63 CITY CORPORATION		24,869	-	-	-	1,660,134
The Tastable Co., Ltd		6,577	-	-	64	2,113
Aqua planet Co.,Ltd.		6,976	-	1,123	-	-
Eco E&O corporation		928	-	-	-	-
Hanwha Munitions Corporation		89,868	-	-	-	4,980,000
Hanwha Next Co. Ltd.		-	-	1,000,000	-	-
Hanwha Life Lab Co., Ltd		4,659	-	-	-	-
Hanwha Life Financial Service. Co, Ltd		6,726	-	-	-	1,922,989
Hanwha LIFE INSURANCE CO., LTD.		-	-	96,195,129	-	7,390,658
Hanwha General Insurance Co., Ltd.		26,014	-	61,456	-	8,545,552
HANWHA SYSTEMS Co., Ltd.		1,486	-	-	7,742,854	11,127,918
Hanwha Energy Corporation		73,381	-	7,189	20,413,261	3,848,730
HANWHA AEROSPACE CO., LTD		306,163	-	32,965	-	9,893,352
Hanwha Asset Management Co., Ltd.		17	-	-	-	-
Hanwha Precision Machinery Co., Ltd.		-	-	-	415,672	1,824,554
SIT CO.,LTD		2,160	-	-	-	1,540
HANWHA TECHWIN CO., LTD.		-	-	-	-	2,000,000
HANWHA TOTALENERGIES PETROCHEMICAL Co., Ltd. (formerly, HANWHA TOTAL PETROCHEMICAL Co., Ltd.)		992,746	-	-	-	9,914,454
Hanwha Investment & Securities Co., Ltd.		6,549	-	-	-	6,980,483
Hanwha Power Systems Co., Ltd.		1,210	-	-	-	54,808
Hanwha Europe GmbH		41,064,800	-	-	-	41,490
Hanwha Q CELLS Japan Co., Ltd.		2,834,066	-	8,275,480	3,754,632	241,043
	₩	1,672,460,326	63,997,757	172,818,074	610,860,143	142,925,828

(*1) The Company recognized allowance for doubtful accounts for loans and others of Gulf Advanced Cables Insulation Company as of December 31, 2022.

(*2) The Company recognized allowance for doubtful accounts for loans and others of Crystal Solar Inc. as of December 31, 2022.

40. Related Parties, Continued

(3) Outstanding receivables and payables from transactions with related parties as of December 31, 2022 and 2021, are as follows, continued

In thousands of won		December 31, 2021				
		Receivables			Payables	
		Accounts receivable	Loans	Other receivables	Accounts payable	Other payables
Parent company:						
Hanwha Corporation	₩	5,445,800	-	2,078,390	59,228	21,024,269
Subsidiaries:						
West Ochang Techno Valley Co., ltd.		-	5,002,301	277,487	-	-
Anseong Techno Valley		-	19,205,576	-	-	-
Hanwha Galleria Timeworld Co., Ltd.		342,411	-	4,317,950	-	14,780,604
Yungam Techno Solar Power Corp.		-	-	126,000	-	-
Yungam Hae-oreum Solar Power Corp.		-	-	69,000	-	-
WOS Inc		-	-	388,784	-	-
Hanwha B&B Co., Ltd.		-	-	338	-	224,294
Hi-pass Solar Corporation		42,833	-	-	-	-
Hanwha Global Asset Corporation		405,705	-	190,581	-	-
Hanwha Compound Co., Ltd.		13,966,422	-	-	1,982,925	619,625
Hanwha Chemical Trading (Shanghai) Co., Ltd.		10,599,341	-	-	-	-
Sunrise Solar		5,605	-	-	-	-
Haesarang Solar Power Corp.		49,623	-	220	-	-
Growing Energy Labs, Inc.		-	-	-	-	2,172,848
Hanwha Advanced Materials America LLC		3,614,974	-	1,956,379	-	33,885
Hanwha Advanced Materials Beijing Co., Ltd.		1,030,274	-	239,961	-	-
Hanwha Advanced Materials Chongqing Co., Ltd.		433,689	-	45,213	-	-
Hanwha Advanced Materials Europe, s.r.o.		7,678,155	-	1,592,480	-	-
Hanwha Advanced Materials Germany GmbH		-	-	631	-	-
Hanwha Advanced Materials Mexico S. De R.L. De C.V.		1,440,484	-	608,803	-	-
Hanwha Advanced Materials Shanghai Co., Ltd.		1,750,857	-	247,909	-	-
Hanwha AZDEL, Inc.		-	-	31,739	-	-
Hanwha Chemical (Ningbo) Co., Ltd.		3,553,388	-	581,858	-	-
Hanwha Chemical (Thailand) Co., Ltd.		1,552,821	-	-	-	-
HANWHA CHEMICAL INDIA PRIVATE LIMITED		-	-	-	-	53,165
Hanwha Holdings(USA), Inc.		-	-	-	630,159	-
Hanwha International LLC.		13,790,423	-	-	81,005	149,141
Hanwha Q CELLS America Inc.		301,157,253	-	356,000	-	15,708
Hanwha Q CELLS Australia Pty Ltd.		22,464,398	-	-	-	-
Hanwha Q CELLS Canada, Corp.		11,583,227	-	-	-	-
Hanwha Q CELLS Co., Ltd.		-	-	474,200	-	-
Hanwha Q CELLS GmbH		104,812,833	-	1,222,341	13,808,346	-
Hanwha Q CELLS Investment Co., Ltd.		-	-	401,700	-	-
Hanwha Q CELLS Malaysia Sdn. Bhd.		9,136,216	-	8,131,328	214,696,784	-
Hanwha Q CELLS Turkey		18,544,188	-	4,161	-	-
Hanwha Q CELLS USA Corp.		-	-	592,750	-	-
Hanwha Q CELLS USA, INC.		127,406,248	-	-	768,866	854,284
Hanwha Q CELLS (Qidong) Co., Ltd.		1,825,734	-	-	31,083,289	-
Joint ventures:						
YEOCHUN NCC Co., Ltd.		2,687,322	-	144,712	305,475,308	8,716,062
Gulf Advanced Cables Insulation Company(*1)		-	16,216,125	447,411	-	-
Associates:						
HANWHA Eagles Professional Baseball Club		-	-	363,853	-	-
Eagles Energy Co.,Ltd		51,489	-	120,000	-	-
Hanwha Impact Corporation (formerly, Hanwha General Chemical Co., Ltd.)		1,982,129	-	104,950	6,573,927	150,397
Hanwha Hotels and Resort Co., Ltd.		188,284	-	28,580,303	-	2,046,121
Crystal Solar Inc.(*2)		-	1,866,931	329,066	-	-
International Polymers Company		-	-	1,843,582	-	-

40. Related Parties, Continued

(3) Outstanding receivables and payables from transactions with related parties as of December 31, 2022 and 2021, are as follows, continued:

In thousands of won

		December 31, 2021				
		Receivables			Payables	
		Accounts receivable	Loans	Other receivables	Accounts payable	Other payables
Conglomerate:						
Hanwha Convergence Co.,Ltd. (formerly, SIT CO.,LTD)	₩	2,309	-	-	-	-
HANWHA 63 CITY CORPORATION		96	-	-	-	437
Hanwha Engineering & Construction Corporation		29,419	-	1,003	-	-
The Tastable Co., Ltd		7,279	-	-	2,836	3,023
Hanwha aqua planet		14,885	-	1,012	-	-
Hanwha Defense		190,875	-	2,340	-	-
HANWHA LIFE LAB Co., Ltd.		1,284	-	-	-	-
Hanwha Life Financial Service Co, Ltd.		9,321	-	-	-	3,269
Hanwha LIFE INSURANCE CO., LTD.		613,015	-	90,817,919	-	9,383
Hanwha General Insurance Co., Ltd.		44,679	-	99,584	510	50,850
HANWHA SYSTEMS Co., Ltd.		36,715	-	-	5,971	9,913,238
Hanwha Energy Corporation		56,471	-	7,312	16,327,363	21,464
HANWHA AEROSPACE CO., LTD		46,618	-	5,682	-	-
Hanwha Asset Management Co., Ltd.		334	-	-	-	-
Hanwha Precision Machinery Co., Ltd.		6,645	-	-	-	118,293
HANWHA TOTAL PETROCHEMICALS Co., Ltd.		1,013,806	-	7,890	14,777,833	-
HANWHA INVESTMENT AND SECURITIES CO., LTD.		16,423	-	-	-	193
Hanwha Power System Co. Ltd.		-	-	-	-	244,838
Hanwha Europe GmbH		37,001,613	-	-	8,505	344
Hanwha Q CELLS Japan Co., Ltd.		12,130,182	-	1,009,960	2,367,873	1,880,434
	₩	718,764,095	42,290,933	147,822,782	608,650,728	63,086,169

(*1) The Company recognized allowance for doubtful accounts for loans and others of Gulf Advanced Cables Insulation Company as of December 31, 2021.

(*2) The Company recognized allowance for doubtful accounts for loans and others of Crystal Solar Inc. as of December 31, 2021.

40. Related Parties, Continued

(4) Loan transactions with related parties for the years ended December 31, 2022 and 2021, are as follows:

In thousands of won

	Company		2022 Balance at 1 January 2022	Increase	Decrease	Others(*)	Balance at 31 December 2022
Subsidiaries:	West Ochang Techno Valley Co., ltd.	₩	5,002,301	-	-	-	5,002,301
	Anseong Techno Valley		19,205,576	20,800,000	-	6,040	40,011,616
	HCC Holdings Co., Ltd.		-	432,000	(432,000)	-	-
	Anseong Techno Logistics Co., Ltd.		-	900,000	-	784	900,784
Joint venture:	Gulf Advanced Cables Insulation Company		16,216,125	-	-	-	16,216,125
Associate:	Crystal Solar Inc.		1,866,931	-	-	-	1,866,931
		₩	42,290,933	22,132,000	(432,000)	6,824	63,997,757

(*) Includes the accrued interest income on loans.

In thousands of won

	Company		2021 Balance at 1 January 2021	Business combination	Increase	Decrease	Others(*)	Balance at 31 December 2021
Subsidiaries:	West Ochang Techno Valley Co., ltd.	₩	-	1,600,736	3,400,000	-	1,565	5,002,301
	Anseong Techno Valley		-	2,500,723	16,700,000	-	4,853	19,205,576
Joint venture:	Gulf Advanced Cables Insulation Company		15,941,122	-	-	-	275,003	16,216,125
Associate:	Crystal Solar Inc.		1,866,931	-	-	-	-	1,866,931
		₩	17,808,053	4,101,459	20,100,000	-	281,421	42,290,933

(*) Includes the accrued interest income on loans.

40. Related Parties, Continued

(5) Equity transactions with the Company's related parties for the year ended December 31, 2022 and 2021 are as follows:

In thousands of won

	Company	2022 Capital injection	2022 Investment in kind	2022 Refund investment	2021 Capital injection
Associate and Joint venture:	HANWHA FUND INVESTMENT 1 HO	₩ 624,000	-	990,034	-
	GK Summit Apollo Eleven	1,035,531	-	-	-
	Premium Hirafu Properties TMK	1,722,433	-	-	-
	Hanwha Hotels & Resorts CO.,LTD.	-	-	-	28,778,900
Subsidiaries:	Haeorum PV Plant Corporation	-	-	-	1,500,000
	HAMC Holdings Corp.	-	-	-	58,124,522
	Hanwha Q CELLS Co., Ltd.(*1)	368,716,594	-	219,954,062	386,685,510
	WOS Inc.	120,499,980	-	-	4,500,000
	Hanwha Global Asset Corporation(*2)(*3)	202,356,012	62,897,788	362,581,989	264,494,516
	HANWHA SOLUTIONS USA HOLDINGS CORPORATION	33,609,910	-	-	140,770,000
	Hanwha NxMD Corporation	105,800,000	-	-	-
	HCCHOLDINGS CORPORATION(*4)	-	262,048,272	-	-
	Q Energy Solutions SE(formerly, Hanwha EU ENERGY Solutions SE)(*5)	-	1,171,303,884	-	-
	HHR Development B GK	2,508,451	-	-	-
	Gyeonggi Hwasung Bio Valley Co.,Ltd.	7,650,000	-	-	-
	NxEF	10,000,000	-	-	-
	Gobokjumin Taeyanggwangbaljeon Co., Ltd.	891,000	-	-	-
	Q Energy Mediterranee (formerly, RES Mediterranee)	-	-	-	26,496,892

(*1) Shares in Q Energy Europe GmbH of ₩157,056,274 thousand and Hanwha Q CELLS America Inc. of ₩62,897,788 thousand were acquired due to capital reduction of Hanwha Q CELLS Co., Ltd.
(*2) Shares in Hanwha Q CELLS America Inc. of ₩62,897,788 thousand were invested.
(*3) The Company has newly established HAM Holdings through spin-off of Hanwha Global Asset Corporation.
(*4) The Company has invested shares of Hanwha Chemical (Ningbo) Co., Ltd.
(*5) Shares in Q Energy Mediterranee (formerly, RES Mediterranee) of ₩1,014,248,610 thousand and Q Energy Europe GmbH of ₩157,056,274 thousand were invested.

40. Related Parties, Continued

(6) Payment guarantees provided for related parties as of December 31, 2022 are as follows:

1) Payment guarantees for borrowings from financial institutions and corporate bond provided to related parties as of December 31, 2022 are as follows:

In USD, EUR, MYR, CNY, JPY, thousands of won

Guarantee	Currency	Payment guarantee Limit	Payment guarantee Amount	Use of payment guarantee
Hanwha International LLC	USD	43,000,000	43,000,000	Borrowings from financial institutions
Hanwha Q CELLS USA Corp.	USD	240,000,000	170,000,000	Borrowings from financial institutions
Hanwha Q CELLS (Qidong) Co., Ltd.	USD	137,800,000	90,000,000	Borrowings from financial institutions
	CNY	432,000,000	100,000,000	Borrowings from financial institutions
Hanwha Q CELLS Investment Co., Ltd.	KRW	80,340,000	80,000,000	Borrowings from financial institutions
	USD	19,200,000	-	Borrowings from financial institutions
Hanwha Q CELLS USA, INC.	USD	130,000,000	80,000,000	Borrowings from financial institutions
Hanwha Q CELLS Malaysia Sdn. Bhd.	USD	310,000,000	172,668,023	Borrowings from financial institutions
	MYR	962,000,000	962,000,000	Borrowings from financial institutions
Hanwha Q CELLS GmbH	EUR	172,000,000	153,892,750	Borrowings from financial institutions
	EUR	20,000,000	20,000,000	Borrowings from financial institutions
Garnet Solar Power Generation Station 1, LLC	USD	6,741,264	6,741,264	Borrowings from financial institutions
Hanwha Advanced Materials Holdings USA LLC	USD	20,000,000	20,000,000	Borrowings from financial institutions
Hanwha Advanced Materials America LLC	USD	75,000,000	75,000,000	Borrowings from financial institutions
Hanwha Azdel Inc.	USD	18,000,000	11,000,000	Borrowings from financial institutions
Hanwha Cimarron LLC	USD	50,000,000	50,000,000	Borrowings from financial institutions
Hanwha Advanced Materials Mexico S. De R.L. De C.V.	USD	5,000,000	3,000,000	Borrowings from financial institutions
Hanwha Advanced Materials Europe, s.r.o.	EUR	25,200,000	17,000,000	Borrowings from financial institutions
H Properties TMK	JPY	10,800,000,000	9,000,000,000	Borrowings from financial institutions
HHR Development B GK	JPY	1,344,000,000	1,120,000,000	Borrowings from financial institutions
GK Summit Apollo Eleven	JPY	3,240,000,000	2,700,000,000	Borrowings from financial institutions
Q Energy Solutions SE (formerly, Hanwha EU ENERGY Solutions SE)	EUR	430,000,000	175,000,000	Borrowings from financial institutions
Q Energy Europe GmbH	USD	19,200,000	-	Borrowings from financial institutions
	EUR	130,000,000	100,000,000	Borrowings from financial institutions
Q Energy France	USD	4,641,076	-	Borrowings from financial institutions
	EUR	31,900,000	-	Borrowings from financial institutions
	USD	1,078,582,340	721,409,287	
	MYR	962,000,000	962,000,000	
	EUR	809,100,000	465,892,750	
	CNY	432,000,000	100,000,000	
	JPY	15,384,000,000	12,820,000,000	
	KRW	80,340,000	80,000,000	

2) In addition, as of December 31, 2022, the Company has provided a payment guarantee of USD 65 million for BT Coniglio Solar LLC's power price difference transaction payment. However, Hanwha QCELLS USA Corp. and Coniglio Tax Equity Partnership, LLC have the nature of a simultaneous guarantee for the same project, and the sum of the two guarantee limits does not exceed USD 72 million (see Note 40(8)).

40. Related Parties, Continued

(7) Joint guarantees provided for related parties as of December 31, 2022 are as follows:

In USD

Guarantee	Currency	Payment guarantee Limit	Payment guarantee Amount	Use of payment guarantee
HQC Maywood, LLC	USD	6,402,945	6,402,945	Lease fee
Kalaeloa Renewable Energy Park, LLC	USD	7,621,135	7,621,135	Lease fee
Hanwha Q CELLS EPC USA, LLC	USD	30,836,926	30,836,926	Fulfillment guarantees
	USD	44,861,006	44,861,006	

(8) Fulfillment guarantees and Fund supplement agreements

1) Fulfillment guarantees provided for related parties as of December 31, 2022 are as follows:

In USD, JPY, EUR, thousands of won

Company	Contract counterparty	Currency	Amount
Hanwha Q CELLS Japan Co., Ltd.	Marubeni Corporation	USD	131,000,000
	NTT Facilities Inc.	JPY	4,610,000,000
	Itochu Corporation	USD	2,526,518
	JGC Corporation	JPY	131,348,708
	GK Rokunohe Solar Park	JPY	296,000,000
	Nippon Renewable Energy K.K.	JPY	2,111,360,000
Hanwha Q CELLS America Inc.	NextEra Energy Constructors, LLC.	USD	31,401,353
Hanwha Q CELLS EPC USA, LLC	Oberon Solar IB, LLC	USD	7,593,219
Hanwha Q CELLS USA Corp.	RBC Kellam Holding Co, LLC	USD	22,950,000
	Coniglio Tax Equity Partnership, LLC(*1)	USD	58,627,416
Hanwha Q CELLS Chile SpA	Chile Solar JV SpA(*2)	USD	3,108,000
	Chile Solar JV SpA	USD	37,740,000
	Santiago Solar Power SpA	USD	52,785,000
Hanwha Station Development Co., Ltd.	Korea Rail Network Authority	KRW	3,202,968
	RTE	EUR	360,000
Q Energy Mediterranee (formerly, RES Mediterranee)	Sky Renewables S.a.r.l	EUR	15,701,000
	C.E.P.E Croix de l'Erable	EUR	22,750,000
	C.E.P.E Croix de Bertault	EUR	21,022,000
	Azzulinas Investment S.A.U	EUR	22,811,040
		USD	347,731,506
		JPY	7,148,708,708
		EUR	82,644,040
		KRW	3,202,968

(*1) BT Coniglio Solar, LLC has the nature of a simultaneous guarantee for the same project, and the sum of the two guarantees does not exceed USD 72 million(see Note 40(6)).

(*2) According to Article 2-8, Paragraph 1, Subparagraph 5 of the Foreign Exchange Transaction Regulations, it is exempted from reporting to the Bank of Korea.

40. Related Parties, Continued

(8) Fulfillment guarantees and Fund supplement agreements, continued

2) Fund supplement agreements provided to related parties as of December 31, 2022 are as follows:

In thousands of won

Company	Currency	Amount	Note
West Ochang Techno Valley Co., ltd.	KRW	72,000,000	First-priority PF agreement.

(9) As of December 31, 2022, the company has provided the entire investments in subsidiary, Haeorum PV Plant Corporation and West Ochang Techno Valley Co., ltd., as collateral for the borrowing of the investee.

(10) As of December 31, 2022, the company has provided the guarantees of system total efficiency and responsible operations through the business consignment service with the related party such as Hi-pass Solar Corporation.

(11) Details of compensation for key executives for the years ended December 31, 2022 and 2021, are as follows:

In thousands of won		2022	2021
Short-term employee benefits(*)	₩	88,257,870	55,955,605
Retirement benefits		10,071,075	8,094,650
Other long-term employee benefits		22,426	23,459

(*) Short-term employee benefits include ₩16,645 million of equity- settlement (2021: ₩12,906 million) and ₩24,573 million of cash settlement (2021: ₩7,880 million) in relation to the share-based payment system.

(12) Changes in lease liabilities about related parties, including conglomerates for years ended December 31, 2022 are as follows:

In thousands of won			2022		
	Company		Balance at 1 January 2022	Variation	Balance at 31 December 2022
Parent company:	Hanwha Corporation	₩	16,424,553	(2,602,509)	13,822,044
Subsidiaries:	Hanwha Galleria Timeworld Co., Ltd.		15,969,117	(3,844,156)	12,124,961
	Hanwha Advanced Materials Corporation		-	6,965,621	6,965,621
Associate and Joint venture:	YEOCHUN NCC Co., Ltd.		-	3,917	3,917
Conglomerate:	Hanwha LIFE INSURANCE CO., LTD.		24,874,423	(10,470,859)	14,403,564
	Hanwha General Insurance Co., Ltd.		333,072	(333,072)	-
	Hanwha Energy Corporation		735	(735)	-
		₩	57,601,900	(10,281,793)	47,320,107

41. Cash Flows

(1) Cash flows generated from operating activities for the years ended December 31, 2022 and 2021, are as follows:

In thousands of won		2022	2021
Income before income tax expense	₩	1,529,336,820	674,356,614
Adjustments:		(20,086,790)	465,901,158
Financial income		(57,095,574)	(247,763,697)
Financial expense		163,219,642	88,372,863
Allowance for doubtful accounts		14,687,186	8,183,205
Reversal of financial guarantee liabilities		(16,905,824)	(12,744,101)
Reversal of loss (gain) on valuation of inventories		(20,305,323)	39,865,840
Loss on inventory abandoned		480,370	2,992,036
Depreciation Expenses on Tangible Assets		354,751,573	321,530,114
Depreciation of investment property		1,258,364	1,230,256
Depreciation - right-of-use asset		47,228,409	42,030,131
Amortization		25,171,259	25,015,018
Other bad debt expense		362,576	1,014,830
Retirement benefits		84,431,097	80,705,352
Other long-term employee benefits		6,295,237	2,840,267
Transfer on provisions		12,942,366	7,404,747
Loss on foreign currency translation		186,801,489	82,440,542
Loss on valuation of FVTPL – financial assets		736,757	15,225
Loss on disposal of FVTPL – financial assets		153,049	123,756
Loss on valuation of derivatives		123,425,603	3,539,195
Loss on disposal of trade receivables		2,870,106	558,112
Impairment loss of Investments in associates and joint ventures		-	1,526,573
Impairment loss of property, plant and equipment		27,704,853	47,416,131
Impairment loss of Intangible assets		25,475,405	9,542,646
Impairment loss of right-of-use assets		-	1,778,581
Loss on disposal of Investments in associates and joint ventures		-	627
Loss on disposal of investment property		5,252,829	4,510,216
Loss on disposal of intangible assets		799,441	85,745
Gain on disposal of intangible assets		(252)	-
Gain on disposal of investment property		(8,569,366)	(3,987)
Gain on disposal of property, plant and equipment		(6,452,113)	(15,798,666)
Gain on disposal of non-current assets held for sale		-	-
Gain on valuation of FVTPL – financial assets		(1,544,991)	(2,290,740)
Gain on disposal of Investments in associates and joint ventures		(771,506,126)	(53,468)

41. Cash Flows, Continued

(1) Cash flows generated from operating activities for the years ended December 31, 2022 and 2021, are as follows, continued:

In thousands of won		2022	2021
Adjustments:	₩		
Gain on foreign currency translation		(89,032,786)	(18,190,968)
Gain on valuation of derivatives		(140,515,434)	(83,917,279)
Reversal of Allowance for Doubtful Accounts		(3,763)	-
Reversal of other Allowance for Doubtful Accounts		(591)	-
Other expenses(income)		7,797,742	73,942,056
Changes in operating assets and liabilities:		(1,347,690,683)	(217,961,060)
Trade receivables		(1,164,326,552)	(333,732,547)
Other receivables		(32,360,523)	(33,142,008)
Inventories		(174,677,133)	(313,608,945)
Other financial assets		2,003,077	452,049
Other current assets		(60,904,594)	15,496,787
Other non-current assets		(53,652,910)	(1,653,278)
Trade payables		280,191,218	451,580,706
Other payables		(69,549,363)	66,756,804
Other financial liabilities		22,034,528	24,730,549
Financial guarantee liabilities		2,616,543	833,517
Provision		(5,712,881)	(10,519,322)
Other current liabilities		15,615,179	(31,346,063)
Other non-current liabilities		(407,029)	(1,985,199)
Payment of other long-term employee benefits		(3,267,113)	(3,819,189)
Change in membership deposit		(23,920,000)	-
Provision for Severance Benefits		(81,373,130)	(48,004,921)
Cash generated from operations	₩	161,559,347	922,296,712

41. Cash Flows, Continued

(2) Significant transactions not affecting cash flows for the years ended December 31, 2022 and 2021, are as follows:

In thousands of won		2022	2021
Transfer to the related assets from construction in progress	₩	368,082,244	547,563,913
Transfer to stored goods from machinery in transit		6,950,025	5,350,985
Reclassification of current portion of non-current rental deposit		409,278	2,939,411
Changes in advance payments due to acquisition of property, plant and equipment		(10,175,172)	1,576,793
Changes in other payables due to acquisition of property, plant and equipment		12,505,933	7,160,775
Reclassification of property, plant and equipment to investment property		-	(8,600,800)
Reclassification of current portion of debentures and borrowings		590,464,676	825,821,094
Increase of contingent consideration		-	37,462,772
Changes in other payables due to acquisition of Investments in associates and joint ventures		141,701,501	280,490,547
Changes in right-of-use assets		17,330,282	(4,426,081)
Reclassification of investment property to non-current assets held for sale		-	7,377,750
Reclassification of Property, Plant, & Equipment to non-current assets held for sale		37,254,007	-

(3) Changes in liabilities from financing activities for the year ended December 31, 2022 and 2021 are as follows:

In thousands of won		Borrowings and Debentures
Balance at 1 January 2022	₩	4,175,521,948
Changes in cashflows from financing activities		1,102,989,475
Effects due to exchange rate changes		16,723,280
Other changes related to liabilities:		
Amortization on discount on debentures		3,592,573
Balance at 31 December 2022	₩	5,298,827,276

In thousands of won		Borrowings and Debentures
Balance at 1 January 2021	₩	3,228,191,278
Business combination		318,843,379
Changes in cashflows from financing activities		556,517,354
Effects due to exchange rate changes		68,880,037
Other changes related to liabilities:		
Amortization on discount on debentures		3,089,900
Balance at 31 December 2021	₩	4,175,521,948

42. Business Combination

The Company has acquired the businesses of Jade Palace Golf Course and Jade Garden Natural Arboretum from Hanwha Hotels & Resorts CO.,LTD. as of March 31, 2022.

The Company has recognised the acquired assets and assumed liabilities at their book values on the consolidated financial statements of the ultimate parent company, and has recognised the difference between the consideration transferred and the book values as equity.

The carrying amounts of acquired assets and liabilities as of merger date are as follows:

In thousands of won		**Amount**
Current assets:		
Cash and cash equivalents	₩	12,458
Trade receivables and other receivables		66,109
Other Current Assets		26,491
Inventories		223,574
		328,632
Non-current assets:		
Other Financial Assets		246,349
Investment in Properties		149,472
Property, plant and equipment		187,376,216
Right-of-use assets		755,003
Intangible assets		2,331
		188,529,371
Current liabilities:		
Trade payables and other payables		609,431
Other financial liabilities		139,259,303
Other current liabilities		8,053,411
		147,922,145
Non-current liabilities:		
Other financial liabilities		18,607,734
Net defined benefit liabilities		2,025,570
Other non-current liabilities		1,153,782
		21,787,086
Fair value of identifiable net asset	₩	19,148,772

43. Spin-off

The Company has spin-off its Lightweight Composite Materials Business Unit and Solar Materials Business Unit to establish a new Company (Hanwha Advanced Materials Corporation) (Date of split-off: December 1, 2022).

In thousands of won		**Amount**
Asset	₩	452,151,986
Liabilities		150,773,011
Net assets transferred (Investment in subsidiaries)(*)	₩	301,378,975

(*) The Company has sold 39.7% of its investment in subsidiaries acquired through the spin-off as in the above, and the year-end balance of investment in subsidiaries is ₩181,738 million(remaining shareholding ratio of 60.3% after the sale). After then, due to disproportionate capital increase, the shareholding ratio has decreased to 52.76%.

44. Construction Contracts

(1) Changes in construction contracts for the year ended December 31, 2022 and 2021 are as follows:

In thousands of won		Balance at 1 January 2022	Variance	Revenue Recognition	Balance at 31 December 2022
Construction of domestic solar power plants	₩	38,207,070	445,508,530	(175,988,006)	307,727,594
Construction of overseas solar power plants		56,339,524	(1,229,971)	(29,591,559)	25,517,994
	₩	94,546,594	444,278,559	(205,579,565)	333,245,588

In thousands of won		Balance at 1 January 2021	Variance	Revenue Recognition	Balance at 31 December 2021
Construction of domestic solar power plants	₩	14,442,550	108,759,665	(84,995,145)	38,207,070
Construction of overseas solar power plants		53,047,468	36,540,311	(33,248,256)	56,339,523
	₩	67,490,018	145,299,976	(118,243,401)	94,546,593

(2) Construction revenues and cost recognized in relation to the ongoing construction contract for the year ended December 31, 2022 and 2021 are as follows:

In thousands of won		2022			
		Cumulative revenue	Cumulative cost	Cumulative profit	Due to customers
Construction of domestic solar power plants	₩	195,885,080	192,945,228	2,939,852	782,000
Construction of overseas solar power plants		80,049,805	76,350,529	3,699,276	-
	₩	275,934,885	269,295,757	6,639,128	782,000

In thousands of won		2021			
		Cumulative revenue	Cumulative cost	Cumulative profit	Due to customers
Construction of domestic solar power plants	₩	81,827,706	76,272,353	5,555,353	782,000
Construction of overseas solar power plants		50,458,246	48,500,799	1,957,447	3,880,900
	₩	132,285,952	124,773,152	7,512,800	4,662,900

44. Construction Contracts, Continued

(3) Contract assets and liabilities in relation to the construction contract as of December 31, 2022 and 2021 are as follows:

In thousands of won		2022		
		Unclaimed construction(*1)	Overclaimed construction(*2)	Advances from construction contracts(*2)
Construction of domestic solar power plants	₩	34,651,129	6,110,272	782,000
Construction of overseas solar power plants		-	5,713,104	-
	₩	34,651,129	11,823,376	782,000

(*1) The contract assets are accounted as other current assets in the statement of financial position
(*2) The contract liabilities are accounted as current liabilities in the statement of financial position.

In thousands of won		2021		
		Unclaimed construction(*1)	Overclaimed construction(*2)	Advances from construction contracts(*2)
Construction of domestic solar power plants	₩	3,183,137	5,139,528	782,000
Construction of overseas solar power plants		-	4,333,096	3,880,900
	₩	3,183,137	9,472,624	4,662,900

(*1) The contract assets are accounted as other current assets in the statement of financial position
(*2) The contract liabilities are accounted as current liabilities in the statement of financial position.

(4) The effects on profits and contract assets, liabilities resulting from the change of the estimation of revenue and cost in relation with the construction of solar plant are as follows:

In thousands of won		Changes of estimation		Effects on profit		Changes in balance	
		Revenue	Cost	2022	Future	Contract assets	Contract liabilities
Construction of overseas solar power plants	₩	4,631,646	3,926,707	485,537	219,402	1,065,712	(580,175)

(5) There are no individual contracts for the years ended December 31, 2022 and 2021 that use the cost-based input method to measure percentage of completion, with the contract amount exceeding 5% of the sales in the previous fiscal year.

45. Share-Based Payment

The Company granted 488,709 shares of Restrictive Stock Units (the "RSU") to the executive and employee, and also granted the cash compensation linked with the share price. The Company recognized the compensation expenses of ₩43,058 million the for the year ended December 31, 2022. Stock option is measured at the fair value at the grant date for the Restrictive Stock Units, while cash compensation linked with the share price is measured at the closing price at the end of every reporting period. The annual share-based payment will be fully vested for executive above the level of Vice President if they provide service for more than six months in the fiscal year in which it includes the grant date, while executive below the level of Managing Director will be granted the annual share-based payment in the concept of performance-based incentives on December 31 and it will be fully vested at the same time. Share-based payment will be effective after the grant date, from 5 to 10 years.

46. Subsequent Events

(1) Type stock capital increase payment in cash

According to the board resolution on October 28, 2022, the type stock(old preferred stock) capital increase(allocated to shareholders) was completed with a payment of ₩49,387 million on January 11, 2023.

(2) Spin-off by personnel transfer

On March 1, 2023, the Company established a spin-off company(name: Hanwha Galleria Co., Ltd.) through a simple and personnel transfer spin-off method as prescribed by Article 530-2 through Article 530-11 of the Commercial Code, for the purpose of department store business and retail and wholesale businesses.

Comments On The Audit or Review of Internal Accounting Control system

This report is annexed in relation to the audit of the separate financial statements as of December 31, 2022 and the audit of internal accounting control system pursuant to Article 8-7 of the Act on External Audits of Corporations in the Republic of Korea.

Attachment 1. Independent Auditors' Report on Internal Control over Financial Reporting
Attachment 2. Internal Control over Financial Reporting Operating Status Report by CEO and Internal Accounting Manager

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Independent Auditors' Report on Internal Control over Financial Reporting

Based on a report originally Issued in Korean

To the Shareholders and the Board of Directors of
HANWHA SOLUTIONS CORPORATION

Opinion on Internal Control over Financial Reporting

We have audited Hanwha Solutions Corporation ("the Company") internal control over financial reporting ("ICFR") as of December 31, 2022 based on the criteria established in the Conceptual Framework for Designing and Operating ICFR ("ICFR Design and Operation Framework") issued by the Operating Committee of Internal Control over Financial Reporting in the Republic of Korea (the "ICFR Committee").

In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2022, based on ICFR Design and Operation Framework.

We also have audited, in accordance with Korean Standards on Auditing ("KSAs"), the separate financial statements of the Company, which comprise the separate statement of financial position as of December 31, 2022, the separate statements of comprehensive income, changes in equity and cash flows for the year then ended, and notes, comprising significant accounting policies and other explanatory information, and our report dated March 15, 2023, expressed an unmodified opinion on those separate financial statements.

Basis for Opinion

We conducted our audit in accordance with KSAs. Our responsibilities under those standards are further described in the *Auditors' Responsibilities for the Audit of the Internal Control over Financial Reporting* section of our report. We are independent of the Company in accordance with the ethical requirements that are relevant to our audit of the internal control over financial reporting in Republic of Korea, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Responsibilities of Management and Those Charged with Governance for the Internal Control over Financial Reporting

The Company's management is responsible for designing, operating and maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Internal Control over Financial Reporting Operating Status Report by CEO and Internal Accounting Manager.

Those charged with governance are responsible for overseeing the Company's internal control over financial reporting.

Auditors' Responsibilities for the Audit of the Internal Control over Financial Reporting

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

Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk.

Definition and limitations of Internal Control over Financial Reporting

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

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

The engagement partner on the audit resulting in this independent auditors' report is Dae-jin Kim.

KPMG Samjong Accounting Corp.

Seoul, Korea
March 15, 2023

This report is effective as of March 15, 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 internal control over financial reporting. 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.

[Internal Control over Financial Reporting Operating Status Report by CEO and Internal Accounting Manager]

To the Shareholders, Board of Directors and Audit Committee of Hanwha Solutions Corporation

We, as the Chief Executive Officer and the Internal Accounting Manager of Hanwha Solutions Corporation ("the Company") assessed operating status of the Company's Internal Control over Financial Reporting ("ICFR") for the year ending December 31, 2022.

Design and operation of ICFR is the responsibility of the Company's management, including the Chief Executive Officer and the Internal Accounting Manager. We evaluated whether the Company effectively designed and operated its ICFR to prevent and detect errors or frauds which may cause a misstatement in financial statements to ensure preparation and disclosure of reliable financial information. We used the 'Conceptual Framework for Designing and Operating Internal Control over Financial Reporting' established by the Operating Committee of Internal Control over Financial Reporting in Korea (the "ICFR Committee") as the criteria for design and operation of the Company's ICFR. And we conducted an evaluation of ICFR based on the 'Management Guideline for Evaluating and Reporting Effectiveness of Internal Control over Financial Reporting' established by the ICFR Committee.

Based on our assessment, we concluded that the Company's ICFR is designed and operated effectively as of December 31, 2022, in all material respects, in accordance with the 'Conceptual Framework for Designing and Operating Internal Control over Financial Reporting'.

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

February 6 , 2023
Hanwha Solutions Corporation

Chief Executive Officer Yi Hyeon Nam (Signature)

Chief Executive Officer Koo Yung Lee (Signature)

Internal Accounting Manager Seung Jun Roh (Signature)