

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES

Consolidated Financial Statements

December 31, 2021

(With Independent Auditors' Report Thereon)

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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 consolidated financial statements of Hanwha Solutions Corporation and its subsidiaries ("the Group"), which comprise the consolidated statement of financial position as of December 31, 2021, the consolidated statements of comprehensive income, changes in equity and cash flows for the year then ended, and notes to the consolidated financial statements, comprising significant accounting policies and other explanatory information.

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

Basis for Opinion

We conducted our audit in accordance with Korean Standards on Auditing (KSAs). Our responsibilities under those standards are further described in the *Auditors' Responsibilities for the Audit of the Consolidated Financial Statements* section of our report. We are independent of the Group in accordance with the ethical requirements that are relevant to our audit of the consolidated financial statements in 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 Matter

Key audit matter is that matter that, in our professional judgement, was of most significance in our audit of the consolidated financial statements as of and for the year ended December 31, 2021. This matter was addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on this matter.



- Assessment of goodwill impairment

Regarding cash-generating unit consisting of Hanwha Q CELLS Co., Ltd. and its subsidiaries, in which the goodwill was allocated, as described in Note 17 to the consolidated financial statements, an impairment test was conducted in accordance with K-IFRS 1036 Impairment of Assets during the current period. As of December 31, 2021, the carrying amount of the goodwill is KRW 246,142 million.

The Group conducts the impairment test on cash generating units with allocated goodwill every year. The Group measures the amount of impairment of the cash-generating units that needs to be impaired as the difference between the carrying amount and the higher of the cash-generating unit's value-in-use and its fair value less costs to sell. The estimation of value-in-use of the cash-generating units involves the significant judgement of management on the key assumptions such as sales growth rate, discount rate, permanent growth rate, and others. Therefore, we identified the assessment of goodwill impairment as a key audit matter.

The audit procedures for the key audit matter include followings:

- Understand the process related to measurement of value-in-use and impairment test, and test of design and operating effectiveness of certain internal controls over the process;
- Confirm the independence, objectivity and competence of the external valuation experts;
- Compare the financial data used for impairment test with the mid to long-term business plans approved by the management;
- Engaging our valuation specialists to assist us in evaluating the key assumptions (sales growth rate, discount rate, permanent growth rate, etc.) used for impairment test, and impairment test methodology and
- Assess the completeness of the disclosures of notes to consolidated financial statements related to impairment of assets

Other Information

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.

The consolidated financial statements of the Group as of and for the period ended December 31, 2020 were audited by other auditors in accordance with KSAs, whose report thereon dated March 15, 2021, expressed an unqualified opinion.

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

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

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

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



Auditors' Responsibilities for the Audit of the Consolidated Financial Statements

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

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

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

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

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



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

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

KPMG Samjong Accounting Corp.

KPMG Samjong Accounting Corp.
Seoul, Korea

This report is effective as of March 15, 2022, the audit report date. Certain subsequent events or circumstances, which may occur between the audit report date and the time of reading this report, could have a material impact on the accompanying consolidated financial 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 AND SUBSIDIARIES
 Consolidated Statements of Financial Position
 As of December 31, 2021 and 2020

In won

	<u>Note</u>	<u>December 31, 2021</u>	<u>December 31, 2020</u>
Assets			
Current assets:			
Cash and cash equivalents	5, 6, 7, 8	₩ 1,567,162,571,367	1,199,836,790,880
FVTPL – financial assets	6, 7, 14	-	2,919,929,609
Other financial assets	5, 6, 7, 11, 56	229,553,165,289	192,784,578,657
Trade receivables and other receivables	5, 6, 7, 8, 10, 56	1,631,758,622,607	1,457,525,668,928
Other current assets	12	331,309,259,734	327,677,928,124
Inventories	13	2,231,502,356,819	1,431,588,395,266
Current income tax assets		16,788,568,009	10,521,341,035
Non-current assets held for sale	20	65,885,387,264	335,510,133,567
		<u>6,073,959,931,089</u>	<u>4,958,364,766,066</u>
Non-current assets:			
FVTPL – financial assets	6, 7, 14	33,628,555,019	1,858,487,368
FVTOCI – financial assets	6, 7, 14	56,186,275,865	48,540,950,633
Other financial assets	5, 6, 7, 11, 56	209,559,134,922	62,138,708,939
Long-term trade receivables and other receivables	5, 6, 7, 10, 56	2,839,139,559	3,837,386,475
Investments in associates and joint ventures	15, 56	3,438,403,013,136	2,685,163,548,446
Investment property	16	212,427,637,717	142,186,820,436
Property, plant and equipment	17	6,451,599,071,822	6,416,485,418,350
Intangible assets	18	1,580,566,861,451	413,850,869,155
Right-of-use assets	19	381,095,528,884	309,714,378,120
Other non-current assets	12	35,937,956,734	16,286,043,155
Deferred tax assets	53	121,326,658,470	78,892,444,514
		<u>12,523,569,833,579</u>	<u>10,178,955,055,591</u>
Finance business assets:			
Cash and cash equivalents	27, 28	84,367,726,864	-
FVTPL – financial assets	27, 29	88,445,756,066	-
FVTOCI – financial assets	27, 29	1,492,153,533	-
Financial assets at amortized cost	27, 30	1,099,170,123,176	-
Other financial assets	27, 28, 31	117,153,453,692	-
Derivative assets	27, 32	7,738,015,890	-
Property, plant and equipment	34	3,363,729,642	-
Intangible assets	35	1,901,534,879	-
Right-of-use assets	36	613,373,090	-
Other assets	33	4,044,807,806	-
Deferred tax assets	53	1,751,754,876	-
		<u>1,410,042,429,514</u>	<u>-</u>
Total assets		<u>₩ 20,007,572,194,182</u>	<u>15,137,319,821,657</u>

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
Consolidated Statements of Financial Position, Continued
As of December 31, 2021 and 2020

In won

	<u>Note</u>	<u>December 31, 2021</u>	<u>December 31, 2020</u>
Liabilities			
Current liabilities:			
Trade payables and other payables	5, 6, 7, 21, 56	₩ 2,441,732,749,591	1,556,391,779,523
Short-term borrowings	5, 6, 7, 8, 22	2,611,134,177,317	2,971,925,504,640
Other financial liabilities	5, 6, 7, 23	292,209,368,234	222,157,508,868
Provisions	26	54,458,109,317	51,059,261,569
Other current liabilities	24	296,577,676,097	302,576,039,534
Current income tax liabilities		91,777,621,545	147,015,493,040
		<u>5,787,889,702,101</u>	<u>5,251,125,587,174</u>
Non-current liabilities:			
Long-term trade payables and other payables	5, 6, 7, 21, 56	173,506,004,180	14,510,678
Long-term borrowings	5, 6, 7, 22	3,263,692,515,386	2,716,648,021,647
Other financial liabilities	5, 6, 7, 23	469,362,495,237	379,992,170,696
Net defined benefit liabilities	25	455,223,009,098	446,565,139,356
Long-term employee benefits		26,716,231,237	27,893,225,306
Provisions	26	112,192,697,790	106,857,639,088
Other non-current liabilities	24	5,879,963,273	6,381,504,979
Deferred tax liabilities	53	267,905,030,821	234,126,532,234
		<u>4,774,477,947,022</u>	<u>3,918,478,743,984</u>
Finance business liabilities:			
Deposits	37	1,224,148,714,191	-
Other financial liabilities	27, 36, 40	15,818,976,930	-
Provisions	39	110,057,671	-
Net defined benefit liabilities	38	130,554,032	-
Other liabilities	41	2,577,660,412	-
Current income tax liabilities		1,171,462,590	-
		<u>1,243,957,425,826</u>	<u>-</u>
Total liabilities		<u>11,806,325,074,949</u>	<u>9,169,604,331,158</u>
Equity			
Capital stock	42	978,240,655,000	821,170,655,000
Capital surplus	42	2,003,249,459,042	798,470,151,101
Capital adjustments	43	(24,175,632,263)	(10,328,159,475)
Accumulated other comprehensive income	44	150,692,884,947	(110,009,596,397)
Retained earnings	45	5,051,413,697,545	4,429,789,179,026
Equity attributable to owner of the Company		<u>8,159,421,064,271</u>	<u>5,929,092,229,255</u>
Non-controlling interests	61	41,826,054,962	38,623,261,244
Total equity		<u>8,201,247,119,233</u>	<u>5,967,715,490,499</u>
Total liabilities and equity		<u>₩ 20,007,572,194,182</u>	<u>15,137,319,821,657</u>

See accompanying notes to the consolidated financial statements.

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
Consolidated Statements of Comprehensive Income
For the years ended December 31, 2021 and 2020

In won

	<u>Note</u>	<u>2021</u>	<u>2020</u>
Revenue	47, 56, 58, 59		
Non-financial business		₩ 10,706,126,080,154	9,195,008,128,360
Finance business		19,066,304,668	-
		<u>10,725,192,384,822</u>	<u>9,195,008,128,360</u>
Cost of sales	48, 50, 56		
Non-financial business		8,515,657,376,628	7,269,115,499,108
Finance business		13,354,968,403	-
		<u>8,529,012,345,031</u>	<u>7,269,115,499,108</u>
Gross profit		<u>2,196,180,039,791</u>	<u>1,925,892,629,252</u>
Selling and administrative expenses	49, 50	<u>1,457,832,384,499</u>	<u>1,331,709,511,176</u>
Operating income	58	<u>738,347,655,292</u>	<u>594,183,118,076</u>
Other non-operating income	51	659,787,086,180	542,225,953,318
Other non-operating expenses	51	(680,045,466,635)	(665,209,460,262)
Financial income	52	21,900,950,463	25,466,097,795
Financial expenses	52	(147,547,827,644)	(205,280,548,228)
Share of profit of associates and joint ventures	15	<u>262,895,885,097</u>	<u>160,157,879,981</u>
Non-operating income (loss)		<u>116,990,627,461</u>	<u>(142,640,077,396)</u>
Profit before income tax expense		<u>855,338,282,753</u>	<u>451,543,040,680</u>
Income tax expenses	53	<u>239,010,062,357</u>	<u>111,968,780,759</u>
Profit from continuing operations		<u>616,328,220,396</u>	<u>339,574,259,921</u>
Loss from discontinued operations		<u>-</u>	<u>(37,851,885,752)</u>
Net income for the period		<u>₩ 616,328,220,396</u>	<u>301,722,374,169</u>

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
Consolidated Statements of Comprehensive Income, Continued
For the years ended December 31, 2021 and 2020

In won

	Note	2021	2020
Other comprehensive income (loss)			
Items that are or may be reclassified to profit or loss:			
Share of other comprehensive income of associates and joint ventures	₩	141,510,702,321	4,713,773,726
Gain (loss) on valuation of FVTOCI-financial assets (debt instrument)		(126,571,020)	(2,896,135)
Gain (loss) on valuation of cash flow hedges		197,595,523	(222,613,495)
Currency translation adjustments		124,328,633,651	(8,909,574,700)
Items that will not be reclassified to profit or loss:			
Share of other comprehensive income of associates and joint ventures		(25,167,245,854)	(42,493,755,246)
Gain (loss) on valuation of FVTOCI-financial assets (equity instrument)		9,425,109,740	1,378,790,937
Remeasurement of net defined benefit liabilities		19,119,830,442	(875,102,031)
Share of remeasurements of net defined benefit liabilities of associates and joint ventures		3,981,155,863	(1,187,979,380)
Total comprehensive income	₩	<u>889,597,431,062</u>	<u>254,123,017,845</u>
Net income attributable to:			
Owners of the Company		619,050,614,652	309,076,634,095
Non-controlling interests		(2,722,394,256)	(7,354,259,926)
Total comprehensive income attributable to:			
Owners of the Company		886,195,655,943	267,740,143,243
Non-controlling interests		3,401,775,119	(13,617,125,398)
Earnings per share from continuing operations attributable to the owners of the Company			
	54		
Basic and diluted earnings per common share	₩	3,320	2,154
Basic and diluted earnings per preferred share		3,370	2,204
Loss per share from discontinued operations attributable to the owners of the Company			
	54		
Basic and diluted loss per common share	₩	-	(235)
Basic and diluted loss per preferred share		-	(235)

See accompanying notes to the consolidated financial statements.

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
Consolidated Statements of Change in Equity
For the years ended December 31, 2021 and 2020

In won

	Capital stock	Consolidated capital surplus	Consolidated capital adjustment	Consolidated accumulated other comprehensive income (loss)	Consolidated retained earnings	Non-controlling interests	Total
Balance at January 1, 2020	₩ 821,170,655,000	804,503,695,100	(2,917,998,641)	(70,522,771,893)	4,175,935,376,973	77,678,253,390	5,805,847,209,929
Total comprehensive income (loss):							
Net income	-	-	-	-	309,076,634,094	(7,354,259,926)	301,722,374,168
Other comprehensive income (loss):							
Items subsequently reclassified to profit (loss):							
Gain (loss) on valuation of FVTOCI-financial assets (debt instrument)	-	-	-	(1,426,607)	-	(1,469,528)	(2,896,135)
Share of other comprehensive income of associates and joint ventures	-	-	-	4,715,044,647	-	(1,270,921)	4,713,773,726
Gain (loss) on valuation of cash flow hedges	-	-	-	(222,682,524)	-	69,029	(222,613,495)
Currency translation adjustments	-	-	-	(4,281,772,732)	-	(4,627,801,968)	(8,909,574,700)
Items not subsequently reclassified to net profit (loss):							
Gain (loss) on valuation of FVTOCI-financial assets (equity instrument)	-	-	-	2,797,767,958	-	(1,418,977,021)	1,378,790,937
Share of other comprehensive income of associates and joint ventures	-	-	-	(42,493,755,246)	-	-	(42,493,755,246)
Remeasurement of net defined benefit liabilities	-	-	-	-	(661,686,952)	(213,415,079)	
Share of remeasurements of net defined benefit liabilities of associates and joint ventures	-	-	-	-	(1,187,979,396)	16	
Transactions with shareholders:							
Dividends paid	-	-	-	-	(32,576,792,250)	(3,500,000,000)	(36,076,792,250)
Treasury stock acquisition	-	-	(28,997,745,820)	-	-	-	(28,997,745,820)
Treasury stock disposition	-	12,763,080	8,158,920	-	-	-	20,922,000
Treasury stock incineration	-	-	21,580,364,530	-	(21,580,364,530)	-	
Changes in scope of consolidation:							
Proceeds from acquisition of subsidiaries	-	3,120,203,316	-	-	-	1,783,471,949	4,903,675,265
Changes in ownership interests in subsidiaries that do not result in a loss of control:							
Changes in ownership interests in subsidiaries	-	(19,423,623,772)	-	-	-	(23,713,286,424)	(43,136,910,196)
Share-based payment	-	7,713,950,247	-	-	-	-	7,713,950,247
Others	-	2,543,163,130	(938,464)	-	783,991,087	(8,052,273)	3,318,163,480
Balance at December 31, 2020	₩ 821,170,655,000	798,470,151,101	(10,328,159,475)	(110,009,596,397)	4,429,789,179,026	38,623,261,244	5,967,715,490,499

HANWHA SOLUTION CORPORATION AND SUBSIDIARIES
Consolidated Statements of Change in Equity, Continued
For the years ended December 31, 2021 and 2020

In won

	Capital stock	Consolidated capital surplus	Consolidated capital adjustment	Consolidated accumulated other comprehensive income (loss)	Consolidated retained earnings	Non-controlling interests	Total
Balance at January 1, 2021	₩ 821,170,655,000	798,470,151,101	(10,328,159,475)	(110,009,596,397)	4,429,789,179,026	38,623,261,244	5,967,715,490,499
Total comprehensive income (loss):							
Net income	-	-	-	-	619,050,614,652	(2,722,394,256)	616,328,220,396
Other comprehensive income (loss)							
Items subsequently reclassified to profit (loss):							
Gain (loss) on valuation of FVTOCI-financial assets (debt instrument)	-	-	-	(126,571,021)	-	1	(126,571,020)
Share of other comprehensive income of associates and joint ventures	-	-	-	141,510,702,727	-	(406)	141,510,702,321
Gain (loss) on valuation of cash flow hedges	-	-	-	197,595,523	-	-	197,595,523
Currency translation adjustments	-	-	-	118,456,706,717	-	5,871,926,934	124,328,633,651
Items not subsequently reclassified to net profit (loss):							
Gain (loss) on valuation of FVTOCI-financial assets (equity instrument)	-	-	-	9,425,104,700	-	5,040	9,425,109,740
Share of other comprehensive income of associates and joint ventures	-	-	-	(25,167,245,854)	-	-	(25,167,245,854)
Transfer from accumulated other comprehensive income (loss) to retained earnings	-	-	-	16,371,425,423	(16,371,425,423)	-	-
Remeasurement of net defined benefit liabilities	-	-	-	-	18,867,592,636	252,237,806	19,119,830,442
Share of remeasurements of net defined benefit liabilities of associates and joint ventures	-	-	-	-	3,981,155,863	-	3,981,155,863
Transactions with shareholders:							
Increase in paid-in capital	157,070,000,000	1,181,597,430,096	-	-	-	-	1,338,667,430,096
Treasury stock acquisition	-	-	(13,771,491,411)	-	-	-	(13,771,491,411)
Treasury stock disposition	-	31,468,651	25,960,200	-	-	-	57,428,851
Changes in scope of consolidation:							
Proceeds from acquisition of subsidiaries	-	(12,193,853,731)	-	-	-	927,263,034	(11,266,590,697)
Changes in ownership interests in subsidiaries that do not result in a loss of control:							
Changes in ownership interests in subsidiaries	-	20,360,742,725	-	-	-	19,542,737	20,380,285,462
Share-based payment	-	13,420,347,375	-	-	-	-	13,420,347,375
Others	-	1,563,172,825	(101,941,577)	34,763,129	(3,903,419,209)	(1,145,787,172)	(3,553,212,004)
Balance at December 31, 2021	₩ <u>978,240,655,000</u>	<u>2,003,249,459,042</u>	<u>(24,175,632,263)</u>	<u>150,692,884,947</u>	<u>5,051,413,697,545</u>	<u>41,826,054,962</u>	<u>8,201,247,119,233</u>

See accompanying notes to the consolidated financial statements.

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
Consolidated Statements of Cash Flows
For the years ended December 31, 2021 and 2020

In won

	Note	2021	2020
Cash flows from operating activities:			
Cash generated from operating activities	57	₩ 1,364,853,760,279	1,141,661,090,979
Interest and dividends received from finance business		15,892,837,896	-
Payment of interest from finance business		(5,481,251,038)	-
Income taxes paid		(384,374,663,356)	(72,119,403,884)
Net cash provided by operating activities		990,890,683,781	1,069,541,687,095
Cash flows from investing activities:			
Interest received		23,527,623,159	35,600,394,355
Dividends received		208,983,503,741	176,077,517,666
Proceeds from disposal of FVTOCI-financial assets		3,563,192,811	980,000
Proceeds from disposal of other financial assets		121,147,732,666	976,303,390,817
Proceeds from disposal of investment in associates and joint ventures		214,760,174,315	23,390,558,270
Proceeds from disposal of investment in subsidiaries		1,041,570	2,493,116,874
Receipt of government grants		747,139,930	128,093,170
Proceeds from disposal of investment property		357,736,000	16,006,916,960
Proceeds from disposal of plant, property and equipment		33,113,460,530	18,729,394,543
Proceeds from disposal of intangible assets		4,494,145,277	16,118,356,750
Proceeds from disposal of assets held for sale		653,453,881,020	398,834,536,000
Acquisition of other financial assets		(328,144,095,990)	(711,043,294,095)
Acquisition of investment in associates and joint ventures		(607,106,848,899)	(54,155,760,535)
Acquisition of investment property		(11,476,572,121)	(3,530,862)
Acquisition of property, plant and equipment		(812,670,935,548)	(883,786,181,487)
Acquisition of intangible assets		(10,012,991,694)	(8,247,915,888)
Acquisition of investment in subsidiaries		(1,149,690,090,423)	(45,910,717,450)
Changes in scope of consolidation		-	(3,272,410,317)
Net cash provided by investing activities		(1,654,951,903,656)	(42,736,555,229)
Cash flows from financing activities:			
Proceeds from borrowings		4,055,427,094,863	3,506,554,272,128
Increase of other financial liabilities		1,420,525,536	4,054,009,725
Increase in paid-in capital		1,338,667,430,096	-
Changes in non-controlling interests		-	(19,701,208,376)
Repayment of borrowings		(4,126,608,372,104)	(4,077,517,293,961)
Decrease of other financial liabilities		(5,578,411,902)	(2,011,400,000)
Payment of interest		(87,899,494,339)	(176,264,881,804)
Payment of dividends		-	(32,576,792,250)
Lease payment		(85,351,934,788)	(60,376,968,987)
Acquisition of treasury stock		(13,772,288,760)	(28,997,745,820)
Net cash provided by financing activities		1,076,304,548,602	(886,838,009,345)
Net increase in cash and cash equivalents		412,243,328,727	139,967,122,521
Cash and cash equivalents at January 1		1,199,836,790,880	1,084,516,315,974
Effects of exchange rate changes on the balance of cash held in foreign currencies		39,450,178,624	(24,646,647,615)
Cash and cash equivalents at December 31		₩ 1,651,530,298,231	1,199,836,790,880

See accompanying notes to the consolidated financial statements.

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES

Notes to the Consolidated Financial Statements

For the years ended December, 2021 and 2020

1. General

Hanwha Solutions Corporation(the "Company") was established 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 Yeosu, Jeolla Namdo, Eum-seong and Jin-cheon, Choongchung Bukdo and Sejong Republic of Korea. The consolidated financial statements for the year ended December 31, 2021, comprise the Company and its subsidiaries(the "Group") and the Group's interest in associates and joint ventures.

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.

(1) Details of subsidiaries

The Group's consolidated subsidiaries as of December 31, 2021 and 2020 are as follows:

Company	Locations	Closing month	Main business	Percentage of ownership	
				December 31, 2021	December 31, 2020
Direct subsidiaries of Hanwha Solutions Corporation					
Gyeonggi Yongin Techno Valley Co., Ltd.(*1)	Republic of Korea	December	Real estate industry	75%	75%
Gimhae Techno Valley Co., Ltd.(*1)	Republic of Korea	December	Real estate industry	80%	80%
SEOSAN TECHNO VALLEY(*1)	Republic of Korea	December	Real estate development and sales	65%	65%
West Ochang Techno Valley Co., Ltd.(*1)	Republic of Korea	December	Real estate industry	73%	73%
Asan Techno Valley(*1)	Republic of Korea	December	Real estate industry	-	100%
Anseong Techno Valley(*1)	Republic of Korea	December	Industrial park development	75%	75%
H-Valley Co.,Ltd(*1)	Republic of Korea	December	Real estate sales	51%	51%
H-Techno Valley Co.,Ltd(*1)	Republic of Korea	December	Real estate industry	80%	-
The Second Yong In Techno Valley Co, Ltd(*1)	Republic of Korea	December	Real estate industry	70%	70%
Hanwha Galleria Timeworld Co., Ltd.(*1)	Republic of Korea	December	Department store	100%	100%
Hanwha B&B Co., Ltd.(*1)	Republic of Korea	December	Restaurant business	100%	100%
WOS Inc.	Republic of Korea	December	Manufacturing	100%	-
NXEF CO.,LTD	Republic of Korea	December	E-commerce	100%	-
Hanwha Chemical Trading (Shanghai) Co., Ltd.	China	December	Trade	100%	100%
Hanwha Chemical Overseas Holdings, Co., Ltd.	Republic of Korea	December	Holding company	100%	100%
Hanwha Compound Co., Ltd.	Republic of Korea	December	Manufacture and sale of packaging materials	100%	100%
Hanwha Global Asset Corporation	Republic of Korea	December	Real estate sales	100%	100%

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
Notes to the Consolidated Financial Statements
For the years ended December, 2021 and 2020

1. General, Continued

(1) Details of subsidiaries, continued

Company	Locations	Closing month	Main business	Percentage of ownership	
				December 31, 2021	December 31, 2020
Haeorum PV Plant Corporation	Republic of Korea	December	Solar photovoltaic power plant industry	100%	100%
Hanwha City Development Co., Ltd.	Republic of Korea	December	Real estate sales	100%	100%
Hanwha Galleria Co., Ltd.	Republic of Korea	December	Department store, wholesale and retail	-	100%
HAMC Holdings Corp.	USA	December	Holding company	100%	100%
Hanwha International Corp.	USA	December	Holding company	100%	100%
Hanwha Chemical Malaysia Sdn. Bhd.	Malaysia	December	Trade	100%	100%
HANWHA CHEMICAL INDIA PRIVATE LIMITED	India	March	Trade	100%	100%
Hanwha Chemical (Thailand) Co., Ltd.	Thailand	December	Manufacture of compound	100%	100%
Hanwha Chemical (Ningbo) Co., Ltd.	China	December	Manufacture of compound	100%	100%
Hanwha EU ENERGY Solutions SE	Germany	December	Holding company	100%	-
Hanwha Q CELLS Co., Ltd.	UK	December	Holding company	100%	100%
HANWHA SOLUTIONS USA HOLDINGS CORPORATION	USA	December	Holding company	100%	-
Q CELLS ASSET MANAGEMENT LIMITED	UK	December	Investment advisory	100%	100%
RES Mediterranee	France	October	Renewable energy business	100%	-
Subsidiaries of Hanwha International Corp.					
Garnet Solar Power Generation Station 1, LLC(*2)	USA	December	Solar photovoltaic power business	100%	100%
Hanwha Advanced Materials America LLC(*2)	USA	December	Manufacture of automobile parts	100%	100%
Hanwha Advanced Materials Holdings USA LLC(*2)	USA	December	Holding company	100%	100%
Hanwha Advanced Materials Mexico S. De R.L. De C.V.(*2)	Mexico	December	Manufacture of automobile parts	100%	100%
Hanwha Advanced Materials USA Corp.(*2)	USA	December	Holding company	100%	-
Hanwha AZDEL, Inc.(*2)	USA	December	Manufacture of automobile parts	100%	100%
Hanwha Holdings(USA), Inc.(*2)	USA	December	Holding company	80%	80%
Hanwha International LLC(*2)	USA	December	Trade	100%	100%
Hanwha Machinery Americas, Inc.(*2)	USA	December	Sales of machine tools	100%	100%
Hanwha Parcel O LLC(*2)	USA	December	Real estate development	100%	100%
Hanwha Property USA LLC(*2)	USA	December	Real estate development	100%	100%
Hanwha PVPLUS LLC(*2)	USA	December	Asset securitization	100%	100%
Hanwha Resources (USA) Corporation(*2)	USA	December	Oil and gas exploration	80%	80%
HANWHA TECHM USA LLC(*2)	USA	December	Manufacture of automobile parts	100%	100%
Hanwha Village Market, LLC(*2)	USA	December	Real estate development	100%	100%
Hanwha West Properties LLC(*2)	USA	December	Real estate development	100%	100%
HQC Rock River Solar Holdings LLC(*2)	USA	December	Solar photovoltaic power plant industry	100%	100%
HQC Rock River Solar Power Generation Station LLC(*2)	USA	December	Solar photovoltaic power plant industry	100%	100%
Universal Bearings LLC(*2)	USA	December	Manufacture of bearings	100%	100%

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
Notes to the Consolidated Financial Statements
For the years ended December, 2021 and 2020

1. General, Continued

(1) Details of subsidiaries, continued

Company	Locations	Closing month	Main business	Percentage of ownership	
				December 31, 2021	December 31, 2020
Subsidiaries of HAMC Holdings Corp.					
Hanwha Cimarron LLC	USA	December	Manufacturing	100%	-
Subsidiaries of HANWHA SOLUTIONS USA HOLDINGS CORPORATION					
HSHC FF INV LLC	USA	December	Holding company	100%	-
HSHC LIBRA INV LLC	USA	December	Holding company	100%	-
HSHC NAM INV LLC	USA	December	Holding company	100%	-
Subsidiaries of Hanwha Q CELLS Co., Ltd.					
Agenor Hive SL	Spain	December	Solar photovoltaic power plant industry	-	100%
ALDGATE EAST INVESTMENTS, SL	Spain	December	Solar photovoltaic power plant industry	70%	70%
ALFAZ DIRECTORSHIP, SL	Spain	December	Solar photovoltaic power plant industry	70%	70%
ALQUIZAR INVESTMENTS, SL	Spain	December	Solar photovoltaic power plant industry	70%	70%
ANNAPURNA SERVICIOS EMPRESARIALES, SL	Spain	December	Solar photovoltaic power plant industry	70%	70%
Avenir el Divisadero SpA	Chile	December	Solar photovoltaic power plant industry	100%	100%
ARBECA SOLAR SLU	Spain	December	Solar photovoltaic power plant industry	100%	100%
AZOR POWER SL	Spain	December	Solar photovoltaic power plant industry	100%	-
BENIF INVESTMENTS, SL	Spain	December	Solar photovoltaic power plant industry	70%	70%
BOLERO ENERGY, S.L.	Spain	December	Solar photovoltaic power plant industry	100%	100%
BURETE DIRECTORSHIP, SL	Spain	December	Solar photovoltaic power plant industry	70%	70%
Cabrero Solar SPA	Chile	December	Solar photovoltaic power plant industry	100%	-
CABUYA CORPORATE SERVICES, SL	Spain	December	Solar photovoltaic power plant industry	70%	70%
CAMPANA ENERGY, S.L.	Spain	December	Solar photovoltaic power plant industry	100%	100%
CANARY WHARF INVESTMENTS, SL	Spain	December	Solar photovoltaic power plant industry	70%	70%
CANNING TOWN INVESTMENTS, SL	Spain	December	Solar photovoltaic power plant industry	70%	70%
CAPRICORNIO ENERGY, S.L.	Spain	December	Solar photovoltaic power plant industry	100%	100%
CASTELLDANS SOLAR SLU	Spain	December	Solar photovoltaic power plant industry	100%	100%
CASTELLNOU SOLAR SLU	Spain	December	Solar photovoltaic power plant industry	100%	100%
Centauro Solar SPA	Chile	December	Solar photovoltaic power plant industry	100%	-

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
Notes to the Consolidated Financial Statements
For the years ended December, 2021 and 2020

1. General, Continued

(1) Details of subsidiaries, continued

Company	Locations	Closing month	Main business	Percentage of ownership	
				December 31, 2021	December 31, 2020
CLAVE DE SOL ENERGY, S.L.U	Spain	December	Solar photovoltaic power plant industry	100%	100%
COMBA DIRECTORSHIP, SL	Spain	December	Solar photovoltaic power plant industry	70%	70%
CONVENT GARDEN INVESTMENTS, SL	Spain	December	Solar photovoltaic power plant industry	70%	70%
DICKSON SERVICIOS EMPRESARIALES, SL	Spain	December	Solar photovoltaic power plant industry	70%	70%
DIONISIO SUN, S.L.	Spain	December	Solar photovoltaic power plant industry	100%	100%
Don Rodrigo Hive SL	Spain	December	Solar photovoltaic power plant industry	100%	100%
DONALLY CORPORATE SERVICES, SL	Spain	December	Solar photovoltaic power plant industry	70%	-
Draco Solar SPA	Chile	December	Solar photovoltaic power plant industry	100%	-
Elektrownia OZE 3 Sp. z o.o.	Poland	December	Solar photovoltaic power plant industry	-	100%
EMPER INVESTMENTS, SL	Spain	December	Solar photovoltaic power plant industry	70%	70%
ENDINO SERVICIOS EMPRESARIALES, SL	Spain	December	Solar photovoltaic power plant industry	70%	70%
ENVIRIA IPP DevCO1 GmbH & Co. KG	Germany	December	Solar photovoltaic power plant industry	100%	-
Esparell Directorship, SL	Spain	December	Solar photovoltaic power plant industry	70%	-
FAIRLEAD CORPORATE SERVICES, SL	Spain	December	Solar photovoltaic power plant industry	70%	-
FFNEV DESARROLLORS ESPANA I, SL	Spain	December	Solar photovoltaic power plant industry	70%	-
FFNEV DESARROLLORS ESPANA II, SL	Spain	December	Solar photovoltaic power plant industry	70%	-
GALAXY ENERGY, S.L.	Spain	December	Solar photovoltaic power plant industry	100%	100%
GALGO POWER, S.L.	Spain	December	Solar photovoltaic power plant industry	100%	100%
GARDAYA INVESTMENTS, SL	Spain	December	Solar photovoltaic power plant industry	70%	70%
GAVILAN POWER, S.L.U	Spain	December	Solar photovoltaic power plant industry	100%	100%
GERIFALTE POWER, S.L.U	Spain	December	Solar photovoltaic power plant industry	100%	100%
GREEN RIC ENERGY, S.L.	Spain	December	Solar photovoltaic power plant industry	100%	100%
Geli Australia Pty Ltd	Australia	December	Energy management system	100%	-
Growing Energy Labs, Inc.	USA	December	Energy management system	100%	100%
Guadajoz Hive SL	Spain	December	Solar photovoltaic power plant industry	100%	100%
Hanwha Q CELLS (Nantong) Co., Ltd.	China	December	Manufacture and sales of solar products	100%	100%
Hanwha Q CELLS (Qidong) Co., Ltd.	China	December	Manufacture and sales of solar products	100%	100%
Hanwha Q CELLS America Inc.	USA	December	Sales of solar products	100%	100%
Hanwha Q CELLS America Project Holdings LLC	USA	December	Investment in solar power projects	100%	100%
Hanwha Q CELLS Australia Pty Ltd.	Australia	December	Sales of solar products	100%	100%
Hanwha Q CELLS Canada, Corp.	Canada	December	Sales of solar products	100%	100%
Hanwha Q CELLS Chile SpA	Chile	December	Manufacture and sales of solar power facilities	100%	100%

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
Notes to the Consolidated Financial Statements
For the years ended December, 2021 and 2020

1. General, Continued

(1) Details of subsidiaries, continued

Company	Locations	Closing month	Main business	Percentage of ownership	
				December 31, 2021	December 31, 2020
Hanwha Q CELLS France SAS	France	December	Solar photovoltaic power business	100%	100%
Hanwha Q CELLS GmbH	Germany	December	Sales of solar products	100%	100%
Hanwha Q CELLS Hong Kong Limited	Hongkong	December	Investment and international procurement	100%	100%
Hanwha Q CELLS Investment Co., Ltd.	UK	December	Holding company	100%	100%
Hanwha Q CELLS Malaysia Sdn. Bhd.	Malaysia	December	Manufacture of solar products	100%	100%
Hanwha Q CELLS Peru S.A.C	Peru	December	Solar photovoltaic power business	100%	100%
HANWHA Q CELLS SOLAR POWER SDN. BHD.	Malaysia	December	Sales of solar products	100%	100%
Hanwha Q CELLS Technology (Shanghai) Co., Ltd.	China	December	Sales of solar products	100%	100%
Hanwha Q CELLS Til Til Uno SPA	Chile	December	Manufacture and sales of solar power system	100%	100%
Hanwha Q CELLS Turkey	Turkey	December	Manufacture and sales of solar power facilities	100%	100%
Hanwha Solar Electric Power Engineering Co., Ltd.	China	December	Manufacture of solar power facilities	100%	100%
Hanwha Solarone(beipiao)Co.,Ltd	China	December	Solar photovoltaic power business	100%	100%
Hanwha SolarOne (Laiyang) Co., Ltd.	China	December	Solar photovoltaic power business	100%	100%
Hanwha SolarOne (Rugao) Co., Ltd.	China	December	Solar photovoltaic power business	100%	100%
Hanwha SolarOne GmbH	Germany	December	Sales of solar products	100%	100%
Hanwha SolarOne Investment Holding Ltd.	UK	December	Holding company	100%	100%
Hanwha SolarOne Power Generation (Wuxi) Co., Ltd.	China	December	Solar photovoltaic power business	100%	100%
HARRIER POWER, S.L.U	Spain	December	Solar photovoltaic power plant industry	100%	100%
HAU Cheshire Project LLC	USA	December	Solar photovoltaic power plant industry	100%	-
HAU Newington Project LLC	USA	December	Solar photovoltaic power plant industry	100%	-
HESTIA SUN, S.L.	Spain	December	Solar photovoltaic power plant industry	100%	100%
HQCA Energy Solutions LLC	USA	December	Solar photovoltaic power plant industry	100%	-
HQCA Grid Equity LLC	USA	December	Solar photovoltaic power plant industry	100%	-
HQC PORTUGAL HOLDINGS, LDA	Portugal	December	Solar photovoltaic power plant industry	100%	100%
Huoqiu Hanrui New Energy Power Generation Co., Ltd.	China	December	Solar photovoltaic power business	100%	100%
INCOGNITWORLD, LDA.	Portugal	December	Solar photovoltaic power business	100%	100%
INCOGNITWORLD 2, UNIPESSOAL LDA	Portugal	December	Solar photovoltaic power plant industry	100%	100%
INCOGNITWORLD 3, UNIPESSOAL LDA	Portugal	December	Solar photovoltaic power plant industry	100%	100%
INCOGNITWORLD 4, UNIPESSOAL LDA	Portugal	December	Solar photovoltaic power plant industry	100%	100%
INCOGNITWORLD 5, UNIPESSOAL LDA	Portugal	December	Solar photovoltaic power plant industry	100%	100%

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
Notes to the Consolidated Financial Statements
For the years ended December, 2021 and 2020

1. General, Continued

(1) Details of subsidiaries, continued

Company	Locations	Closing month	Main business	Percentage of ownership	
				December 31, 2021	December 31, 2020
IRON POWER ENERGY, S.L.U	Spain	December	Solar photovoltaic power plant industry	100%	100%
ISIS SUN POWER S.L.	Spain	December	Solar photovoltaic power plant industry	100%	-
KADOK CORPORATE SERVICES, SL	Spain	December	Solar photovoltaic power plant industry	70%	70%
KAMPALA CORPORATE SERVICES, SL	Spain	December	Solar photovoltaic power plant industry	70%	70%
KMPT Solarpark Verwaltung GmbH	Germany	December	Solar photovoltaic power business	100%	100%
Las Coronacas Hive SL	Spain	December	Solar photovoltaic power plant industry	100%	100%
LASTRAFI POWER, S.L.	Spain	December	Solar photovoltaic power plant industry	100%	100%
LEBREL POWER, S.L.	Spain	December	Solar photovoltaic power plant industry	100%	100%
LINE ENERGY, S.L.U	Spain	December	Solar photovoltaic power plant industry	100%	100%
Malhada Green S.A	Portugal	December	Solar photovoltaic power plant industry	100%	100%
MALHADA GREEN 2, UNIPessoal LDA	Portugal	December	Solar photovoltaic power plant industry	100%	100%
MONTALBAN DIRECTORSHIP, SL	Spain	December	Solar photovoltaic power plant industry	70%	70%
Nantong Hanwha Import & Export Co., Ltd.	China	December	Sales of solar products	-	100%
NEPAL SERVICIOS EMPRESARIALES, SL	Spain	December	Solar photovoltaic power plant industry	70%	70%
NUN SUN POWER S.L.	Spain	December	Solar photovoltaic power plant industry	100%	-
NORWOOD CORPORATE SERVICES, S.L.	Spain	December	Solar photovoltaic power plant industry	70%	-
OTERO DIRECTORSHIP, SL	Spain	December	Solar photovoltaic power plant industry	70%	70%
PALOMA POWER, S.L.	Spain	December	Solar photovoltaic power plant industry	100%	100%
PODENCO POWER, S.L.	Spain	December	Solar photovoltaic power plant industry	100%	100%
PV Jagodne Sp. z o.o.	Poland	December	Solar photovoltaic power plant industry	100%	100%
PV Vallenar Uno SpA	Chile	December	Holding company	100%	100%
Q CELLS DO BRASIL CONSULTORIA EMPRESARIAL LTDA	Brazil	December	Solar photovoltaic power business	100%	100%
Q CELLS Germany Holdings GmbH	Germany	December	Solar photovoltaic power plant industry	100%	-
QSUN 23 Sp. z o.o.	Poland	December	Solar photovoltaic power plant industry	-	100%
QSUN 26 Sp. z o.o.	Poland	December	Solar photovoltaic power plant industry	-	100%
QSUN PORTUGAL 2, UNIPessoal LDA	Portugal	December	Solar photovoltaic power plant industry	100%	100%
QSUN PORTUGAL 3, UNIPessoal LDA	Portugal	December	Solar photovoltaic power plant industry	100%	100%
QSUN PORTUGAL 4, UNIPessoal LDA	Portugal	December	Solar photovoltaic power plant industry	100%	100%
QSUN PORTUGAL 5, UNIPessoal LDA	Portugal	December	Solar photovoltaic power plant industry	100%	100%
QSUN PORTUGAL 6, UNIPessoal LDA	Portugal	December	Solar photovoltaic power plant industry	100%	100%

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
Notes to the Consolidated Financial Statements
For the years ended December, 2021 and 2020

1. General, Continued

(1) Details of subsidiaries, continued

Company	Locations	Closing month	Main business	Percentage of ownership	
				December 31, 2021	December 31, 2020
QSUN PORTUGAL 7, UNIPessoal LDA	Portugal	December	Solar photovoltaic power plant industry	100%	100%
REAL ENERGY POWER, S.L.	Spain	December	Solar photovoltaic power plant industry	100%	100%
REUS SOLAR SLU	Spain	December	Solar photovoltaic power plant industry	100%	100%
RIMA ENERGY, S.L.U	Spain	December	Solar photovoltaic power plant industry	100%	100%
Q CELLS SPAIN HOLDINGS, S.L.(formerly, SACRAMENTO DIRECTORSHIP, S.L.)	Spain	December	Solar photovoltaic power plant industry	100%	100%
SFH Solarpark GmbH	Germany	December	Solar photovoltaic power business	100%	100%
Silesian Sun Energy Sp. z o.o.	Poland	December	Solar photovoltaic power business	100%	100%
SILVER RIC ENERGY, S.L.	Spain	December	Solar photovoltaic power plant industry	100%	100%
SPRING POWER, S.L.	Spain	December	Solar photovoltaic power plant industry	100%	100%
SPP Wytwarzanie 18 sp. z o.o.	Poland	December	Solar photovoltaic power plant industry	-	100%
SPP Wytwarzanie 31 sp. z o.o.	Poland	December	Solar photovoltaic power plant industry	-	100%
SPP Wytwarzanie 33 sp. z o.o.	Poland	December	Solar photovoltaic power plant industry	-	100%
Sunwolt Sp. z o.o.	Poland	December	Solar photovoltaic power plant industry	-	100%
VALS ENERGY POWER, S.L.	Spain	December	Solar photovoltaic power plant industry	100%	100%
VECIANA SOLAR SLU	Spain	December	Solar photovoltaic power plant industry	100%	100%
VGES Project LLC	USA	December	Solar photovoltaic power plant industry	100%	-
WSE Bracley Roac Ltd	UK	December	Solar photovoltaic power business	100%	100%
HSI Corporation	Republic of Korea	December	Solar photovoltaic power business	-	100%
Subsidiaries of HANWHA Global Asset Corporation					
BT Coniglio Solar, LLC	USA	December	Solar photovoltaic power business	-	100%
BT Cunningham Storage, LLC	USA	December	Solar photovoltaic power business	100%	-
CONIGLIO SOLAR CLASS B, LLC	USA	December	Solar photovoltaic power business	100%	-
Coniglio Solar Holdings, LLC	USA	December	Solar photovoltaic power business	100%	100%
EnFin Corp.	USA	December	Solar photovoltaic power plant industry	100%	-
Garnet Solar Power Generation Station 1, LLC(*2)	USA	December	Solar photovoltaic power business	100%	100%
HQC Solar Holdings 1, LLC	USA	December	Solar photovoltaic power business	100%	100%
Hanwha Advanced Materials America LLC(*2)	USA	December	Manufacture of automobile parts	100%	100%
Hanwha Advanced Materials Beijing Co., Ltd.	China	December	Manufacture of automobile parts	100%	100%
Hanwha Advanced Materials Chongqing Co., Ltd.	China	December	Manufacture of automobile parts	100%	100%
Hanwha Advanced Materials Europe, s.r.o.	Czech	December	Manufacture of automobile parts	100%	100%

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
Notes to the Consolidated Financial Statements
For the years ended December, 2021 and 2020

1. General, Continued

(1) Details of subsidiaries, continued

Company	Locations	Closing month	Main business	Percentage of ownership	
				December 31, 2021	December 31, 2020
Hanwha Advanced Materials Germany GmbH	Germany	December	Manufacture of automobile parts	100%	100%
Hanwha Advanced Materials Holdings USA Inc.	USA	December	Holding company	100%	100%
Hanwha Advanced Materials Holdings USA LLC(*2)	USA	December	Holding company	100%	100%
Hanwha Advanced Materials Mexico S. De R.L. De C.V.(*2)	Mexico	December	Manufacture of automobile parts	100%	100%
Hanwha Advanced Materials Shanghai Co., Ltd.	China	December	Manufacture of automobile parts	100%	100%
Hanwha Advanced Materials USA Corp.(*2)	USA	December	Holding company	100%	-
Hanwha America Development Inc.	USA	December	Holding company	100%	100%
Hanwha AZDEL, Inc.(*2)	USA	December	Manufacture of automobile parts	100%	100%
Hanwha Holdings(USA), Inc.(*2)	USA	December	Holding company	80%	80%
Hanwha International LLC(*2)	USA	December	Trade	100%	100%
Hanwha Machinery Americas, Inc.(*2)	USA	December	Sales of machine tools	100%	100%
Hanwha Parcel O LLC(*2)	USA	December	Real estate development	100%	100%
Hanwha Property USA LLC(*2)	USA	December	Real estate development	100%	100%
Hanwha PVPLUS LLC(*2)	USA	December	Asset securitization	100%	100%
Hanwha Q CELLS Americas Holdings. Corp.	USA	December	Solar photovoltaic power business	100%	100%
Hanwha Q CELLS Australia Holdings Pty Ltd	Australia	December	Solar photovoltaic power business	-	100%
Hanwha Q CELLS Canada, Inc	Canada	December	Sales of solar products	-	100%
Hanwha Q CELLS EPC USA, LLC	USA	December	Solar photovoltaic power business	100%	100%
Hanwha Q CELLS Servicios Comerciales, S DE RL DE CV	Mexico	December	Solar photovoltaic power business	100%	100%
Hanwha Q CELLS Solar Technology Australia Pty Ltd.	Australia	December	Solar photovoltaic power business	-	100%
HANWHA Q CELLS US O&M LLC	USA	December	Solar photovoltaic power business	100%	-
Hanwha Q CELLS USA Corp.	USA	December	Solar photovoltaic power business	100%	100%
Hanwha Q CELLS USA, INC.	USA	December	Solar photovoltaic power business	100%	100%
Hanwha Resources (USA) Corporation(*2)	USA	December	Oil and gas exploration	80%	80%
HANWHA TECHM USA LLC(*2)	USA	December	Manufacture of automobile parts	100%	100%
Hanwha Village Market, LLC(*2)	USA	December	Real estate development	100%	100%
Hanwha West Properties LLC(*2)	USA	December	Real estate development	100%	100%
HES America Ltd.	USA	December	Solar photovoltaic power plant industry	100%	-
HESAL System Solutions Corp.	USA	December	Solar photovoltaic power plant industry	100%	-
HQ MEX, LLC	Mexico	December	Solar photovoltaic power business	100%	100%
HQ MEXICO HOLDINGS S DE RL DE CV	Mexico	December	Solar photovoltaic power business	100%	100%
HQ MEXICO Solar I S DE RL DE CV	Mexico	December	Solar photovoltaic power business	100%	100%
HQ MEXICO Solar II S DE RL DE CV	Mexico	December	Solar photovoltaic power business	100%	100%
HQC Maywood, LLC	USA	December	Solar photovoltaic power plant industry	100%	100%
HQC Rock River Solar Holdings LLC(*2)	USA	December	Solar photovoltaic power plant industry	100%	100%
HQC Rock River Solar Power Generation Station LLC(*2)	USA	December	Solar photovoltaic power plant industry	100%	100%

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
Notes to the Consolidated Financial Statements
For the years ended December, 2021 and 2020

1. General, Continued

(1) Details of subsidiaries, continued

Company	Locations	Closing month	Main business	Percentage of ownership	
				December 31, 2021	December 31, 2020
HSEA HVES, LLC	USA	December	Solar photovoltaic power business	100%	100%
HSESM American Union LLC	USA	December	Solar photovoltaic power business	100%	100%
HSESM LeGrancUHS LLC	USA	December	Solar photovoltaic power business	100%	100%
HSESM PlanadaES LLC	USA	December	Solar photovoltaic power business	100%	100%
Johnson City Solar, LLC	USA	December	Solar photovoltaic power business	100%	-
Johnson City Storage, LLC	USA	December	Solar photovoltaic power business	100%	-
Kalaeloa Renewable Energy Park, LLC	USA	December	Solar photovoltaic power business	100%	100%
Kellam Solar Class B, LLC	USA	December	Solar photovoltaic power business	100%	100%
Kellam Solar Holdings, LLC	USA	December	Solar photovoltaic power business	100%	100%
Plateau Solar, LLC	USA	December	Solar photovoltaic power business	100%	-
Plateau Storage, LLC	USA	December	Solar photovoltaic power business	100%	-
Purvis Solar, LLC	USA	December	Solar photovoltaic power business	100%	-
Purvis Storage, LLC	USA	December	Solar photovoltaic power business	100%	-
Rippey Solar Holdings, LLC	USA	December	Solar photovoltaic power business	100%	100%
Solar Monkey 1, LLC	USA	December	Solar photovoltaic power business	100%	100%
Solar Monkey 2, LLC	USA	December	Solar photovoltaic power business	100%	100%
South Cheyenne Solar, LLC	USA	December	Solar photovoltaic power business	100%	-
Universal Bearings LLC(*2)	USA	December	Manufacture of bearings	100%	100%
Hanwha Savings Bank Co., Ltd.	Republic of Korea	December	Credit union	100%	36%
Goheung Q Power Solarfarm 1 Co., Ltd.	Republic of Korea	December	Solar photovoltaic power plant industry	100%	-
Youngam Q Power Solarfarm 1 Co.,Ltd.	Republic of Korea	December	Electrical materials	100%	-
Yungam Techno Solar Power Corp.	Republic of Korea	December	Solar photovoltaic power business	100%	100%
Yungam Hae-oreum Solar Power Corp.	Republic of Korea	December	Solar photovoltaic power business	100%	100%
Hi-pass Solar Corporation	Republic of Korea	December	Solar photovoltaic power business	100%	100%
Sunrise Solar	Republic of Korea	December	Solar photovoltaic power business	100%	100%
Haesarang Solar Power Corp.	Republic of Korea	December	Solar photovoltaic power business	100%	100%

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
Notes to the Consolidated Financial Statements
For the years ended December, 2021 and 2020

1. General, Continued

(1) Details of subsidiaries, continued

Company	Locations	Closing month	Main business	Percentage of ownership	
				December 31, 2021	December 31, 2020
Subsidiaries of Hanwha Q CELLS Turkey					
Aslan Gunes Enerjisi A.S.(*3)	Turkey	December	Solar photovoltaic power business	-	-
Hiprom Enerji Yatirimlari A.S.(*3)	Turkey	December	Solar photovoltaic power business	-	-
Sema Enerji Uretim Ltd. Sti.(*3)	Turkey	December	Solar photovoltaic power business	-	-
Alkin Enerji Uretim Ltd. Sti.(*3)	Turkey	December	Solar photovoltaic power business	-	-
Kartal Enerji Uretim Ltd. Sti.(*3)	Turkey	December	Solar photovoltaic power business	-	-
Mutlak Enerji Uretim Ltd. Sti.(*3)	Turkey	December	Solar photovoltaic power business	-	-
Elcin Enerji Uretim Ltd. Sti.(*3)	Turkey	December	Solar photovoltaic power business	-	-
Fnt Gida Turizm Ic Ve Dis Ticaret Sanayi Ltd. Sti.(*3)	Turkey	December	Solar photovoltaic power business	-	-
Meva Muhendislik Bilisim Enerji Insaat Iletisim Turizm San.Ve Dis Tic. Ltd. Sti.(*3)	Turkey	December	Solar photovoltaic power business	-	-
Serimer Optik Medikal Kirtasiye Temizlik Insaat Ithalat Ihra cat Sanayi Tic. Ltd. Sti.(*3)	Turkey	December	Solar photovoltaic power business	-	-
Marel Bilisim Muhendislik Enerji Insaat Iletisim Turizm Gida San. Ve Dis Tic. Ltd. Sti.(*3)	Turkey	December	Solar photovoltaic power business	-	-
Fior Gunes Enerjisi Anonim Sirketi(*3)	Turkey	December	Solar photovoltaic power business	-	-
Toprakkale Altyapi ve Malzeme Hizmetleri A.S.(*3)	Turkey	December	Solar photovoltaic power business	-	-
Ulu Gunes Enerjisi Anonim Sirketi(*3)	Turkey	December	Solar photovoltaic power business	-	-
Moravia Enerji Sanayi ve Ticaret Ltd. Sti.(*3)	Turkey	December	Solar photovoltaic power business	-	-
Uno Enerji A.S.(*3)	Turkey	December	Solar photovoltaic power business	-	-
Aceka 2 Gunes Enerjisi A.S.(*3)	Turkey	December	Solar photovoltaic power business	-	-
Aceka 3 Gunes Enerjisi A.S.(*3)	Turkey	December	Solar photovoltaic power business	-	-
Bilgidar 2 Gunes Enerjisi Limited Sirketi(*3)	Turkey	December	Solar photovoltaic power business	-	-
Buselik 2 Gunes Enerjisi Limited Sirketi(*3)	Turkey	December	Solar photovoltaic power business	-	-
Buselik 3 Gunes Enerjisi Limited Sirketi(*3)	Turkey	December	Solar photovoltaic power business	-	-
Dimetoka 2 Gunes Enerjisi Limited Sirketi(*3)	Turkey	December	Solar photovoltaic power business	-	-
Dimetoka 3 Gunes Enerjisi Limited Sirketi(*3)	Turkey	December	Solar photovoltaic power business	-	-
Isfahan 3 Gunes Enerjisi Limited Sirketi(*3)	Turkey	December	Solar photovoltaic power business	-	-
Onan 2 Gunes Enerji Uretim A.S.(*3)	Turkey	December	Solar photovoltaic power business	-	-
Onan 3 Gunes Enerji Uretim A.S.(*3)	Turkey	December	Solar photovoltaic power business	-	-

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
Notes to the Consolidated Financial Statements
For the years ended December, 2021 and 2020

1. General, Continued

(1) Details of subsidiaries, continued

Company	Locations	Closing month	Main business	Percentage of ownership	
				December 31, 2021	December 31, 2020
Subsidiaries of RES Mediterranee					
CEPE BEL AIR SUD	France	October	Renewable energy business	100%	-
CEPE BOIS DE L'AIGUILLE	France	October	Renewable energy business	100%	-
CEPE Champs Carres S.A.R.L	France	October	Renewable energy business	100%	-
CEPE CHAMPS PAILLE	France	October	Renewable energy business	100%	-
CEPE CHARMONSEL	France	October	Renewable energy business	100%	-
CEPE CHAUMES DES COMMUNES	France	October	Renewable energy business	100%	-
CEPE Chesnots	France	October	Renewable energy business	100%	-
CEPE COTE DES VAUZELLES	France	October	Renewable energy business	100%	-
CEPE COTE RENARD	France	October	Renewable energy business	100%	-
CEPE CROIX DE BERTHAULT	France	October	Renewable energy business	100%	-
CEPE CROIX DE L'ERABLE	France	October	Renewable energy business	100%	-
CEPE Croix des Trois	France	October	Renewable energy business	100%	-
CEPE Croix du Picq	France	October	Renewable energy business	100%	-
CEPE DE BRAQUETTE	France	October	Renewable energy business	100%	-
CEPE DE CHATILLONNAIS	France	October	Renewable energy business	100%	-
CEPE DE L'ESCUR	France	October	Renewable energy business	100%	-
CEPE de Mirebellois	France	October	Renewable energy business	100%	-
CEPE des Grunes S.A.R.L	France	October	Renewable energy business	100%	-
CEPE du Souleilla S.A.R.L	France	October	Renewable energy business	100%	-
CEPE Fleur du Nivernais S.A R.L	France	October	Renewable energy business	100%	-
CEPE FORET DE MARSANNE	France	October	Renewable energy business	100%	-
CEPE FOSSE A LOUP	France	October	Renewable energy business	100%	-
CEPE FRETTES	France	October	Renewable energy business	100%	-
CEPE GRAND CERISIER	France	October	Renewable energy business	100%	-
CEPE GRANDS COMMUNAUX	France	October	Renewable energy business	100%	-
CEPE HAUT PERRON	France	October	Renewable energy business	100%	-
CEPE LA TIRROYE	France	October	Renewable energy business	100%	-
CEPE LE LANGROIS	France	October	Renewable energy business	100%	-
CEPE LES LORETTES	France	October	Renewable energy business	100%	-

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
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For the years ended December, 2021 and 2020

1. General, Continued

(1) Details of subsidiaries, continued

Company	Locations	Closing month	Main business	Percentage of ownership	
				December 31, 2021	December 31, 2020
CEPE LES VACANTS	France	October	Renewable energy business	100%	-
CEPE MERELLES	France	October	Renewable energy business	100%	-
CEPE MONT DE CONDY	France	October	Renewable energy business	100%	-
CEPE NOUVELLOIS	France	October	Renewable energy business	100%	-
CEPE NOYER BERGER	France	October	Renewable energy business	100%	-
CEPE ORAIN	France	October	Renewable energy business	100%	-
CEPE Plaine de Pericaud	France	October	Renewable energy business	100%	-
CEPE Plo du Laurier	France	October	Renewable energy business	100%	-
CEPE RENOUVELLEMENT HAUT CABARDES	France	October	Renewable energy business	100%	-
CEPE Sud vesoul SARL	France	October	Renewable energy business	100%	-
CEPE TERRIERS DE LA POINTE	France	October	Renewable energy business	100%	-
CEPE TROIS PROVINCES	France	October	Renewable energy business	100%	-
CEPE VAL D'YONNE EN FORTERRE	France	October	Renewable energy business	100%	-
CEPE Val de Vingeanne EST	France	October	Renewable energy business	100%	-
CEPE VENTS DE LOIRE	France	October	Renewable energy business	100%	-
CEPES JUGE	France	October	Renewable energy business	100%	-
Chaume Solar	France	October	Renewable energy business	100%	-
CPES AUCHES	France	October	Renewable energy business	100%	-
CPES BASSE MONTAGNE	France	October	Renewable energy business	100%	-
CPES BOIS SOLEIL	France	October	Renewable energy business	100%	-
CPES BORY	France	October	Renewable energy business	100%	-
CPES BRECHE	France	October	Renewable energy business	100%	-
CPES CAHUZAC SUR ADOUR	France	October	Renewable energy business	100%	-
CPES CALENTA	France	October	Renewable energy business	100%	-
CPES CAUSSES PERIGORD	France	October	Renewable energy business	100%	-
CPES CHAMPS DE LA COUR	France	October	Renewable energy business	100%	-
CPES CHAPUS	France	October	Renewable energy business	100%	-
CPES COURSIADA	France	October	Renewable energy business	100%	-

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
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For the years ended December, 2021 and 2020

1. General, Continued

(1) Details of subsidiaries, continued

Company	Locations	Closing month	Main business	Percentage of ownership	
				December 31, 2021	December 31, 2020
CPES COUSSEAU	France	October	Renewable energy business	100%	-
CPES CRASSIER LAUDUN	France	October	Renewable energy business	100%	-
CPES CROUEE	France	October	Renewable energy business	100%	-
CPES FONT DE LA LEVE	France	October	Renewable energy business	100%	-
CPES FONTANILLE	France	October	Renewable energy business	100%	-
CPES GANDOLLE	France	October	Renewable energy business	100%	-
CPES GARDIOLE	France	October	Renewable energy business	100%	-
CPES GENEBRE	France	October	Renewable energy business	100%	-
CPES GRAND OUSTATOU	France	October	Renewable energy business	100%	-
CPES GRIFFOUL	France	October	Renewable energy business	100%	-
CPES HOMME DE PIERRE	France	October	Renewable energy business	100%	-
CPES Juncarot	France	October	Renewable energy business	100%	-
CPES LA BREDE	France	October	Renewable energy business	100%	-
CPES la Gineste	France	October	Renewable energy business	100%	-
CPES LAC DE CLOYES	France	October	Renewable energy business	100%	-
CPES LAC DE LONGCHAMPS	France	October	Renewable energy business	100%	-
CPES LAC DE ROUAN	France	October	Renewable energy business	100%	-
CPES LAROQUE	France	October	Renewable energy business	100%	-
CPES LASCOURS	France	October	Renewable energy business	100%	-
CPES LAURAGAIS	France	October	Renewable energy business	100%	-
CPES LE PLAN	France	October	Renewable energy business	100%	-
CPES LES CROUZOURETS	France	October	Renewable energy business	100%	-
CPES LIBAROS	France	October	Renewable energy business	100%	-
CPES LUE	France	October	Renewable energy business	100%	-
CPES MAS D'EN RAMIS	France	October	Renewable energy business	100%	-
CPES MILHAT	France	October	Renewable energy business	100%	-
CPES MONDONNE	France	October	Renewable energy business	100%	-
CPES MORAS	France	October	Renewable energy business	100%	-
CPES MORILLON	France	October	Renewable energy business	100%	-
CPES MURES BASSES	France	October	Renewable energy business	100%	-

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
Notes to the Consolidated Financial Statements
For the years ended December, 2021 and 2020

1. General, Continued

(1) Details of subsidiaries, continued

Company	Locations	Closing month	Main business	Percentage of ownership	
				December 31, 2021	December 31, 2020
CPES OMBRIPARK	France	October	Renewable energy business	100%	-
CPES PASCARATE	France	October	Renewable energy business	100%	-
CPES PAYS THIBERIEEN	France	October	Renewable energy business	100%	-
CPES PEROLERA	France	October	Renewable energy business	100%	-
CPES PERRIERE	France	October	Renewable energy business	100%	-
CPES PEYROLE LAC	France	October	Renewable energy business	100%	-
CPES PLACE ROYALE	France	October	Renewable energy business	100%	-
CPES PLAN DE BANON	France	October	Renewable energy business	100%	-
CPES RENARDEYRE	France	October	Renewable energy business	100%	-
CPES ROMEGUERAR	France	October	Renewable energy business	100%	-
CPES SABLE ROUGE	France	October	Renewable energy business	100%	-
CPES SAINT ANGE	France	October	Renewable energy business	100%	-
CPES SEBENS	France	October	Renewable energy business	100%	-
CPES SOLEIL ROUGE	France	October	Renewable energy business	100%	-
CPES SUR L'EPINE	France	October	Renewable energy business	100%	-
CPES TALLER	France	October	Renewable energy business	100%	-
CPES THUILIERES	France	October	Renewable energy business	100%	-
CPES TREMEGE	France	October	Renewable energy business	100%	-
CPES VILLAGE SOLAIRE	France	October	Renewable energy business	100%	-
Cret meuron suisse	France	October	Renewable energy business	100%	-
CSE AMPERE	France	October	Renewable energy business	100%	-
CSE ARMAND	France	October	Renewable energy business	100%	-
CSE COULOMB	France	October	Renewable energy business	100%	-
CSE GAULARD	France	October	Renewable energy business	100%	-
CSE JOULE	France	October	Renewable energy business	100%	-
CSE LECLANCHE	France	October	Renewable energy business	100%	-
CSE PLANTE	France	October	Renewable energy business	100%	-
CSE TARASCON	France	October	Renewable energy business	100%	-
CSE VOLTA	France	October	Renewable energy business	100%	-
LASCOVENT	France	October	Renewable energy business	100%	-

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
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1. General, Continued

(1) Details of subsidiaries, continued

Company	Locations	Closing month	Main business	Percentage of ownership	
				December 31, 2021	December 31, 2020
Les Eoliennes Entre Loire et Rhone	France	October	Renewable energy business	80%	-
RES SAS	France	October	Renewable energy business	100%	-
CPES LIGNE SOLAIRE HAUTE LANDE	France	October	Renewable energy business	100%	-
CPES MARDALOU	France	October	Renewable energy business	100%	-
NAUTILUS ENERGIES	France	October	Renewable energy business	100%	-
CEPE BOIS DE LA LONDE	France	October	Renewable energy business	100%	-
CPES LANDE DE MUSSET	France	October	Renewable energy business	100%	-
Larrey des Vignes	France	October	Renewable energy business	100%	-
SPV LOCANERGY TWO	France	October	Renewable energy business	100%	-

(*1) It has changed from the subsidiary of relevant group to the direct subsidiary of Hanwha Solutions Corporation as the Company merged Hanwha Galleria Co., Ltd. and Hanwha City Development Co., Ltd during the current period.

(*2) Two or more intermediate parent companies hold stakes, and the listed share is the effective share of the control combined.

(*3) The Group does not own any shares. The Group was judged to be controlling by considering the power over the investee, its exposure to variable returns, and its ability to use power to affect its returns.

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
Notes to the Consolidated Financial Statements
For the years ended December, 2021 and 2020

1. General, Continued

(2) Changes of scope of consolidation

Subsidiaries newly included in the consolidation and excluded from the consolidation for year ended December 31, 2021

(i) Subsidiaries newly included in the consolidation for year ended December 31, 2021, are as follows:

Company name	Reason
Hanwha Solutions Corporations	
H-Techno Valley Co.,Ltd	Newly established
NXEF CO.,LTD	
HANWHA SOLUTIONS USA HOLDINGS CORPORATION	
WOS Inc.	Newly acquired
Hanwha EU ENERGY Solutions SE	
RES Mediterranee	
Hanwha Q CELLS Co., Ltd.	
HAU Cheshire Project LLC	Newly established
HAU Newington Project LLC	
HQCA Energy Solutions LLC	
HQCA Grid Equity LLC	
VGES Project LLC	
AZOR POWER SL	Newly acquired
Cabrero Solar SPA	
Centauro Solar SPA	
DONALLY CORPORATE SERVICES, SL	
Draco Solar SPA	
ENVIRIA IPP DevCO1 GmbH & Co. KG	
Esparcell Directorship, SL	
FAIRLEAD CORPORATE SERVICES, SL	
FFNEV DESARROLLORS ESPANA I, SL	
FFNEV DESARROLLORS ESPANA II, SL	
Geli Australia Pty Ltd	
ISIS SUN POWER S.L.	
NUN SUN POWER S.L.	
NORWOOD CORPORATE SERVICES, S.L.	
Q CELLS Germany Holdings GmbH	

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
Notes to the Consolidated Financial Statements
For the years ended December, 2021 and 2020

1. General, Continued

(2) Changes of scope of consolidation, continued

(i) Subsidiaries newly included in the consolidation for year ended December 31, 2021, are as follows, continued

Company name	Reason
HANWHA Global Asset Corporation	
Goheung Q Power Solarfarm 1 Co., Ltd.	Newly established
Youngam Q Power Solarfarm 1 Co.,Ltd.	
CONIGLIO SOLAR CLASS B, LLC	
EnFin Corp.	
Hanwha Advanced Materials USA Corp.	
HES America Ltd.	
HESAL System Solutions Corp.	
HANWHA Q CELLS US O&M LLC	
Johnson City Solar, LLC	
Johnson City Storage, LLC	
Plateau Solar, LLC	
Plateau Storage, LLC	
Purvis Solar, LLC	
Purvis Storage, LLC	
South Cheyenne Solar, LLC	
BT Cunningham Storage, LLC	
Hanwha Savings Bank Co., Ltd.	
HAMC Holdings Corp.	
Hanwha Cimarron LLC	Newly acquired
HANWHA SOLUTIONS USA HOLDINGS CORPORATION	
SHSC FF INV LLC	Newly established
SHSC LIBRA INV LLC	
SHSC NAM INV LLC	
RES Mediterranee	
CEPE BEL AIR SUD	Newly acquired
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	
CEPE CROIX DE BERTHAULT	
CEPE CROIX DE L'ERABLE	
CEPE Croix des Trois	

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
Notes to the Consolidated Financial Statements
For the years ended December, 2021 and 2020

1. General, Continued

(2) Changes of scope of consolidation, continued

(i) Subsidiaries newly included in the consolidation for year ended December 31, 2021, are as follows, continued

RES Mediterranee	Company name	Reason
	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	

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
Notes to the Consolidated Financial Statements
For the years ended December, 2021 and 2020

1. General, Continued

(2) Changes of scope of consolidation, continued

(i) Subsidiaries newly included in the consolidation for year ended December 31, 2021, are as follows, continued

	Company name	Reason
RES Mediterranee	CPES BOIS SOLEIL	
	CPES BORY	
	CPES BRECHE	
	CPES CAHUZAC SUR ADOUR	
	CPES CALENTA	
	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		

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
Notes to the Consolidated Financial Statements
For the years ended December, 2021 and 2020

1. General, Continued

(2) Changes of scope of consolidation, continued

(i) Subsidiaries newly included in the consolidation for year ended December 31, 2021, are as follows, continued

RES Mediterranean	Company name	Reason
	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	
	CPES RENARDEYRE	
	CPES ROMEGUERAR	
	CPES SABLE ROUGE	
	CPES SAINT ANGE	
	CPES SEBENS	
	CPES SOLEIL ROUGE	
	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	
	RES 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	

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
Notes to the Consolidated Financial Statements
For the years ended December, 2021 and 2020

1. General, Continued

(2) Changes of scope of consolidation, continued

(ii) Subsidiaries newly excluded from the consolidation for year ended December 31, 2021 are as follows:

Company name	Reason
Hanwha Solutions Corporations	
Asan Techno Valley	Liquidation
Hanwha Galleria Co., Ltd.	Merger Elimination
Hanwha Q CELLS Co., Ltd.	
HSI Corporation	Liquidation
Nantong Hanwha Import & Export Co., Ltd.	
Agenor Hive SL	Share sales
Elektrownia OZE 3 Sp. z o.o.	
QSUN 23 Sp. z o.o.	
QSUN 26 Sp. z o.o.	
SPP Wytwarzanie 18 sp. z o.o.	
SPP Wytwarzanie 31 sp. z o.o.	
SPP Wytwarzanie 33 sp. z o.o.	
Sunwolt Sp. z o.o.	
HANWHA Global Asset Corporation	
BT Coniglio Solar, LLC	Share sales to associates
Hanwha Q CELLS Australia Holdings Pty Ltd	Liquidation
Hanwha Q CELLS Canada, Inc	
Hanwha Q CELLS Solar Technology Australia Pty Ltd.	

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES

Notes to the Consolidated Financial Statements

For the years ended December, 2021 and 2020

1. General, Continued

(3) Financial information of major subsidiaries

The summary financial information of the major subsidiaries as of December 31, 2021 are as follows:

In thousand won

		<u>Assets</u>	<u>Liabilities</u>	<u>Equity</u>	<u>Revenue</u>	<u>Net income (loss)</u>
Gyeonggi Yongin Techno Valley Co., Ltd.	₩	17,480,277	9,217,935	8,262,342	-	62,568
Gimhae Techno Valley Co., Ltd.		12,940,829	714	12,940,115	-	(102,580)
SEOSAN TECHNO VALLEY		12,620,699	416,042	12,204,657	1,470,000	219,169
West Ochang Techno Valley Co., Ltd.		37,829,175	40,743,378	(2,914,203)	-	(3,482,468)
Anseong Techno Valley		21,923,174	24,858,686	(2,935,512)	-	(1,796,298)
H-Valley Co.,Ltd		2,063,537	14,464,485	(12,400,948)	-	(44,107)
H-Techno Valley Co.,Ltd		4,239,488	101	4,239,387	-	(760,613)
The Second Yong In Techno Valley Co, Ltd		4,210,096	9,313	4,200,783	-	(723,606)
Hanwha Galleria Timeworld Co., Ltd.		375,417,182	191,789,817	183,627,365	140,431,532	42,866,007
Hanwha City Development Co., Ltd.		90,902,135	1,374,526	89,527,609	3,141,650	2,356,585
Hanwha B&B Co., Ltd.(*1)		6,858,768	3,262,785	3,595,983	7,163,996	(2,216,347)
Hanwha Savings Bank Co., Ltd.		1,410,042,430	1,243,957,426	166,085,004	19,066,305	4,011,487
Yungam Techno Solar Power Corp.		9,399,250	882,386	8,516,864	968,403	96,397
Yungam Hae-oreum Solar Power Corp.		6,544,848	595,104	5,949,744	644,307	37,143
Hi-pass Solar Corporation		8,746,636	5,108,826	3,637,810	1,604,474	205,826
Hanwha Global Asset Corporation		1,022,998,098	22,959,454	1,000,038,644	-	92,065,543
Hanwha Compound Co., Ltd.		87,726,531	35,097,624	52,628,907	176,851,700	2,129,411
Hanwha Chemical Overseas Holdings, Co., Ltd.		85,821,266	2,933,152	82,888,114	-	22,670,269
Sunrise Solar		1,139,103	709,806	429,297	224,493	14,876
Haesarang Solar Power Corp.		9,273,028	5,858,550	3,414,478	1,344,265	144,123
Haeorum PV Plant Corporation		15,906,509	12,380,970	3,525,539	999,927	9,066
Hanwha Chemical Trading (Shanghai) Co., Ltd.		42,377,115	28,444,840	13,932,275	161,521,410	4,962,168
Hanwha Advanced Materials Beijing Co., Ltd.		36,910,483	4,391,193	32,519,290	15,046,701	(513,263)
Hanwha Advanced Materials Chongqing Co.,Ltd.		9,491,969	675,678	8,816,291	5,179,756	(1,256,954)
Hanwha Advanced Materials Europe, s.r.o.		153,595,632	47,746,865	105,848,767	85,854,845	7,854
Hanwha Advanced Materials Germany GmbH		17,684,621	645,296	17,039,325	11,549,824	2,180,140
Hanwha Advanced Materials Holdings USA Inc.		46,940,770	3,774,984	43,165,786	-	-
Hanwha Advanced Materials Mexico S. De R.L. De C.V.		39,252,283	37,882,265	1,370,018	37,790,992	(1,852,904)
Hanwha Advanced Materials Shanghai Co., Ltd.		47,816,225	5,149,589	42,666,636	22,804,507	(3,245,589)
Hanwha America Development Inc.		119,257,876	1,210,859	118,047,017	-	488,502
Hanwha Chemical (Ningbo) Co., Ltd.		630,516,641	224,080,728	406,435,913	573,083,909	107,775,113
Hanwha Chemical (Thailand) Co., Ltd.		40,967,622	5,936,885	35,030,737	38,072,328	2,615,457
Hanwha Chemical Malaysia Sdn. Bhd.		56,802,354	48,738,113	8,064,241	247,089,276	6,853,894
Hanwha Holdings(USA), Inc. (*1)		683,111,343	410,942,787	272,168,556	672,072,907	(11,600,748)
Hanwha International Corp.		59,599,758	528,827	59,070,931	-	(195)
Hanwha Q CELLS Americas Holdings. Corp. (*2)		808,051,479	472,683,117	335,368,362	800,176,036	8,312,514
Hanwha Q CELLS Australia Pty Ltd.		43,596,959	34,842,366	8,754,593	67,217,092	958,112
Hanwha Q CELLS Chile SpA		28,911,027	28,262,979	648,048	569,884	(17,517,513)
Hanwha Q CELLS Co., Ltd. (*3)		3,182,564,092	1,560,589,328	1,621,974,764	1,714,016,718	161,831,474
Hanwha Q CELLS GmbH		862,775,678	525,612,489	337,163,189	1,007,186,823	(26,194,339)
Hanwha Q CELLS Investment Co., Ltd.		770,224,704	95,251,215	674,973,489	-	5,585,940
Hanwha Q CELLS Malaysia Sdn. Bhd.		870,038,391	698,501,086	171,537,305	601,168,452	(56,203,349)
Hanwha Q CELLS Turkey (*4)		31,721,122	20,194,490	11,526,632	54,758,321	(3,625,673)
RES Mediterranee (*5)		166,930,352	86,081,729	80,848,623	7,674,693	(4,017,569)

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES

Notes to the Consolidated Financial Statements

For the years ended December, 2021 and 2020

1. General, Continued

(3) Financial information of major subsidiaries, continued

- (*1) Consolidated financial information of Hanwha Holdings (USA), Inc. , an intermediate parent entity, and 14 subsidiaries.
- (*2) Consolidated financial information of Hanwha Q CELLS America Holdings. Corp., an intermediate parent entity, and 34 subsidiaries.
- (*3) Consolidated financial information of Hanwh Q CELLS Co., Ltd. , an intermediate parent entity, and 22 subsidiaries.
- (*4) Consolidated financial information of Hanwh Q CELLS Turkey, an intermediate parent entity, and 26 subsidiaries.
- (*5) Consolidated financial information of RES Mediteranee, an intermediate parent entity, and 126 subsidiaries.

2. Basis of accounting

The consolidated financial statements have been prepared in accordance with Korean International Financial Reporting Standards ("K-IFRS"), as prescribed in the *Act on External Audits of Corporations in the Republic of Korea*.

The consolidated financial statements were authorized for issued by the Board of Directors on February 17, 2022 and will be submitted for approval to the shareholder's meeting to be held on March 23, 2022.

(1) Application of accounting standards

The consolidated 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 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

The financial statements of the controlling company and each subsidiary are prepared in the functional currency of the economic environment in which respective operation takes place. These consolidated financial statements are presented in Korean won, which is the controlling company's functional currency and the currency of the primary economic environment in which the Group 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

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES

Notes to the Consolidated Financial Statements

For the years ended December, 2021 and 2020

2. Basis of accounting, Continued

(3) Use of estimates and judgements, continued

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 1 – General- Details of subsidiaries : Whether the Group has de facto control over subsidiary

Note 15 – Investments in Associates and Joint Ventures : Whether the Group has significant influence over an investee

Note 59 – Revenue : Performance obligations and revenue recognition policies

Note 19 – Leases : Whether the exerciseability of the option to extend the lease is fairly certain

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 18 - Intangible Asset : Key assumptions of estimates applied to impairment testing of goodwill

3) Measurement of fair value

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

When measuring the fair value of an asset or a liability, the Group uses market observable data as far as possible. Fair values are categorized into different levels in a fair value hierarchy based on the inputs used in the valuation techniques as 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 Group 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 Group initially applied amendment of Interest rate benchmark reform (K-IFRS No. 1109 'Financial Instrument', K-IFRS No. 1039 'Financial instrument: Recognition and Measurement', K-IFRS No. 1107 'Financial Instruments: Disclosures', K-IFRS No. 1104 'Insurance Contracts', and K-IFRS No. 1116 'Lease'). The other amendments applied after January 1, 2021 have no material effect on the Group's financial statements.

The Group applied the Phase 2 amendments retrospectively. However, in accordance with the exceptions permitted in the Phase 2 amendments, the Group has elected not to restate comparatives for the prior periods to reflect the application of these amendments

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES

Notes to the Consolidated Financial Statements

For the years ended December, 2021 and 2020

4. Significant Accounting Policies

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

(1) Consolidation

1) Business Combination

The Group 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 Group. In determining whether a particular set of activities and assets is a business, the Group 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 Group 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 payable is measured at fair value at the acquisition date. If the contingent consideration is classified as equity, then it is not remeasured and settlement is accounted for within equity. Otherwise, subsequent changes in the fair value of the contingent consideration are recognized in profit or loss.

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

2) Subsidiaries

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

3) Non-controlling interests

Non-controlling interests ("NCI") are measured at their proportionate share of the acquiree's identifiable net assets at the acquisition date.

Changes in the Group's interest in a subsidiary that do not result in a loss of control are accounted for as equity transactions.

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
Notes to the Consolidated Financial Statements
For the years ended December, 2021 and 2020

4. Significant Accounting Policies, Continued

(1) Consolidation, continued

4) Loss of control

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

5) Interests in equity-accounted investees

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

Associates are those entities in which the Group has significant influence, but not control or joint control, over the financial and operating policies. A joint venture is arrangement in which the Group has joint control, whereby the Group has rights to the net assets of the arrangement, rather than rights to its assets and obligations for its liabilities.

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

6) Transactions eliminated on consolidation

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

7) 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 part of share premium.

(2) 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 Group restates the statement of comprehensive income as if the operation were discontinued from the beginning of the comparative period.

(3) Cash and cash equivalents

The Group 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.

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
Notes to the Consolidated Financial Statements
For the years ended December, 2021 and 2020

4. Significant Accounting Policies, Continued

(4) 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.

(5) Non-derivative financial assets

1) Recognition and initial measurement

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

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

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 Group changes its business model for managing financial assets, in which case all affected financial assets are reclassified on the first day of the first reporting period following the change in the business model.

A financial asset is measured at amortized cost if it meets both of the following conditions and is not designated as at FVTPL:
- the asset is held within a business model whose objective is to hold assets to collect contractual cash flows; and
- 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(Solely Payments of Principal and Interest).

On initial recognition of an equity investment that is not held for trading, the Group may irrevocably elect to present subsequent changes in fair value in OCI. 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 Group may irrevocably designate a financial asset that otherwise meets the requirements to be measured at amortized cost or at FVOCI as at FVTPL if doing so eliminates or significantly reduces an accounting mismatch that would otherwise arise. Once the Group designates a financial asset as at FVTPL, the Group will not reclassify those items to FVOCI subsequently.

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
Notes to the Consolidated Financial Statements
For the years ended December, 2021 and 2020

4. Significant Accounting Policies, Continued

(5) Non-derivative financial assets, continued

2) Classification and subsequent measurement, continued

(ii) Business model assessment

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

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

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

Financial assets that are held for trading or managed and whose performance is evaluated on a fair value basis are measured at FVTPL. because they are neither held to collect contractual cash flows nor held both to collect contractual cash flows and to sell financial assets.

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

In making the assessment, the Group considers:

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

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

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.

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
Notes to the Consolidated Financial Statements
For the years ended December, 2021 and 2020

4. Significant Accounting Policies, Continued

(5) Non-derivative financial assets, continued

(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.

3) Derecognition

(i) Financial assets

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

The Group enters into transactions whereby it transfers assets recognized 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 Group 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 Group 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 Group currently has a legally enforceable right to set off the amounts and it intends either to settle them on a net basis or to realize the asset and settle the liability simultaneously.

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
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4. Significant Accounting Policies, Continued

(6) Derivative financial instruments

1) Derivative financial instruments and hedge accounting

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 Group 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 Group documents the risk management objective and strategy for undertaking the hedge. The Group 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.

2) Hedging relationship affected by interest rate benchmark reform

The Group assumes that an interest rate benchmark does not change as a result of the interest rate benchmark reform when assessing the economic relationship between the hedged item and the hedging instrument if there is uncertainty in the timing or amount of cash flows based on the interest rate benchmark of hedged item, or the effective hedging instrument, and the interest rate benchmark designated as risk being hedged due to the Group's interest rate benchmark reform.

The Group no longer applies the assumption that no change occurs as a result of these interest rate benchmark reforms when the following events occur:

- when the uncertainty arising from interest rate benchmark reform is no longer present with respect to the timing and the amount of the interest rate benchmark-based cash flows of the hedged item
- when the hedging relationship that the hedged item is part of is discontinued

In relation to the hedged item or hedging instrument, the Group changes the formal designation of a hedge relationship documented in the past to reflect the changes, if the changes required in the interest rate benchmark reform are no longer uncertain in the timing or amount of cash flows based on interest rate benchmarks designated as hedged risks and the benchmarks of the interest rate of a hedged item or hedging instrument.

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 Group 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.

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4. Significant Accounting Policies, Continued

(6) Derivative financial instruments, continued

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 Group 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.

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.

(7) Impairment of financial assets

1) Financial assets and contract assets

The Group recognizes 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 Group measures loss allowances at an amount equal to lifetime ECLs, except for the following, which are measured at 12-month ECLs:

- Debt securities that are determined to have low credit risk at the reporting date
- 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 Group measured loss allowances for lifetime ECLs on trade receivables (including lease 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 Group considers reasonable and supportable information that is relevant and available without undue cost or effort. This includes both quantitative and qualitative information and analysis, based on the Group's historical experience and informed credit assessment and including forward-looking information.

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
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4. Significant Accounting Policies, Continued

(7) Impairment of financial assets, continued

The Group considers a financial asset to be in default when:

- the debtor is unlikely to pay its credit obligations to the Group in full, without recourse by the Group to actions such as realizing security (if any is held)

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

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

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

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

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

- significant financial difficulty of the debtor;
- a breach of contract such as a default or being more than 90 days past due;
- the restructuring of a loan or advance by the Group on terms that the Group would not consider otherwise;
- it is probable that the debtor will enter bankruptcy or other financial reorganization; or
- the disappearance of an active market for a security because of financial difficulties.

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

(8) 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.

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
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4. Significant Accounting Policies, Continued

(8) Property, plant and equipment, continued

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.

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 Group's property, plant and equipment are as follows:

	Estimated useful lives (Years)
Buildings	5 ~ 60
Structures	8 ~ 50
Machinery	2 ~ 20
Vehicles	1 ~ 12
Tools and equipments	1 ~ 20
Other property, plant and equipment ("Other PP&Es")	1 ~ 12

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 Group.

(9) Intangible assets

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

Amortization of intangible assets 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
Membership	20
Other intangible assets	According to the respective contract period
Development costs	5 ~ 10

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4. Significant Accounting Policies, Continued

(9) Intangible assets, continued

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 Group 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.

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.

(10) Borrowing costs

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

To the extent that the Group borrows funds specifically for the purpose of obtaining a qualifying asset, the Group determines the amount of borrowing costs eligible for capitalization as the actual borrowing costs incurred on that borrowing during the period less any investment income on the temporary investment of those borrowings. To the extent that the Group borrows funds generally and uses them for the purpose of obtaining a qualifying asset, the Group 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 Group 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 Group capitalizes during a period shall not exceed the amount of borrowing costs incurred during that period.

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES

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4. Significant Accounting Policies, Continued

(11) Government grants

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

Government grants whose primary condition is that the Group 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 Group 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.

(12) 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 Group and the cost of the item can be measured reliably. The carrying amount of the replaced part is derecognized. The costs of the day-to-day servicing are recognized in profit or loss as incurred.

Investment property except for land, are depreciated on a straight-line basis over 5~60 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.

(13) Impairment of non-financial assets

The carrying amounts of the Group'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 Group estimates the recoverable amount of an individual asset, if it is impossible to measure the individual recoverable amount of an asset, then the Group 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.

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4. Significant Accounting Policies, Continued

(13) Impairment of non-financial assets, continued

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.

(14) Leases

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

1) As a lessee

At commencement or on modification of a contract that contains a lease component, the Group 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 Group has elected not to separate non-lease components and account for the lease and non-lease components as a single lease component.

The Group 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 Group by the end of the lease term or the cost of the right-of-use asset reflects that the Group 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 Group's incremental borrowing rate. Generally, the Group uses its incremental borrowing rate as the discount rate.

The Group 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 Group is reasonably certain to exercise, lease payments in an optional renewal period if the Group is reasonably certain to exercise an extension option, and penalties for early termination of a lease unless the Group is reasonably certain not to terminate early.

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
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4. Significant Accounting Policies, Continued

(14) Leases, continued

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 Group's estimate of the amount expected to be payable under a residual value guarantee, if the Group 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 Group 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.

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

2) As a lessor

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

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

To classify each lease, the Group makes an overall assessment of whether the lease transfers substantially all of the risks and rewards incidental to ownership of the underlying asset. If this is the case, then the lease is a finance lease; if not, then it is an operating lease. As part of this assessment, the Group considers certain indicators such as whether the lease is for the major part of the economic life of the asset.

When the Group 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 Group 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 Group applies K-IFRS No. 1115 to allocate the consideration in the contract.

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

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

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4. Significant Accounting Policies, Continued

(15) Non-current assets held for sale

Non-current assets, or disposal groups comprising assets and liabilities, are classified as held-for-sale if it is highly probable that they will be recovered primarily through sale rather than through continuing use. 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 Group 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'.

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.

(16) Non-derivative financial liabilities

The Group 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 Group recognizes financial liabilities in the statement of financial position when the Group 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 Group derecognizes a financial liability when its contractual obligations are discharged, cancelled, or expire. The Group 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.

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4. Significant Accounting Policies, Continued

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

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

3) Retirement benefits: Defined contribution plans

When an employee has rendered service to the Group during a period, the Group 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 Group 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 Group'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 Group, the recognized asset is limited to the present value of economic benefits available in the form of any future refunds from the plan or reductions in future contributions to the plan.

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

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

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4. Significant Accounting Policies, Continued

(17) Employee benefits, continued

5) Termination benefits

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

(18) Provisions

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

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

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

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

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 Group estimates all possible outcomes and their associated probabilities by weighted averages.

The Group recognizes the costs to be borne when recovering the leased asset to its original state under the terms of the lease as provisions at the commencement date of the lease or at a specific period of time as a result of using the asset. Such provision is measured at its best estimate for the expense to be incurred for recovering the asset, and this estimate is regularly reviewed and adapted to new circumstance.

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

(19) Emissions rights

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

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 Group 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.

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES

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4. Significant Accounting Policies, Continued

(19) Emissions rights, continued

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

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.

(20) Foreign currency

1) Foreign currency transactions

Transactions in foreign currencies are translated to the functional currencies of the Group 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 arising on retranslation are recognized in profit or loss, except for differences arising on the retranslation of available-for-sale equity instruments, a financial liability designated as a hedge of the net investment in a foreign operation, or qualifying cash flow hedges, which are recognized in other comprehensive income. 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.

2) Foreign operations

If the presentation currency of the Group is different from a foreign operation's functional currency, the financial statements of the foreign operation are translated into the presentation currency using the following methods:

The assets and liabilities of foreign operations, whose functional currency is not the currency of a hyperinflationary economy, are translated to presentation currency at exchange rates at the reporting date. The income and expenses of foreign operations are translated to functional currency at exchange rates at the dates of the transactions. Foreign currency differences are recognized in other comprehensive income at reporting date and reclassified into profit or loss when the foreign operation is disposed.

Any goodwill arising on the acquisition of a foreign operation and any fair value adjustments to the carrying amounts of assets and liabilities arising on the acquisition of that foreign operation is treated as assets and liabilities of the foreign operation. Thus they are expressed in the functional currency of the foreign operation and translated at the closing rate.

When a foreign operation is disposed of, the relevant amount in the translation is transferred to profit or loss as part of the profit or loss on disposal. On the partial disposal of a subsidiary that includes a foreign operation, the relevant proportion of such cumulative amount is reattributed to non-controlling interest. In any other partial disposal of a foreign operation, the relevant proportion is reclassified to profit or loss.

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES

Notes to the Consolidated Financial Statements

For the years ended December, 2021 and 2020

4. Significant Accounting Policies, Continued

(20) Foreign currency, continued

3) Translation of net investment in a foreign operation

The Group may have a monetary item that is receivable from or payable to a foreign operation. An item for which settlement is neither planned nor likely to occur in the foreseeable future is, in substance, a part of the Group's net investment in that foreign operation, and the difference arose from foreign currency shall be recognized initially in other comprehensive income and reclassified to profit or loss on disposal of the net investment.

(21) 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 Group's discretion. Dividends are recognized when dividends are approved at the Group'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 Group 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 Group acquires and retains treasury shares, the consideration paid or received is directly recognized in equity.

(22) Share based payments

The Group has granted shares or share options to its employees. For equity-settled share-based payment transactions, the Group 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 Group cannot reliably estimate the fair value of the goods or services received, the Group 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.

(23) Revenue from contracts with customers

The Group's accounting policies relating to revenue from contracts with customers is described in Note 59.

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES

Notes to the Consolidated Financial Statements

For the years ended December, 2021 and 2020

4. Significant Accounting Policies, Continued

(24) Finance income and finance costs

The Group'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 Group's right to receive payment is established.

The effective interest rate is the rate that exactly discounts estimated future cash payments or receipts through the expected life of the financial instrument to the gross carrying amount of the financial asset or the amortized cost of the financial liability.

In calculating interest income and expense, the effective interest rate is applied to the gross carrying amount of the asset (when the asset is not credit-impaired) or to the amortized cost of the liability. However, for 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.

(25) 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 Group 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'.

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 Group :

- 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.

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For the years ended December, 2021 and 2020

4. Significant Accounting Policies, Continued

(25) Income taxes, continued

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 Group expects, at the end of the reporting period, to recover or settle the carrying amount of its assets and liabilities. The Group 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 Group is able to control the timing of the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future. The Group 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 Group 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.

The Group considers an expiry of existing temporary differences and the business plan in assessing the probable future taxable profit when taxable temporary differences are not be recognized as a deferred tax asset.

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.

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

The Group 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.

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.

(26) Earnings per shared

The Group 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 Group 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.

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
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4. Significant Accounting Policies, Continued

(27) 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 Group has not applied the following standards or interpretations in the financial statements. The following standards and interpretations shall not have a significant impact on the financial statements of the Group.

- Onerous contracts – Cost of Fulfilling a Contract (Amendments to K-IFRS 1037 Provisions, Contingent Liabilities and Contingent Assets)
- Deferred Tax related to Assets and Liabilities arising from a Single Transaction (Amendments to K-IFRS 1012 Income Taxes)
- COVID-19-Related Rent Concessions beyond 30 June 2021 (Amendment to K-IFRS 1116 Leases).
- Reference to Conceptual Framework (Amendments to K-IFRS 1103 Business Combinations).
- Annual Improvements to IFRS Standards 2018–2020.
- Property, Plant and Equipment: Proceeds before Intended Use (Amendments to K-IFRS 1016 Property, Plant and Equipment).
- Classification of Liabilities as Current or Non-current (Amendments to K-IFRS 1001 Presentation of Financial Statements).
- K-IFRS 1117 Insurance Contracts and amendments to K-IFRS 1117 Insurance Contracts.
- Disclosure of Accounting Policies (Amendments to K-IFRS 1001 Presentation of Financial Statements).
- Definition of Accounting Estimates (Amendments to K-IFRS 1008).

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
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5. Financial risk management

(1) Financial risk factors

The finance department of the Group organizes access to domestic and international financial markets and monitors and manages financial risks related to the Group'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.

(i) Market risk

(a) Foreign exchange risk

The Group'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 and CNY.

The Group selects the foreign exchange risk management policy of each Group by considering the nature of the business and the existence of measures to cope with the exchange rate fluctuation risk of each Group being connected. In addition, the Group 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 Group 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, 2021 and 2020, when exchange rates change by 1% for the foreign exchange positions held by the Group.

<i>In thousands of won</i>		2021		2020	
		1% increase	1% decrease	1% increase	1% decrease
USD	₩	(4,700,592)	4,700,592	(6,949,344)	6,949,344
EUR		(969,562)	969,562	80,435	(80,435)
JPY		282,017	(282,017)	63,974	(63,974)
CNY		74,269	(74,269)	135,559	(135,559)
	₩	<u>(5,313,868)</u>	<u>5,313,868</u>	<u>(6,669,376)</u>	<u>6,669,376</u>

The table above shows the sensitivity analysis performed on monetary assets and liabilities denominated in foreign currencies other than the Group'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 goal of the Group's interest rate risk management is to maximize the value of the entity by seeking to minimize the uncertainty of interest rate changes and net interest costs.

As of December 31, 2021, if other variables are constant and interest rates on floating rate borrowing rise (falling) by 1%, the current period net income before corporate tax expense deduction is expected to have decreased (increased) by ₩42,340 million (December 31, 2020: ₩30,412 million).

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5. Financial risk management, Continued

(1) Financial risk factors, continued

(ii) Credit risk

The Group 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 Group 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 Group 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.

The Group's maximum exposure to credit risk is the carrying 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, 2021, the Group provides payment guarantees to related parties and others, and the maximum amount exposed to credit risk is ₩127,686 million.

(iii) Liquidity risk

The Group constantly monitors liquidity forecasts to ensure that the unused borrowing limit (see Note 55) is maintained at an appropriate level and that it does not violate the borrowing limit or agreement to meet the demand for operating funds. The forecast for liquidity considers those requirements when there are external legislation or legal requirements, such as the Group's financing plans, compliance with agreements, target financial ratios within the Group and restrictions on currencies.

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

Maturity of cash flows analysis of non-derivative liabilities according to their remaining maturities as of December 31, 2021 and 2020 are as follows:

In thousands of won

		December 31, 2021			
		Within 1 year	1 to 5 years	Over 5 years	Total
Borrowings(*1)	₩	2,700,138,247	2,871,413,833	540,579,027	6,112,131,107
Trade payables and other payables		2,443,208,483	179,864,370	-	2,623,072,853
Other financial liabilities(*2)		278,924,519	283,818,135	359,727,657	922,470,311
	₩	<u>5,422,271,249</u>	<u>3,335,096,338</u>	<u>900,306,684</u>	<u>9,657,674,271</u>

(*1) Includes projected cash flows of related interest expense.

(*2) Projected cash flows from accrued interest and financial guarantee liabilities are not included.

In thousands of won

		December 31, 2020			
		Within 1 year	1 to 5 years	Over 5 years	Total
Borrowings(*1)	₩	3,108,935,957	2,261,956,272	555,420,794	5,926,313,023
Trade payables and other payables		1,556,391,780	14,511	-	1,556,406,291
Other financial liabilities(*2)		195,520,809	216,160,957	196,023,411	607,705,177
	₩	<u>4,860,848,546</u>	<u>2,478,131,740</u>	<u>751,444,205</u>	<u>8,090,424,491</u>

(*1) Includes projected cash flows of related interest expense.

(*2) Projected cash flows from accrued interest and financial guarantee liabilities are not included.

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For the years ended December, 2021 and 2020

5. Financial risk management, Continued

(1) Financial risk management, continued

(iii) Liquidity risk, continued

(b) Expected cash flows of derivative liabilities by maturity

Expected cash flows of derivative liabilities by maturity as of December 31, 2021 and 2020 are as follows:

<i>In thousands of won</i>		December 31, 2021			
		Within 1 year	1 to 5 years	Over 5 years	Total
Derivatives liabilities(*)	₩	(7,220,515)	(22,015,787)	-	(29,236,302)

(*) 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.

<i>In thousands of won</i>		December 31, 2020			
		Within 1 year	1 to 5 years	Over 5 years	Total
Derivatives liabilities(*)	₩	4,680,706	32,561,495	22,816,027	60,058,228

(*) 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 Group 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 ₩127,686 million (December 31, 2020: ₩87,395 million) (see Note 55. (3) and Note 56. (6)).

(2) Capital Risk Management

The Group's capital management objective is to sustain the ability, as a going concern, to consistently deliver profits to shareholders and other stakeholders and to maintain a robust capital structure to reduce the cost of capital. The Group uses the debt-to-equity ratio as an indicator to manage capital. This ratio is calculated by dividing total debt by total equity. Total debt and total equity are presented in the consolidated financial statements as "total liabilities" and "total equity," respectively.

The debt-to-equity ratio of the Group as of December 31, 2021 and 2020 is as follows:

<i>In thousands of won</i>		December 31, 2021	December 31, 2020
Liabilities (A)	₩	11,806,325,075	9,169,604,331
Equity (B)		8,201,247,119	5,967,715,490
Debt Ratio (A/B)		143.96%	153.65%

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6. Fair value (Non-financial business)

(1) Fair value of financial instruments by category

Fair value and book value of financial instruments by category as of December 31, 2021 and 2020 are as follows:

In thousands of won

	December 31, 2021		December 31, 2020	
	Book value	Fair value(*)	Book value	Fair value(*)
Financial assets				
Cash and cash equivalents	₩ 1,567,162,571	1,567,162,571	1,199,836,791	1,199,836,791
FVTPL – income financial assets	33,628,555	33,628,555	4,778,417	4,778,417
FVTOCI – income financial assets(*)	56,186,276	56,186,276	48,540,951	48,540,951
Trade receivables and other receivables	1,634,597,762	1,634,597,762	1,461,363,055	1,461,363,055
Other financial assets				
Derivative assets	34,518,536	34,518,536	13,106,624	13,106,624
Others	404,593,764	404,593,764	241,816,664	241,816,664
	₩ <u>3,730,687,464</u>	<u>3,730,687,464</u>	<u>2,969,442,502</u>	<u>2,969,442,502</u>
Financial liabilities				
Trade payables and other payables	₩ 2,615,238,754	2,615,238,754	1,556,406,291	1,556,406,291
Borrowings	5,874,826,693	5,871,624,910	5,688,573,526	5,684,824,126
Other financial liabilities				
Derivative liabilities	5,282,234	5,282,234	73,164,853	73,164,853
Others	756,289,629	756,289,629	528,984,827	528,984,827
	₩ <u>9,251,637,310</u>	<u>9,248,435,527</u>	<u>7,847,129,497</u>	<u>7,843,380,097</u>

(*) The acquisition cost was used as fair value for trade receivables and other receivables and non-listed shares whose difference between fair value and acquisition cost is not important.

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For the years ended December, 2021 and 2020

6. Fair value (Non-financial business), Continued

(2) Fair value hierarchy

Financial instruments that are measured at fair values by hierarchy level as of December 31, 2021 and 2020 are as follows:

In thousands of won

		December 31, 2021			
		Level 1	Level 2	Level 3	Total
Recurring fair value measurements					
FVTPL – income financial assets	₩	3,092,364	2,823,175	27,713,016	33,628,555
FVTOCI – income financial assets		44,680,297	-	11,505,979	56,186,276
Derivative assets		-	34,518,536	-	34,518,536
Derivative liabilities		-	5,282,234	-	5,282,234
Trade payables and other payables - contingent consideration(*)		-	-	37,711,894	37,711,894

(*) The Group recognized contingent consideration related to the consideration transferred at fair value when acquiring equity in WOS Inc. for the years ended December 31, 2021 (see Note 55. (7))

In thousands of won

		December 31, 2020			
		Level 1	Level 2	Level 3	Total
Recurring fair value measurements					
FVTPL – financial assets	₩	-	-	4,778,417	4,778,417
FVTOCI – financial assets		37,152,065	-	11,388,886	48,540,951
Derivative assets		-	13,106,624	-	13,106,624
Derivative liabilities		-	73,164,853	-	73,164,853

The Group has not disclosed the fair value hierarchy for financial assets and financial liabilities whose carrying amounts are judged to be a reasonable approximation of their fair values.

(3) 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 Group 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 Group 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.

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6. Fair value (Non-financial business), Continued

(3) 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:

- 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 Group's credit rating and term coefficient. The Group 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.

(4) Level 3 fair value

Changes in fair value of financial instruments classified as Level 3 for the years ended December 31, 2021 and 2020 are as follows:

In thousands of won

	2021		2020
	Financial assets	Financial liabilities	Financial assets
Balance at 1 January	₩ 16,167,303	-	14,607,985
Acquisition	5,801,434	(37,462,772)	2,354,267
Disposal	(3,292,350)	-	(186,966)
Total gain or loss for the period			
Gains and losses included in other comprehensive income	113,629	-	(19,976)
Gains and losses included in profit or loss	2,275,515	(249,122)	(461,783)
Others(*)	18,153,464	-	(126,224)
Balance at 31 December	₩ 39,218,995	(37,711,894)	16,167,303

(*) Increases due to business combinations and changes in foreign exchange rates are included.

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7. Financial instruments by category (Non-financial business)

(1) Carrying amount of financial instruments by category

(i) Carrying amount of financial assets by category as of December 31, 2021 and 2020 are as follows:

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	₩	-	-	1,567,162,571	-	1,567,162,571
Trade receivables and other receivables		-	42,013,338	1,589,745,285	-	1,631,758,623
Other financial assets		11,160,984	-	217,415,895	976,286	229,553,165
Non-current:						
FVTPL - financial assets		33,628,555	-	-	-	33,628,555
FVTOCI - financial assets		-	56,186,276	-	-	56,186,276
Trade receivables and other receivables		-	-	2,839,139	-	2,839,139
Other long-term financial assets		22,381,266	-	187,177,869	-	209,559,135
	₩	<u>67,170,805</u>	<u>98,199,614</u>	<u>3,564,340,759</u>	<u>976,286</u>	<u>3,730,687,464</u>

(*) Includes hedging derivative instruments not applicable to financial assets by category.

In thousands of won

		December 31, 2020				
		Financial assets at FVTPL	Financial assets at FVTOCI	Financial assets at amortized cost	Others(*)	Total
Current:						
Cash and cash equivalents	₩	-	-	1,199,836,791	-	1,199,836,791
FVTPL - financial assets		2,919,930	-	-	-	2,919,930
Trade receivables and other receivables		-	29,131,463	1,428,394,206	-	1,457,525,669
Other financial assets		12,954,637	-	179,677,955	151,987	192,784,579
Non-current:						
FVTPL - financial assets		1,858,487	-	-	-	1,858,487
FVTOCI - financial assets		-	48,540,951	-	-	48,540,951
Trade receivables and other receivables		-	-	3,837,386	-	3,837,386
Other long-term financial assets		-	-	62,138,709	-	62,138,709
	₩	<u>17,733,054</u>	<u>77,672,414</u>	<u>2,873,885,047</u>	<u>151,987</u>	<u>2,969,442,502</u>

(*) Includes hedging derivative instruments not applicable to financial assets by category.

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7. Financial instruments by category (Non-financial business), Continued

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

(ii) Carrying amounts of financial liabilities by category as of December 31, 2021 and 2020 are as follows:

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	2,436,830,547	-	2,441,732,750
Short-term borrowings		-	2,595,932,174	15,202,003	2,611,134,177
Other financial liabilities		4,916,756	287,284,318	8,294	292,209,368
Non-current:					
Trade payables and other payables		32,809,691	140,696,313	-	173,506,004
Long-term borrowings		-	3,263,692,516	-	3,263,692,516
Other long-term financial liabilities		365,478	468,997,017	-	469,362,495
	₩	<u>42,994,128</u>	<u>9,193,432,885</u>	<u>15,210,297</u>	<u>9,251,637,310</u>

(*) Includes hedging derivative instruments not applicable to financial liabilities by category, financial liabilities related to transfer transactions not qualified for derecognition, and financial guarantee liabilities.

In thousands of won

		December 31, 2020			
		Financial liabilities FVTPL	Financial liabilities at amortized cost	Others(*)	Total
Current:					
Trade payables and other payables	₩	-	1,556,391,780	-	1,556,391,780
Short-term borrowings		-	2,959,246,632	12,678,872	2,971,925,504
Other financial liabilities		17,730,273	203,280,910	1,146,326	222,157,509
Non-current:					
Trade payables and other payables		-	14,511	-	14,511
Long-term borrowings		-	2,716,648,022	-	2,716,648,022
Other long-term financial liabilities		52,043,375	325,556,249	2,392,547	379,992,171
	₩	<u>69,773,648</u>	<u>7,761,138,104</u>	<u>16,217,745</u>	<u>7,847,129,497</u>

(*) Includes hedging derivative instruments not applicable to financial liabilities by category, financial liabilities related to transfer transactions not qualified for derecognition, and financial guarantee liabilities.

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7. Financial instruments by category (Non-financial business), Continued

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

Details of net profit or loss of financial instruments by category for the years ended December 31, 2021 and 2020 are as follows:

In thousands of won

	2021					Total
	Financial assets at FVTPL	Financial assets at FVTOCI	Financial assets at amortized cost	Financial liabilities at amortized cost	Others	
Interest income	₩ -	-	18,506,377	-	-	18,506,377
Gain on foreign currency transactions	20,327	-	112,218,095	6,479,939	(672)	118,717,689
Gain on foreign currency translation	56,717	-	125,370,664	6,498,088	-	131,925,469
Interest expense	(249,122)	-	-	(147,108,481)	(190,225)	(147,547,828)
Loss on foreign currency transactions	(451,517)	-	(12,971,705)	(104,545,364)	109	(117,968,477)
Loss on foreign currency translation	(45,492)	-	(3,344,696)	(217,496,194)	-	(220,886,382)
Bad debt expense	-	-	(12,160,799)	-	-	(12,160,799)
Other bad debt expense	-	-	(1,014,830)	-	-	(1,014,830)
Reversal of bad debt expense	-	-	16,445	-	-	16,445
Gain on valuation of FVTPL - financial assets	1,900,613	-	-	-	-	1,900,613
Loss on valuation of FVTPL - financial assets	(15,225)	-	-	-	-	(15,225)
Loss on disposal of FVTPL- financial assets	(123,756)	-	-	-	-	(123,756)
Loss on disposal of trade receivables	-	(558,112)	(1,537)	-	-	(559,649)
Gain on valuation of derivatives	95,787,657	-	-	-	2,730,000	98,517,657
Gain on transactions of derivatives	26,960,678	-	-	-	-	26,960,678
Loss on valuation of derivatives	(4,166,071)	-	-	-	-	(4,166,071)
Loss on transactions of derivatives	(49,791,172)	-	-	-	-	(49,791,172)
Dividend income	900,774	894,471	-	-	-	1,795,245
Profit(loss) before income tax	70,784,411	336,359	226,618,014	(456,172,012)	2,539,212	(155,894,016)
Other comprehensive income:						
Gain (loss) on valuation	-	6,429,490	-	-	-	6,429,490
Gain (loss) on valuation of derivatives	-	-	-	-	534,566	534,566
Comprehensive income before tax	₩ 70,784,411	6,765,849	226,618,014	(456,172,012)	3,073,778	(148,929,960)

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7. Financial instruments by category (Non-financial business), Continued

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

In thousands of won

	2020					Total
	Financial assets at FVTPL	Financial assets at FVTOCI	Financial assets at amortized cost	Financial liabilities at amortized cost	Others	
Interest income	₩ 58,749	-	24,527,547	-	-	24,586,296
Gain on foreign currency transactions	194,068	-	130,664,771	40,502,736	-	171,361,575
Gain on foreign currency translation	76,805	-	138,921,811	77,228,139	-	216,226,755
Interest expense	-	-	-	(205,088,095)	(192,453)	(205,280,548)
Loss on foreign currency transactions	(739,566)	-	(122,375,828)	(69,536,275)	-	(192,651,669)
Loss on foreign currency translation	(143,945)	-	(46,298,371)	(116,750,427)	-	(163,192,743)
Bad debt expense	-	-	(3,527,756)	-	-	(3,527,756)
Other bad debt expense	-	-	(21,471,387)	-	-	(21,471,387)
Reversal of bad debt expense	-	-	3,484,522	-	-	3,484,522
Gain on valuation of FVTPL - financial assets	58,296	-	-	-	-	58,296
Gain on disposal of FVTPL - financial assets	61,832	-	-	-	-	-
Loss on valuation of FVTPL - financial assets	(520,079)	-	-	-	-	(520,079)
Loss on disposal of FVTOCI- financial assets	-	(18,058)	-	-	-	(18,058)
Loss on disposal of trade receivables	-	(548,803)	-	-	-	(548,803)
Gain on valuation of derivatives	18,329,923	-	-	-	-	18,329,923
Gain on transactions of derivatives	35,521,382	-	-	-	-	35,521,382
Loss on valuation of derivatives	(76,476,031)	-	-	-	(4,188,000)	(80,664,031)
Loss on transactions of derivatives	(20,092,968)	-	-	-	(774,000)	(20,866,968)
Dividend income	-	879,802	-	-	-	879,802
Profit(loss) before income tax	<u>(43,671,534)</u>	<u>312,941</u>	<u>103,925,309</u>	<u>(273,643,922)</u>	<u>(5,154,453)</u>	<u>(218,231,659)</u>
Other comprehensive income:						
Gain on valuation	-	1,957,985	-	-	-	1,957,985
Loss on valuation of derivatives	-	-	-	-	(285,398)	(285,398)
Comprehensive income before tax	<u>₩ (43,671,534)</u>	<u>2,270,926</u>	<u>103,925,309</u>	<u>(273,643,922)</u>	<u>(5,439,851)</u>	<u>(216,559,072)</u>

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8. Transfers of financial assets (Non-financial business)

The Group transfers financial assets that are not derecognized in their entirety and counterparties of the related liabilities have recourse for the transferred assets.

All of the transferred financial assets as of December 31, 2021, are trade receivables and the related liabilities are accounted for as short-term borrowings. The carrying amounts and the fair value of transferred trade receivables and related liabilities as of December 31, 2021 and 2020 are ₩15,202 million and ₩12,679 million and the net position is nil.

9. Cash and cash equivalents (Non-financial business)

Restricted cash and cash equivalents provided as collateral for borrowings and others as of December 31, 2021 and 2020 are ₩7,014 million and ₩26,896 million(see Note 55).

10. Trade receivables and other receivables (Non-financial business)

(1) Trade receivables and other receivables as of December 31, 2021 and 2020 are as follows:

In thousands of won

	December 31, 2021		December 31, 2020	
	Current	Non-current	Current	Non-current
Trade receivables	₩ 1,723,616,713	2,875,372	1,593,948,707	526,543
Allowances for doubtful accounts	(181,088,186)	(12,081)	(160,578,881)	-
Less : present value discount	(9,647)	(57,937)	(9,684)	(67,584)
	<u>1,542,518,880</u>	<u>2,805,354</u>	<u>1,433,360,142</u>	<u>458,959</u>
Other receivables	90,610,016	1,861,598	25,377,960	4,829,484
Allowances for doubtful accounts	(1,370,273)	(1,416,140)	(1,212,433)	(1,007,046)
Less : present value discount	-	(411,673)	-	(444,011)
	<u>89,239,743</u>	<u>33,785</u>	<u>24,165,527</u>	<u>3,378,427</u>
	<u>₩ 1,631,758,623</u>	<u>2,839,139</u>	<u>1,457,525,669</u>	<u>3,837,386</u>

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10. Trade receivables and other receivables (Non-financial business), Continued

(2) The aging analysis of trade receivables and other receivables as of December 31, 2021 and 2020 are as follows:

In thousands of won

	December 31, 2021		December 31, 2020	
	Trade receivables	Other receivables	Trade receivables	Other receivables
Receivables not past due(*1): ₩	1,282,750,767	45,065,999	1,163,317,105	17,854,569
Past due but not impaired:				
Less than 3 months	172,838,933	27,834,229	149,125,820	5,162,730
Less than 6 months	33,608,293	1,524,847	38,821,756	21,444
Less than 1 year	32,874,964	6,685,078	47,842,582	26,999
Over 1 year	185,940,594	7,240,904	179,882,165	5,143,857
	<u>425,262,784</u>	<u>43,285,058</u>	<u>415,672,323</u>	<u>10,355,030</u>
Impaired(*1):				
Less than 3 months	353,352	738,411	18,594	-
Less than 6 months	2,730	-	729,240	7,000
Less than 1 year	50,782	-	702,168	25,000
Over 1 year	18,071,670	3,382,146	14,035,820	1,965,845
	<u>18,478,534</u>	<u>4,120,557</u>	<u>15,485,822</u>	<u>1,997,845</u>
Total(*2)	<u>₩ 1,726,492,085</u>	<u>92,471,614</u>	<u>1,594,475,250</u>	<u>30,207,444</u>

(*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.

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10. Trade receivables and other receivables (Non-financial business), Continued

(3) Credit risk and Loss allowance

(i) Changes in allowance for doubtful accounts for the years ended December 31, 2021 and 2020 are as follows:

In thousands of won

		2021		
		Non-impaired receivables	Impaired receivables	Total
Balance at 1 January, 2021	₩	145,314,694	17,483,666	162,798,360
Write-offs		(1,636,221)	(151,641)	(1,787,862)
Changes by increases or collecting of receivables		7,477,100	3,880,646	11,357,746
Changes in exchange rates and others		11,567,987	(49,551)	11,518,436
Balance at 31 December, 2021(*)	₩	<u>162,723,560</u>	<u>21,163,120</u>	<u>183,886,680</u>

(*) As of December 31, 2021, the Group 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

		2020		
		Non-impaired receivables	Impaired receivables	Total
Balance at 1 January, 2020	₩	142,992,112	21,537,041	164,529,153
Write-offs		(2,000,123)	(766,886)	(2,767,009)
Reversal		-	(3,484,522)	(3,484,522)
Changes by increases or collecting of receivables		2,902,097	432,951	3,335,048
Changes in exchange rates and others		1,420,608	(234,918)	1,185,690
Balance at 31 December, 2020(*)	₩	<u>145,314,694</u>	<u>17,483,666</u>	<u>162,798,360</u>

(*) As of December 31, 2020, the Group applies the practical expedient of K-IFRS 1109 and measures loss allowance of trade and other accounts receivable at lifetime expected credit losses.

(ii) Amounts recognized in profit or loss as Loss Allowances for the years ended December 31, 2021 and 2020 are as follows:

In thousands of won

		2021	2020
Loss Allowances			
Changes in allowances for impairment	₩	11,357,746	3,335,048

(4) Trade receivables and other receivables are provided as collateral for borrowings as of December 31, 2021 (see Note 55).

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11. Other financial assets (Non-financial business)

(1) Other financial assets as of December 31, 2021 and 2020 are as follows:

In thousands of won

		December 31, 2021		December 31, 2020	
		Current	Non-current	Current	Non-current
Financial instruments	₩	202,991,330	9,922,440	170,025,248	6,578,801
Loans		5,037,381	17,946,978	3,361,926	9,368,973
Deposits		6,631,894	159,308,451	5,121,579	46,190,935
Accrued revenue		2,581,368	-	1,169,202	-
Derivative assets		12,137,270	22,381,266	13,106,624	-
Lease receivables		173,922	-	-	-
	₩	<u>229,553,165</u>	<u>209,559,135</u>	<u>192,784,579</u>	<u>62,138,709</u>

(2) Derivatives

The Group entered into currency forwards, cross currency swaps and other contracts to hedge exchange rate risk of trade receivables denominated in foreign currencies. Derivatives as of December 31, 2021 and 2020 are as follows:

In thousands of won

		December 31, 2021		December 31, 2020	
		Assets	Liabilities	Assets	Liabilities
Trading:					
Currency forwards	₩	374,967	3,173,717	12,442,245	1,643,695
Currency swaps		32,763,854	2,108,517	512,392	65,944,665
Interest swaps		403,429	-	-	2,185,289
		<u>33,542,250</u>	<u>5,282,234</u>	<u>12,954,637</u>	<u>69,773,649</u>
Cash flow hedge:					
Currency swaps		976,286	-	151,987	2,287,602
Interest swaps		-	-	-	1,103,602
		<u>976,286</u>	<u>-</u>	<u>151,987</u>	<u>3,391,204</u>
	₩	<u>34,518,536</u>	<u>5,282,234</u>	<u>13,106,624</u>	<u>73,164,853</u>

(3) Impairment of other financial assets

For the purpose of impairment testing, government bonds and unsecured corporate bonds are considered to have low credit risk because the counterparty's credit rating is at least BBB-rated. Therefore, for the purpose of impairment testing for these financial assets, the allowance for losses was measured at the amount equivalent to the expected 12-month credit loss. Loans and leasehold deposits that are acquired before the initial application date of the related-party loans and lease deposits are measured at the initial date of application of K-IFRS 1109 to the extent that the credit risk has increased significantly after the initial recognition. For-sale financial assets are measured at the amount corresponding to the expected credit loss over the period until the financial assets are disposed of. Management is also considering the future outlook of the industry to which the issuer of the financial asset belongs when determining the expected credit loss through past experience of default, the financial condition of the counterparty, as well as reports from economists or financial analysts. There are no changes of estimates or assumptions used to estimate the allowance for losses on these financial assets for the years ended December 31, 2021.

(4) Other financial assets are provided as collateral for borrowings as of December 31, 2021 (see Note 55).

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12. Other assets (Non-financial business)

Other assets as of December 31, 2021 and 2020 are as follows:

In thousands of won

	December 31, 2021		December 31, 2020	
	Current	Non-current	Current	Non-current
Advance payments	₩ 281,034,363	4,048,924	315,041,584	-
Allowances for impairment	(118,886,654)	-	(106,567,785)	-
Prepaid expenses	41,274,482	3,858,302	33,283,560	2,676,009
Emission rights(*1)	4,229,097	-	4,441,305	-
Refund asset(*2)	90,064	-	54,727	-
Contract asset	35,456,239	-	16,736,006	-
Prepaid construction cost	6,046,697	-	2,050,264	-
Prepaid value-added tax and others	82,064,972	28,030,731	62,638,267	13,610,034
	₩ <u>331,309,260</u>	<u>35,937,957</u>	<u>327,677,928</u>	<u>16,286,043</u>

(*1) Non-current emission rights are classified as intangible assets (see Note 18).

(*2) If the customer exercises the right to return the product under K-IFRS 1115, the Group includes a refund asset related to the right to collect the product from the customer (see Note 24.(2)).

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13. Inventories (Non-financial business)

(1) Inventories as of December 31, 2021 and 2020 are as follows:

	<i>In thousands of won</i>	December 31, 2021			December 31, 2020		
		Acquisition cost	Valuation reserve	Book value	Acquisition cost	Valuation reserve	Book value
Merchandise	₩	298,204,318	(3,006,926)	295,197,392	171,217,900	(4,142,304)	167,075,596
Finished goods		769,652,070	(20,264,981)	749,387,089	575,642,899	(10,807,940)	564,834,959
Semi-finished goods		66,009,457	(9,406,743)	56,602,714	31,553,172	(769,758)	30,783,414
Work in process		271,274,490	-	271,274,490	267,874,000	-	267,874,000
Raw materials		425,476,561	(13,462,912)	412,013,649	214,152,703	(12,452,509)	201,700,194
Supplies		75,920,273	-	75,920,273	82,178,189	-	82,178,189
Goods in transit		371,106,750	-	371,106,750	117,142,043	-	117,142,043
	₩	<u>2,277,643,919</u>	<u>(46,141,562)</u>	<u>2,231,502,357</u>	<u>1,459,760,906</u>	<u>(28,172,511)</u>	<u>1,431,588,395</u>

(2) The loss on valuation of inventories included in cost of sales in the consolidated statement of comprehensive income for the year ended December 31, 2021, amounts to ₩46,142 million (December 31, 2020: ₩28,173 million).

(3) Borrowing costs capitalized as inventories are ₩782 million and the weighted-average capitalization rates of interest applied are 4.50% to 5.30%.

(4) Inventories are provided as collateral for borrowings as of December 31, 2021 (see Note 55).

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14. Fair value financial assets (Non-financial business)

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

<i>In thousands of won</i>	<u>December 31, 2021</u>	<u>December 31, 2020</u>
Profit or loss		
Equity securities		
Listed securities	₩ 3,092,364	-
Unlisted securities	30,187,925	4,778,417
Debt securities	348,266	-
	<u>33,628,555</u>	<u>4,778,417</u>
Other Comprehensive Income (*)		
Equity securities		
Listed securities	44,680,297	37,152,065
Unlisted securities	11,505,979	11,388,886
	<u>56,186,276</u>	<u>48,540,951</u>
	<u>₩ 89,814,831</u>	<u>53,319,368</u>

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

(2) Changes in Fair value financial assets for the years ended December 31, 2021 and 2020 are as follows:

<i>In thousands of won</i>	<u>2021</u>	<u>2020</u>
Balance at 1 January	₩ 53,319,368	49,788,563
Acquisition	14,823,854	2,354,267
Disposal	(193,503,979)	(187,946)
Valuation-FVTOCI	6,429,490	1,952,492
Valuation-FVTPL	1,885,388	(461,783)
Others(*)	206,860,710	(126,225)
Balance at 31 December	<u>₩ 89,814,831</u>	<u>53,319,368</u>

(*) Includes effects due to changes in scope of consolidation, fluctuation of exchange rate and impairment loss, etc.

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15. Investments in associates and joint ventures (Non-financial business)

(1) Investments in associates and joint ventures as of December 31, 2021 and 2020 are as follows:

In thousands of won

Investees	Location	Closing Month	Main business	Ownership (%)	
				December 31, 2021	December 31, 2020
Associates:					
Smile Ventures Co., Ltd.(*1,2,3)	Republic of Korea	December	Wholesale and retail	17.69%	21.89%
H2 Co., Ltd.(*1,2,3)	Republic of Korea	December	ESS manufacturing and sales	14.26%	19.71%
HANWHA Eagles Professional Baseball Club	Republic of Korea	December	Sports club operating	50.00%	50.00%
Hanwha Savings Bank Co., Ltd.(*4)	Republic of Korea	December	Bank business	100.00%	36.05%
Eagles Energy Co., Ltd	Republic of Korea	December	Photovoltaic business	49.09%	49.09%
Envisioning Climate Solutions Fund(*5)	Republic of Korea	December	Fund	22.49%	-
HANWHA FUND INVESTMENT 1 HO(*5)	Republic of Korea	December	Fund	20.00%	-
Hanwha Station Development Co., Ltd.	Republic of Korea	December	Rent business	48.32%	48.32%
Hanwha Impact Corporation(formerly, Hanwha General Chemical Co., Ltd.)(*4)	Republic of Korea	December	Manufacture of basic compound of petrochemicals	47.93%	36.05%
HANWHA INVESTMENT AND SECURITIES CO., LTD.(*6)	Republic of Korea	December	Stock Broking	0.11%	17.56%
Hanwha Hotels and Resort Co., Ltd.(*1)	Republic of Korea	December	Tourism and Lodge Industry	47.98%	48.78%
Crystal Solar Inc.	USA	December	Solar Engineering	29.09%	29.09%
Finless Foods Inc.(*2,7)	USA	December	Manufacture of seafood	11.11%	-
GRANSOLAR ATOTONILCO, S.A. DE C.V.	Mexico	December	Construction Business	20.00%	20.00%
GRANSOLAR OCOTLAN, S.A. DE C.V.	Mexico	December	Construction Business	20.00%	20.00%
International Polymers Company	Saudi Arabia	December	Manufacture of basic compound	25.00%	25.00%
Lancium Technologies Corporation(*2,7)	Canada	December	Power software development	12.74%	-
Luxbon Solar S.A.	Luxembourg	December	Photovoltaic business	33.33%	33.33%
Simply Foods Inc.(*2,7)	USA	December	Cultured meat business	15.59%	-
SwitchDin Pty Limited(*1)	Australia	June	Development of Energy Management System	20.16%	20.26%
Joint ventures:					
Ulsan Complex City Development Co., Ltd.(*5)	Republic of Korea	December	Real estate development and sales	45.00%	-
YEOCHUN NCC Co., Ltd.	Republic of Korea	December	Manufacture of basic compound	50.00%	50.00%
Burdur Enerji A.S.	Turkey	December	Photovoltaic business	50.00%	50.00%
CONIGLIO TAX EQUITY PARTNERSHIP, LLC(*5,8)	USA	December	Solar photovoltaic power business	67.20%	-

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15. Investments in Associates and Joint Ventures (Non-financial business), Continued

(1) Investments in associates and joint ventures as of December 31, 2021 and 2020 are as follows, continued

In thousands of won

Investees	Location	Closing Month	Main business	Ownership (%)	
				December 31, 2021	December 31, 2020
Gulf Advanced Cables Insulation Company	Saudi Arabia	December	Manufacture of cable	50.00%	50.00%
JV Cooke Solar, LLC	USA	December	Solar photovoltaic power business	33.66%	33.66%
Kellam Tax Equity Partnership, LLC(*8)	USA	December	Solar photovoltaic power business	69.00%	69.00%
HSP TW TE, LLC	USA	December	Photovoltaic business	50.00%	50.00%
Lakeshore East Retail LLC	USA	December	Real estate	50.00%	50.00%
Parcel O LLC	USA	December	Real estate	50.00%	50.00%
Q&G PV Solutions GmbH(*5)	Germany	December	Solar photovoltaic power business	50.00%	-

(*1) The ratio of shareholding of the Group decreased due to an unequal paid-in capital increase for the years ended December 31, 2021.

(*2) As the Group has judged that it has significant influence as it has the authority to appoint the Board of Directors, it has classified as an investment in associate, etc.

(*3) The effective share ratio is presented considering preferred shares with voting rights.

(*4) The Group additionally acquired residual interests for the year ended December 31, 2021.

(*5) The associates and joint ventures were newly established for the year ended December 31, 2021.

(*6) As the Group sold all of common stock and cannot exercise significant influence, it was reclassified as FVOCI financial assets from investment in associates, etc. for the year ended December 31, 2021.

(*7) The associates and joint ventures were newly acquired for the year ended December 31, 2021.

(*8) The partnership contract jointly exercised major management decisions with other shareholders, so it was classified as associates, not subsidiaries.

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
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15. Investments in Associates and Joint Ventures (Non-financial business), Continued

(2) Valuation of investments in associates and joint ventures under the equity method for the years ended December 31, 2021 and 2020 are as follows:

In thousand won

Investees	2021					
	Balance at 1 January 2021	Acquisition (Disposal)	Gain or loss on equity method investments	Other Comprehensive income (loss)	Other(*)	Balance at 31 December 2021
Associates:						
Smile Ventures Co., Ltd.	₩ 2,064,565	-	(1,428,528)	129,307	2,183,783	2,949,127
H2 Co., Ltd	5,440,725	-	(861,014)	-	1,138,822	5,718,533
Hanwha Savings Bank Co., Ltd.	80,184,456	(86,688,214)	5,984,274	519,484	-	-
Hanwha Station Development Co., Ltd.	79,636,109	-	(786,471)	(13,614)	-	78,836,024
HANWHA Eagles Professional Baseball Club	103,962	-	7,157	-	(37,958)	73,161
Envisioning Climate Solutions Fund	-	2,250,000	(70,566)	-	-	2,179,434
HANWHA FUND INVESTMENT 1 HO	-	5,335,468	-	-	-	5,335,468
Hanwha Impact Corporation(formerly, Hanwha General Chemical Co., Ltd.)	1,264,929,026	485,963,518	123,533,162	138,315,532	(48,493,867)	1,964,247,371
HANWHA INVESTMENT AND SECURITIES CO., LTD.	219,740,788	(261,836,236)	13,199,530	28,925,985	(30,067)	-
Hanwha Hotels and Resort Co., Ltd.	191,652,053	25,577,803	(29,504,475)	5,890,756	3,733,810	197,349,947
Finless Foods Inc.	-	23,669,999	-	-	40,000	23,709,999
International Polymers Company	127,940,973	-	55,284,898	12,269,243	(35,313,013)	160,182,101
Lancium Technologies Corporation	-	116,910,000	(567,641)	16,099	1,640,000	117,998,458
Simply Foods Inc.	-	17,521,498	(369,924)	38,216	261,000	17,450,790
SwitchDin Pty Limited	3,945,083	-	(487,776)	27,180	95,962	3,580,449
Others	11,562,830	-	9,332	17,088	-	11,589,250
	₩ 1,987,200,570	328,703,836	163,941,958	186,135,276	(74,781,528)	2,591,200,112
Joint ventures:						
Ulsan Complex City Development Co., Ltd.	₩ -	6,750,000	(111,156)	-	-	6,638,844
YEOCHUN NCC Co., Ltd.	642,503,753	-	132,115,186	-	(166,979,901)	607,639,038
Burdur Enerji A.S.	-	-	-	-	-	-
CONIGLIO TAX EQUITY PARTNERSHIP, LLC	-	145,124,353	(24,075,350)	-	(871,200)	120,177,803
Gulf Advanced Cables Insulation Company	-	9,334,557	-	(1,105)	(9,333,452)	-
HSP TW TE, LLC	4,790,219	-	(6,619,623)	549,995	2,245,481	966,072
JV Cooke Solar, LLC	27,301,379	-	(1,999,529)	-	2,432,356	27,734,206
Kellam Tax Equity Partnership, LLC	4,300,658	55,912,403	(552,001)	-	181,054	59,842,114
Lakeshore East Retail LLC	1,054,625	-	203,905	-	1,088,254	2,346,784
Parcel O LLC	18,012,344	-	-	-	3,786,024	21,798,368
Q&G PV Solutions GmbH	-	68,685	(7,505)	(1,508)	-	59,672
	697,962,978	217,189,998	98,953,927	547,382	(167,451,384)	847,202,901
	₩ 2,685,163,548	545,893,834	262,895,885	186,682,658	(242,232,912)	3,438,403,013

(*) Includes gain on bargain purchase, impairment amount, change in foreign currencies and dividends received.

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15. Investments in Associates and Joint Ventures (Non-financial business), Continued

(2) Valuation of investments in associates and joint ventures under the equity method for the years ended December 31, 2021 and 2020 are as follows, continued

In thousand won

Investees	2020					
	Balance at 1 January 2020	Acquisition (Disposal)	Gain or loss on equity method investments	Other Comprehensive income (loss)	Other(*)	Balance at 31 December 2020
Associates:						
Smile Ventures Co., Ltd.	₩ 1,394,579	-	(1,222,929)	215,409	1,677,506	2,064,565
H2 Co., Ltd	5,874,241	-	(433,516)	-	-	5,440,725
Hanwha Savings Bank Co., Ltd.	72,664,593	-	7,486,057	23,683	10,123	80,184,456
Hanwha Station Development Co., Ltd.	80,357,419	-	824,901	-	(1,546,211)	79,636,109
HANWHA Eagles Professional Baseball Club	112,751	-	45,500	-	(54,289)	103,962
Hanwha Impact Corporation(formerly, Hanwha General Chemical Co., Ltd.)	1,211,716,118	-	86,864,852	(33,773,209)	121,265	1,264,929,026
HANWHA INVESTMENT AND SECURITIES CO., LTD.	202,735,329	-	13,287,113	3,478,088	240,258	219,740,788
Hanwha Hotels and Resort Co., Ltd.	278,511,747	-	(84,937,624)	(2,564,053)	641,983	191,652,053
Crystal Solar Inc.	-	-	-	-	-	-
GRANSOLAR ATOTONILCO, S.A. DE C.V.	-	-	-	-	-	-
GRANSOLAR OCOTLAN, S.A. DE C.V.	-	-	-	-	-	-
International Polymers Company	125,627,715	-	18,553,982	(8,701,531)	(7,539,193)	127,940,973
Renew Akshay Urja Private Limited	20,822,393	(21,085,760)	263,581	-	(214)	-
Saudi Specialized Products Company	-	-	-	-	-	-
SwitchDin Pty Limited	-	3,964,350	(274,339)	36,622	218,450	3,945,083
Others	2,911,236	(81,691)	8,893,091	(221,081)	61,275	11,562,830
	₩ 2,002,728,121	(17,203,101)	49,350,669	(41,506,072)	(6,169,047)	1,987,200,570
Joint ventures:						
YEOCHUN NCC Co., Ltd.	₩ 683,677,830	-	126,808,193	-	(167,982,270)	642,503,753
Burdur Enerji A.S.	-	-	-	-	-	-
Gulf Advanced Cables Insulation Company	2,803,354	-	(3,180,274)	376,920	-	-
HSP TW TE, LLC	7,487,386	-	(17,574)	(393,127)	(2,286,466)	4,790,219
JV Cooke Solar, LLC	-	31,003,940	(2,987,921)	-	(714,640)	27,301,379
Kellam Tax Equity Partnership, LLC	-	14,482,365	(9,816,242)	-	(365,465)	4,300,658
Lakeshore East Retail LLC	3,562,675	-	1,029	-	(2,509,079)	1,054,625
Parcel O LLC	20,557,448	-	-	-	(2,545,104)	18,012,344
	718,088,693	45,486,305	110,807,211	(16,207)	(176,403,024)	697,962,978
	₩ 2,720,816,814	28,283,204	160,157,880	(41,522,279)	(182,572,071)	2,685,163,548

(*) Includes gain on bargain purchase, impairment amount, change in foreign currencies and dividends received.

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15. Investments in Associates and Joint Ventures (Non-financial business), Continued

(3) Summary of financial information of key associates and joint ventures as of December 31, 2021 and 2020 are as follows:

Investees		December 31, 2021					
		Assets	Liabilities	Equity	Revenue	Net income (loss)	Total comprehensive income
<i>In thousand won</i>							
Associates:							
Hanwha Station Development Co., Ltd.	₩	502,639,235	364,201,803	138,437,432	98,778,125	1,384,752	1,356,575
Hanwha Impact Corporation(formerly, Hanwha General Chemical Co., Ltd.)		5,145,008,383	1,118,339,599	4,026,668,784	1,530,751,569	322,846,625	685,101,962
Hanwha Hotels and Resort Co., Ltd.		2,429,645,168	1,985,320,421	444,324,747	567,479,001	(65,107,634)	(42,725,029)
International Polymers Company		983,841,018	349,720,394	634,120,624	513,240,998	233,878,707	282,356,560
Joint ventures:							
Ulsan Complex City Development Co., Ltd.	₩	14,792,125	39,139	14,752,986	-	(247,013)	(247,013)
YEOCHUN NCC Co., Ltd.		3,513,700,342	2,262,640,754	1,251,059,588	6,471,965,147	270,023,447	276,506,283
Gulf Advanced Cables Insulation Company		20,819,531	40,490,515	(19,670,984)	22,991,308	(30,541,088)	(31,370,415)
Lakeshore East Retail LLC		55,371,500	39,826,081	15,545,419	6,647,252	412,730	412,730
Parcel O LLC		49,978,670	5,448,759	44,529,911	-	-	-
		December 31, 2020					
Investees		Assets	Liabilities	Equity	Revenue	Net income (loss)	Total comprehensive income
<i>In thousand won</i>							
Associates:							
Hanwha Savings Bank Co., Ltd.	₩	1,101,809,664	964,394,177	137,415,487	61,745,918	20,779,270	20,861,557
Hanwha Station Development Co., Ltd.		512,562,557	375,481,700	137,080,857	139,275,322	4,719,862	4,794,652
Hanwha Impact Corporation(formerly, Hanwha General Chemical Co., Ltd.)		3,911,518,783	432,772,003	3,478,746,780	941,766,855	247,852,718	153,518,072
HANWHA INVESTMENT AND SECURITIES CO., LTD.		11,859,021,179	10,606,835,890	1,252,185,289	2,752,628,620	67,145,552	96,564,457
Hanwha Hotels and Resort Co., Ltd.		2,470,816,004	2,051,390,981	419,425,023	462,258,905	(138,714,577)	(141,420,983)
International Polymers Company		855,477,316	350,458,177	505,019,139	308,074,276	74,411,052	40,038,452
Joint ventures:							
YEOCHUN NCC Co., Ltd.	₩	2,805,738,291	1,490,742,347	1,314,995,944	3,944,535,522	243,347,466	237,165,517
Gulf Advanced Cables Insulation Company		55,772,566	62,740,039	(6,967,473)	33,087,579	(16,264,628)	(15,510,788)
Lakeshore East Retail LLC		51,234,196	36,256,003	14,978,193	7,048,336	2,056	2,056
Parcel O LLC		44,846,141	3,978,538	40,867,603	-	-	-

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15. Investments in Associates and Joint Ventures (Non-financial business), Continued

(4) Details of financial information of key associates and joint ventures as of December 31, 2021 and 2020 are as follows:

In thousand won

	YEOCHUN NCC Co., Ltd.		Hanwha Impact Corporation(formerly, Hanwha General Chemical Co., Ltd.)	
	December 31, 2021	December 31, 2020	December 31, 2021	December 31, 2020
Cash and cash equivalents	₩ 87,710	131,861,435	414,285,332	423,538,663
Current financial liabilities	400,791,523	179,030,994	76,064,909	100,693,703
Non-current financial liabilities	1,155,199,969	946,155,908	341,723,096	52,632,905
Depreciation(*)	181,053,922	86,818,807	31,096,769	27,837,747
Depreciation on right-of-use assets(*)	1,762,755	3,507,246	3,407,583	947,371
Amortization of Intangible assets(*)	1,121,739	932,600	1,267,273	3,041
Interest income	450,027	1,539,383	10,330,124	15,640,038
Interest expense	25,551,977	6,868,849	6,840,342	5,284,367
Income tax expense	86,469,876	57,880,391	25,478,949	65,568,292

(*) Includes expenses classified as cost of sales and selling expenses.

(5) Dividends received from associates and joint ventures for the years ended December 31, 2021 and 2020 are as follows:

In thousand won

		2021	2020
Associates:			
Hanwha Station Development Co., Ltd.	₩	-	1,582,347
International Polymers Company		35,667,505	7,539,193
Joint ventures:			
YEOCHUN NCC Co., Ltd.	₩	170,000,000	165,000,000
HSP TW TE, LLC		286,064	293,222
Lakeshore East Retail LLC		1,144,099	570,287

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15. Investments in Associates and Joint Ventures (Non-financial business), Continued

(6) Adjustments from financial information of key associates and joint ventures to book value of investments in associates and joint ventures as of December 31, 2021 and 2020 are as follows:

In thousand won

Investees	December 31, 2021						
	Net assets at year-end (a) (*)	Group ownership (b)	Interest in net assets(a x b)	Goodwill	Derecognized unrealized gains(losses)	Year-end book value	
Associates:							
Hanwha Station Development Co., Ltd.	₩ 138,437,432	48.32%	66,886,610	464,326	11,485,088	78,836,024	
Hanwha Impact Corporation(formerly, Hanwha General Chemical Co., Ltd.)	4,026,184,568	47.93%	1,929,825,622	18,744,444	15,677,305	1,964,247,371	
Hanwha Hotels and Resort Co., Ltd.	437,849,411	47.98%	210,064,110	353,401	(13,067,564)	197,349,947	
International Polymers Company	634,120,624	25.00%	158,530,156	1,795,924	(143,979)	160,182,101	
Joint ventures:							
Ulsan Complex City Development Co., Ltd.	₩ 14,752,986	45.00%	6,638,844	-	-	6,638,844	
YEOCHUN NCC Co., Ltd.	1,251,059,588	50.00%	625,529,794	-	(17,890,756)	607,639,038	
Gulf Advanced Cables Insulation Company	(19,670,984)	50.00%	(9,835,492)	-	9,835,492	-	
Lakeshore East Retail LLC	15,545,419	50.00%	7,772,709	-	(5,425,925)	2,346,784	
Parcel O LLC	44,529,911	50.00%	22,264,956	-	(466,588)	21,798,368	

(*) Associates prepare their consolidated financial statements, in which their stated net assets refer to equity attributable to owners of the Group.

In thousand won

Investees	December 31, 2020						
	Net assets at year-end (a) (*)	Group ownership (b)	Interest in net assets(a x b)	Goodwill	Derecognized unrealized gains(losses)	Year-end book value	
Associates:							
Hanwha Savings Bank Co., Ltd.	₩ 137,415,487	36.05%	49,533,489	30,650,967	-	80,184,456	
Hanwha Station Development Co., Ltd.	137,080,857	48.32%	66,231,175	464,326	12,940,608	79,636,109	
Hanwha Impact Corporation(formerly, Hanwha General Chemical Co., Ltd.)	3,478,746,780	36.05%	1,253,927,309	2,693,337	8,308,380	1,264,929,026	
HANWHA INVESTMENT AND SECURITIES CO., LTD.	1,251,726,614	17.56%	219,767,668	-	(26,880)	219,740,788	
Hanwha Hotels and Resort Co., Ltd.	413,201,382	48.78%	201,557,335	-	(9,905,282)	191,652,053	
International Polymers Company	505,019,139	25.00%	126,254,785	1,795,924	(109,736)	127,940,973	
Joint ventures:							
YEOCHUN NCC Co., Ltd.	₩ 1,314,995,944	50.00%	657,497,972	-	(14,994,219)	642,503,753	
Gulf Advanced Cables Insulation Company	(6,967,473)	50.00%	(3,483,737)	-	3,483,737	-	
Lakeshore East Retail LLC	14,978,193	50.00%	7,489,097	-	(6,434,472)	1,054,625	
Parcel O LLC	40,867,603	50.00%	20,433,802	-	(2,421,458)	18,012,344	

(*) Associates prepare their consolidated financial statements, in which their stated net assets refer to equity attributable to owners of the Group.

(7) Changes in unrecognized accumulated equity amounts due to the termination of applying equity method on December 31, 2021 are as follows:

In thousand won

Investees	Uncorrected loss	
	Accrued amount	Accumulated amount
Burdur Enerji A.S.	₩ (726,084)	(3,668,107)
Gulf Advanced Cables Insulation Company	(11,303,489)	(11,303,489)

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16. Investment property (Non-financial business)

(1) Investment properties as of December 31, 2021 and 2020 are as follows:

In thousands won

	December 31, 2021			December 31, 2020		
	Acquisition cost	Accumulated depreciation (*)	Book value	Acquisition cost	Accumulated depreciation (*)	Book value
Land	₩ 151,400,197	-	151,400,197	85,286,851	-	85,286,851
Buildings	79,695,636	(19,509,737)	60,185,899	81,760,595	(25,741,754)	56,018,841
Structures	1,472,741	(631,199)	841,542	4,456,885	(3,575,757)	881,128
	₩ <u>232,568,574</u>	<u>(20,140,936)</u>	<u>212,427,638</u>	<u>171,504,331</u>	<u>(29,317,511)</u>	<u>142,186,820</u>

(*) Includes accumulated impairment losses.

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

In thousands of won

		2021			
		Land	Buildings	Structures	Total
Balance at 1 January, 2021	₩	85,286,851	56,018,841	881,128	142,186,820
Acquisition		-	11,476,572	-	11,476,572
Transfer		73,224,448	(6,049,689)	-	67,174,759
Disposal		(353,749)	-	-	(353,749)
Depreciation		-	(2,060,441)	(90,008)	(2,150,449)
Reclassified to non-current assets held for sale		(7,377,750)	-	-	(7,377,750)
Changes in exchange rates		620,397	800,616	50,422	1,471,435
Balance at 31 December, 2021	₩	<u>151,400,197</u>	<u>60,185,899</u>	<u>841,542</u>	<u>212,427,638</u>

In thousands of won

		2020			
		Land	Buildings	Structures	Total
Balance at 1 January, 2020	₩	92,687,823	63,038,212	2,317,001	158,043,036
Transfer		522,008	33,774	-	555,782
Disposal		(7,478,839)	(4,664,648)	(1,202,264)	(13,345,751)
Depreciation		-	(2,171,356)	(197,142)	(2,368,498)
Changes in exchange rates		(444,141)	(217,141)	(36,467)	(697,749)
Balance at 31 December, 2020	₩	<u>85,286,851</u>	<u>56,018,841</u>	<u>881,128</u>	<u>142,186,820</u>

(3) The Group assessed the difference between fair value and carrying amounts of investment property as insignificant as of December 31, 2021.

(4) The rental income and rental cost from investment properties for the years ended December 31, 2021 are ₩5,882 million and ₩5,179 million (December 31, 2020: ₩ 6,921 million and ₩1,259 million), respectively.

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17. Property, Plant and Equipment (Non-financial business)

(1) Property, Plant and Equipment as of December 31, 2021 and 2020 are as follows:

In thousands won

	December 31, 2021			December 31, 2020		
	Acquisition cost	Accumulated depreciation(*)	Book value	Acquisition cost	Accumulated depreciation(*)	Book value
Land	₩ 1,589,979,838	(389,704)	1,589,590,134	1,691,974,886	(388,514)	1,691,586,372
Buildings	1,983,054,650	(726,043,090)	1,257,011,560	1,928,969,198	(731,011,258)	1,197,957,940
Structures	505,306,564	(214,646,612)	290,659,952	470,125,150	(229,945,590)	240,179,560
Machineries	6,763,698,044	(3,989,353,931)	2,774,344,113	6,744,762,095	(4,051,850,296)	2,692,911,799
Vehicles	47,211,457	(41,704,012)	5,507,445	46,886,246	(38,924,961)	7,961,285
Tools and equipment	440,825,009	(325,601,063)	115,223,946	400,544,984	(307,905,138)	92,639,846
Others	931,820	(484,371)	447,449	633,210	(384,330)	248,880
Construction in progress	419,173,468	(661,057)	418,512,411	508,874,846	(16,463,972)	492,410,874
Machinery in transit	302,062	-	302,062	588,862	-	588,862
	₩ 11,750,482,912	(5,298,883,840)	6,451,599,072	11,793,359,477	(5,376,874,059)	6,416,485,418

(*) Includes accumulated impairment losses and government grants.

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17. Property, Plant and Equipment (Non-financial business), Continued

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

In thousands of won

	2021									
	Land	Buildings	Structures	Machineries	Vehicles	Tools and equipments	Other property, plant and equipment	Construction in progress	Machinery in transit	Total
Balance at 1 January, 2021	₩ 1,691,586,372	1,197,957,940	240,179,560	2,692,911,799	7,961,285	92,639,846	248,880	492,410,874	588,862	6,416,485,418
Acquisition	1,065,008	29,401,344	52,100	96,927,309	347,495	8,678,582	-	688,862,048	5,063,859	830,397,745
Changes in scope of consolidation	2,599,034	1,871,918	405,608	3,120,363	24,003	1,398,247	-	6,060,691	-	15,479,864
Transfers	(104,464,543)	118,848,252	67,221,145	486,661,253	1,087,907	48,082,956	286,707	(766,628,643)	(5,350,985)	(154,255,951)
Disposal	(1,508,885)	(8,418,926)	(285,777)	(12,274,750)	(35,657)	(1,559,814)	(11,849)	-	-	(24,095,658)
Depreciation	-	(76,985,333)	(19,113,226)	(424,447,032)	(3,963,805)	(35,863,592)	(95,848)	-	-	(560,468,836)
Impairment loss(*)	-	(1,231,485)	(19,793)	(148,058,705)	(4,964)	(383,150)	-	-	-	(149,698,097)
Classified as held-for-sale	-	(28,986,571)	-	-	-	-	-	(13,995,142)	-	(42,981,713)
Changes in exchange rates	313,148	24,554,421	2,220,335	79,503,876	91,181	2,230,871	19,559	11,802,583	326	120,736,300
Balance at 31 December, 2021	₩ 1,589,590,134	1,257,011,560	290,659,952	2,774,344,113	5,507,445	115,223,946	447,449	418,512,411	302,062	6,451,599,072

(*) The Group recognized the unrecoverable amount as an impairment loss with regard to the photovoltaic and other operating units.

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17. Property, Plant and Equipment (Non-financial business), Continued

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

In thousands of won

	2020									
	Land	Buildings	Structures	Machineries	Vehicles	Tools and equipments	Other property, plant and equipment	Construction in progress	Machinery in transit	Total
Balance at 1 January, 2020	₩ 1,738,543,777	1,123,997,525	222,099,714	2,534,971,019	10,784,697	87,066,456	18,364,905	857,910,346	294,549	6,594,032,988
Acquisition	668,254	86,357,316	477,779	21,441,266	278,437	7,777,709	97,908	742,338,176	7,995,923	867,432,768
Changes in scope of consolidation	-	(412,694)	-	(9,655,376)	-	10,616	(18,258,079)	-	-	(28,315,533)
Transfers	51,938,462	336,434,667	38,613,633	613,751,924	992,174	36,320,988	576,845	(1,092,028,453)	(7,701,610)	(21,101,370)
Disposal	(10,704,942)	(1,152,038)	(467,803)	(29,603,321)	(107,071)	(1,999,865)	(78,583)	(597,772)	-	(44,711,395)
Depreciation	-	(69,810,689)	(17,150,914)	(392,737,097)	(3,930,433)	(33,365,785)	(311,750)	-	-	(517,306,668)
Impairment loss(*)	(4,177,202)	(14,994,104)	(441,759)	(23,276,573)	(46,769)	(2,461,420)	-	(13,063,558)	-	(58,461,385)
Classified as held-for-sale	(84,051,807)	(251,989,467)	(2,917,285)	(406,559)	-	-	(494,002)	-	-	(339,859,120)
Changes in exchange rates	(630,170)	(10,472,576)	(33,805)	(21,573,484)	(9,750)	(708,853)	351,636	(2,147,865)	-	(35,224,867)
Balance at 31 December, 2020	₩ 1,691,586,372	1,197,957,940	240,179,560	2,692,911,799	7,961,285	92,639,846	248,880	492,410,874	588,862	6,416,485,418

(*) The Group recognized the unrecoverable amount as an impairment loss with regard to the photovoltaic and other operating units.

(3) Capital borrowing costs are ₩5,153 million and ₩6,939 million for the years ended December 31, 2021 and 2020, respectively, and the weighted-average capitalization rates of interest for the years ended December 31, 2021 and 2020, are 1.86% to 1.89% and 2.25% to 3.27%, respectively.

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17. Property, Plant and Equipment (Non-financial business), Continued

(4) Property, Line items which include depreciation expenses of property, plant and equipment for the years ended December 31, 2021 and 2020 are as follows:

<i>In thousand won</i>	<u>2021</u>	<u>2020</u>
Manufacturing cost and others	₩ 482,948,253	446,447,413
Selling and administrative expenses(*)	77,520,583	70,373,138
Profit(loss) from discontinued operations	-	486,117
	<u>₩ 560,468,836</u>	<u>517,306,668</u>

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

(5) Property, plant and equipment are provided as collateral for borrowings as of December 31, 2021 (see Note 55).

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
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18. Intangible Assets (Non-financial business)

(1) Intangible Assets as of December 31, 2021 and 2020 are as follows:

In thousands won

	December 31, 2021			December 31, 2020		
	Acquisition cost	Accumulated depreciation(*)	Book value	Acquisition cost	Accumulated depreciation(*)	Book value
Goodwill	₩ 1,213,691,509	(50,268,994)	1,163,422,515	341,562,854	(48,483,104)	293,079,750
Industrial property rights	40,146,873	(27,862,482)	12,284,391	43,481,897	(30,416,283)	13,065,614
Development costs	97,516,020	(71,260,145)	26,255,875	91,020,432	(57,828,484)	33,191,948
Membership	38,716,798	(1,446,808)	37,269,990	37,799,163	(1,389,248)	36,409,915
Prospecting rights/Development rights	104,031	-	104,031	-	-	-
Emission rights	76,764	-	76,764	-	-	-
Other intangible assets	416,414,089	(75,260,794)	341,153,295	101,144,269	(63,040,627)	38,103,642
	₩ <u>1,806,666,084</u>	<u>(226,099,223)</u>	<u>1,580,566,861</u>	<u>615,008,615</u>	<u>(201,157,746)</u>	<u>413,850,869</u>

(*) Includes accumulated impairment losses.

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18. Intangible Asset (Non-financial business), Continued

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

In thousands of won

		2021							Total
		Goodwill(*)	Industrial property rights	Development costs	Membership	Prospecting rights/ Development rights	Emission rights	Other intangible assets	
Balance at 1 January, 2021	₩	293,079,750	13,065,614	33,191,948	36,409,915	-	-	38,103,642	413,850,869
Changes in scope of consolidation		876,923,716	4,601	6,287,281	-	-	-	299,199,861	1,182,415,459
Acquisition		-	1,649,549	-	4,053,276	104,877	224,293	3,849,546	9,881,541
Transfers		-	817,577	-	975,895	-	-	16,573,875	18,367,347
Disposal		-	(1,400,597)	-	(3,998,573)	-	(147,529)	(2,691)	(5,549,390)
Amortization		-	(1,961,411)	(13,366,904)	(180,637)	-	-	(15,581,749)	(31,090,701)
Impairment loss		(9,802,246)	-	-	-	-	-	(27,057)	(9,829,303)
Changes in exchange rates		8,383,455	109,058	143,550	10,114	(846)	-	(962,132)	7,683,199
Others(*)		(5,162,160)	-	-	-	-	-	-	(5,162,160)
Balance at 31 December, 2021	₩	<u>1,163,422,515</u>	<u>12,284,391</u>	<u>26,255,875</u>	<u>37,269,990</u>	<u>104,031</u>	<u>76,764</u>	<u>341,153,295</u>	<u>1,580,566,861</u>

(*) The goodwill was adjusted for the year ended December 31, 2021 through the subsequent measurement of net assets in subsidiaries acquired for the year ended December 31, 2020.

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18. Intangible Asset (Non-financial business), Continued

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

In thousands of won

		2020					
		Goodwill(*)	Industrial property rights	Development costs	Membership	Other intangible assets	Total
Balance at 1 January, 2020	₩	273,116,784	12,748,493	46,569,603	45,013,026	43,722,581	421,170,487
Changes in scope of consolidation		33,734,605	-	(136,749)	-	-	33,597,856
Acquisition		-	1,063,414	137,513	1,234,765	4,800,441	7,236,133
Transfers		-	825,398	-	1,743,313	13,221,258	15,789,969
Disposal		-	-	(1,767)	(11,464,612)	(8,848,384)	(20,314,763)
Amortization		-	(1,690,341)	(13,380,380)	(116,725)	(15,202,573)	(30,390,019)
Impairment loss		-	(197,062)	-	-	531,140	334,078
Changes in exchange rates		2,305,540	315,712	3,728	148	(120,821)	2,504,307
Others(*)		(16,077,179)	-	-	-	-	(16,077,179)
Balance at 31 December, 2020	₩	<u>293,079,750</u>	<u>13,065,614</u>	<u>33,191,948</u>	<u>36,409,915</u>	<u>38,103,642</u>	<u>413,850,869</u>

(*) The goodwill was adjusted for the year ended December 31, 2020 through the subsequent measurement of net assets in subsidiaries acquired for the year ended December 31, 2019.

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18. Intangible Assets (Non-financial business), Continued

(3) Emission rights

In accordance with 「The Allocation and Transaction of Emission Rights Act」, the Group accounts for emission rights and emission liabilities as follows.

1) Emission rights

Emission rights consist of emission rights allocated free of charge by the government and surplus emission rights generated by emission reduction activities. Free allocation emission rights are measured and recognized as zero (0), and surplus emission rights are recognized as emission assets if emissions are low compared to the quota.

The Group classifies the emission rights held to fulfill the obligations stipulated by the relevant system as intangible assets and measures the cumulative amount of impairment loss deducted from the acquisition cost as the book value and the portion to be submitted to the government within one year from the end of the reporting period is classified as current assets. Emission rights are removed when they are no longer expected to benefit from the future as they are submitted, sold, or cannot be used for submission, sale.

2) Emission liabilities

Emission liabilities are the current obligations to submit emission rights to the government, and are measured by summing the book value of emission rights held and the estimated expenditure required to fulfill the obligations for excess emissions. Emission liabilities are removed when emission rights are submitted to the government.

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

<i>In quantity in tCO₂-eq</i>	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

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18. Intangible Assets (Non-financial business), Continued

(3) Emission rights, continued

4) Changes in emission rights and emission liabilities for the years ended December 31, 2021 and 2020 are as follows:

i) Emission rights

<i>In thousands of won, quantity in tCO2-eq</i>	2021		2020	
	Quantity	Amount(*2)	Quantity	Amount
Balance at 1 January	198,329	₩ 4,441,305	4,381	₩ 99,548
Increase	571	7,802	326,948	8,052,457
Decrease(*1)	(76,226)	(143,247)	(133,000)	(3,710,700)
Balance at 31 December	122,674	₩ 4,305,860	198,329	₩ 4,441,305

(*1) The Group sold 55,000 tons and 133,000 tons of surplus free allocation emission rights for the second term of the emission trading system to the carbon emission market for the years ended December 31, 2021 and 2020, respectively.

(*2) The amount includes ₩4,229,097 thousand in emission rights classified as current assets.

ii) Emission liabilities

<i>In thousands of won, quantity in tCO2-eq</i>	2021		2020	
	Quantity	Amount	Quantity	Amount
Balance at 1 January	-	₩ -	42,665	₩ 1,710,883
Increase	154,677	2,444,139	-	-
Decrease	(154,677)	(2,444,139)	(42,665)	(1,710,883)
Balance at 31 December	-	₩ -	-	₩ -

(4) Capital borrowing costs are ₩75 million for the year ended December 31, 2021 and the weighted-average capitalization rates of interest for the year ended December 31, 2021 is 1.89%

(5) Intangible assets are provided as collateral for borrowings as of December 31, 2021 (see Note 55).

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18. Intangible Assets (Non-financial business), Continued

(6) Goodwill Impairment

1) Goodwill is monitored by the management at the operating segment level (cash-generating units or group of cash-generating units). The following is a summary of goodwill allocation of each operating segment:

<i>In thousand won</i>	<u>December 31, 2021</u>	<u>December 31, 2020</u>
Hanwha Q CELLS Co., Ltd.	₩ 246,142,018	234,578,822
Hanwha AZDEL, Inc.	25,399,252	23,310,322
TDI Unit in the chemical part	8,967,569	18,510,215
WOS Inc.	44,357,205	-
RES Mediterranee	794,489,076	-
Others	44,067,395	16,680,391
	<u>₩ 1,163,422,515</u>	<u>293,079,750</u>

2) The recoverable amounts of all cash generating units (groups) have been determined based on value-in-use calculations which are estimated on financial budgets approved by management covering a five-year period or net fair value which is the price in an active market less disposal cost. All assumptions related to the calculations are as follows:

<i>In thousand won</i>	<u>Hanwha Q CELLS Co., Ltd.</u>	<u>Hanwha Azdel, Inc.</u>	<u>TDI Unit</u>
Profit to turnover ratio(*1)	4.8%	12.7%	3.7%
Growth of sales ratio(*2)	20.6%	8.0%	3.2%
Discount ratio(*3)	10.0%	11.2%	12.5%

(*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) The discount rate reflecting specific risks associated with the CGU and country

3) As a result of the impairment assessment on goodwill, the Group recognized an impairment loss of ₩9,802 million on the goodwill of the TDI business unit. The carrying amount of the cash generating unit(group), excluding the TDI business unit, is not expected to exceed its recoverable amount as of December 31, 2021.

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19. Lease (Non-financial business)

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

In thousands of won

		2021							
		Land	Buildings	Structures	Machineries	Vehicles	Tools and equipment	Others	Total
Balance at 1 January 2021	₩	39,580,726	231,155,649	8,768,990	20,367,304	5,729,931	105,456	4,006,322	309,714,378
Changes in scope of consolidation		8,953	(1,729,346)	-	-	594,519	13,035	-	(1,112,839)
Increase		411,093	198,235,902	530,323	286,170	6,450,029	41,815	8,920,147	214,875,479
Decrease		(16,449)	(85,577,328)	(15,189)	(286,171)	(782,082)	(878)	(4,060,275)	(90,738,372)
Depreciation		(1,574,021)	(38,401,430)	(2,772,548)	(3,424,073)	(4,810,457)	(52,663)	(3,679,261)	(54,714,453)
Impairment loss		(1,403,395)	9,313,123	-	-	-	-	-	7,909,728
Classified as held-for-sale		(10,990,233)	-	-	-	-	-	-	(10,990,233)
Changes in exchange rates		3,392,956	909,579	3,784	1,701,290	105,197	9,498	29,537	6,151,841
Balance at 31 December 2021	₩	29,409,630	313,906,149	6,515,360	18,644,520	7,287,137	116,263	5,216,470	381,095,529

In thousands of won

		2020							
		Land	Buildings	Structures	Machineries	Vehicles	Tools and equipment	Others	Total
Balance at 1 January 2020	₩	39,476,091	160,069,040	11,271,366	25,258,654	5,214,001	153,353	5,547,283	246,989,788
Increase		1,509,209	201,494,794	1,395,789	-	5,747,380	15,315	1,121,399	211,283,886
Decrease		(38,522)	(92,988,863)	(637,840)	(121,962)	(853,422)	(15,979)	-	(94,656,588)
Depreciation		(1,552,459)	(30,106,525)	(3,257,735)	(3,532,886)	(4,179,833)	(41,272)	(2,605,572)	(45,276,282)
Impairment loss		-	(7,031,520)	-	-	(1,550)	-	-	(7,033,070)
Changes in exchange rates		186,407	(281,277)	(2,590)	(1,236,502)	(196,645)	(5,961)	(56,788)	(1,593,356)
Balance at 31 December 2020	₩	39,580,726	231,155,649	8,768,990	20,367,304	5,729,931	105,456	4,006,322	309,714,378

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19. Lease (Non-financial business), Continued

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

<i>In thousands of won</i>	<u>2021</u>	<u>2020</u>
Depreciation of right-of-use asset	₩ 54,714,453	45,209,024
Interest expense of lease liabilities	24,334,805	15,906,915
Expenses of short term lease	1,977,845	2,487,773
Expenses of leases of low value asset	2,045,811	2,032,321
Expenses of variable lease payments not included in lease liabilities measures	11,049,376	9,659,455
Transfer of lease expenses related with discontinued operations	-	109,639
Profit from sub-lease contract	1,914,338	843,213

Total cash outflows for lease contract for the year ended December 31, 2021 are ₩97,702 million (2020: ₩74,973 million).

(3) Lease liabilities as of December 31, 2021 and 2020 are as follows:

<i>In thousands of won</i>	<u>December 31, 2021</u>	<u>December 31, 2020</u>
Less than 1 year	₩ 87,452,539	59,377,255
Over 1 year and less than 5 year	270,806,196	196,638,642
Over 5 year	346,064,199	190,655,987
	<u>704,322,934</u>	<u>446,671,884</u>
Less: present value discount	<u>(185,325,057)</u>	<u>(90,841,695)</u>
Present value of lease liabilities	<u>₩ 518,997,877</u>	<u>355,830,189</u>

(4) The classification of liquidity of lease liabilities as of December 31, 2021 and 2020 are as follows:

<i>In thousands of won</i>	<u>December 31, 2021</u>	<u>December 31, 2020</u>
Current liabilities	₩ 83,754,576	55,258,979
Non-Current liabilities	<u>435,243,301</u>	<u>300,571,210</u>
	<u>₩ 518,997,877</u>	<u>355,830,189</u>

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20. Assets classified as held for sale (Non-financial business)

Assets classified as held for sale as of December 31, 2021 and 2020 are as follows:

<i>In thousands of won</i>	December 31, 2021	December 31, 2020
Investment property	₩ 7,377,750	-
Property, plant and equipment		
Land	-	80,661,667
Buildings	30,440,302	251,583,357
Construction in progress	14,697,025	-
Right-of-use assets	11,541,413	-
Others	1,828,897	3,265,110
	<u>₩ 65,885,387</u>	<u>335,510,134</u>

In accordance with the resolution of the board of directors on May 11, 2021, part of the land owned by Hanwha Solutions Corporation has been classified as held for sale for the year ended December 31, 2021. At first, the Group decided to transfer ownership of the land owned by the Group in the business area according to the industrial complex approval notice of its subsidiary Anseong Techno Valley, but the land disposal plan of Anseong Techno Valley was canceled due to the delay in the sale schedule. The ownership of the land is scheduled to be transferred by investing in kind in the logistics fund.

Management has approved a plan to sell Hanwha Q CELLS (Nantong) Co., Ltd.'s tangible assets and right-of-use assets to the local government for the year ended December 31, 2021.

21. Trade payables and other payables (Non-financial business)

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

<i>In thousands of won</i>	December 31, 2021		December 31, 2020	
	Current	Non-current	Current	Non-current
Trade payables	₩ 1,808,982,601	-	1,202,096,499	-
Other payables	632,750,149	173,506,004	354,295,281	14,511
	<u>₩ 2,441,732,750</u>	<u>173,506,004</u>	<u>1,556,391,780</u>	<u>14,511</u>

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22. Borrowings (Non-financial business)

(1) Borrowings as of December 31, 2021 and 2020 are as follows:

<i>In thousands of won</i>	December 31, 2021		December 31, 2020	
	Current	Non-current	Current	Non-current
Borrowings from financial institutions	₩ 2,003,958,181	1,615,033,333	2,576,101,716	1,164,824,115
Debentures	607,175,996	1,648,659,183	395,823,788	1,551,823,907
	₩ <u>2,611,134,177</u>	<u>3,263,692,516</u>	<u>2,971,925,504</u>	<u>2,716,648,022</u>

(2) Borrowings from financial institutions as of December 31, 2021 and 2020 are as follows:

<i>In thousands of won</i>	Financial Institutions	December 31, 2021	December 31, 2020
Borrowings in local currency	KDB and others	₩ 2,428,742,893	1,832,311,770
Borrowings in foreign currency	Korea Exim Bank and others	1,175,046,618	1,895,935,189
Loans on trade receivables collateral(*)	Woori Bank and others	15,202,003	12,678,872
		<u>3,618,991,514</u>	<u>3,740,925,831</u>
Less: Reclassification of current portion		<u>(2,003,958,181)</u>	<u>(2,576,101,716)</u>
		₩ <u>1,615,033,333</u>	<u>1,164,824,115</u>

(*) The Group discounted trade receivables through factoring agreements with banks, which were accounted for as secured borrowings. Under the terms of the agreements, the Group is contractually obligated to make payments in the event of default by customers (see Note 8).

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22. Borrowings (Non-financial business), Continued

(3) Debentures as of December 31, 2021 and 2020 are as follows:

In thousands of won

Issuing Company	Classification	Maturity date	Interest rate (%)	December 31, 2021	December 31, 2020
Hanwha Galleria Co., Ltd	68 th privately placed bonds	-	- ₩	-	30,000,000
Hanwha Galleria Timeworld Co., Ltd.	23 rd public bond with warrant	-	-	-	50,000,000
Hanwha Solutions Corporation	246-2 nd public bonds	-	-	-	50,000,000
Hanwha Solutions Corporation	252 nd FRN	-	-	-	32,640,000
Hanwha Solutions Corporation	253 rd FRN	-	-	-	54,400,000
Hanwha Solutions Corporation	254-1 st public bonds	-	-	-	60,000,000
Hanwha Solutions Corporation	254-2 nd public bonds	2023.11.29	2.50	90,000,000	90,000,000
Hanwha Solutions Corporation	255 th public bonds	2024.01.31	2.31	150,000,000	150,000,000
Hanwha Solutions Corporation	256 th FRN	2022.04.04	3ML+1.15	237,100,000	217,600,000
Hanwha Solutions Corporation	257 th FRN	2022.10.11	3ML+0.95	59,275,000	54,400,000
Hanwha Solutions Corporation	258 th FRN	2022.10.11	3ML+0.95	59,275,000	54,400,000
Hanwha Solutions Corporation	259 th FRN	2022.10.11	3ML+1.00	59,275,000	54,400,000
Hanwha Solutions Corporation	260-1 st public bonds	2022.10.24	1.79	110,000,000	110,000,000
Hanwha Solutions Corporation	260-2 nd public bonds	2024.10.24	1.98	80,000,000	80,000,000
Hanwha Solutions Corporation	260-3 rd public bonds	2026.10.24	2.28	60,000,000	60,000,000
Hanwha Solutions Corporation	267 th FRN	-	-	-	32,640,000
Hanwha Solutions Corporation	268 th FRN	-	-	-	32,640,000
Hanwha Solutions Corporation	269-1 st public bonds	2023.01.20	1.83	140,000,000	140,000,000
Hanwha Solutions Corporation	269-2 nd public bonds	2025.01.22	2.04	140,000,000	140,000,000
Hanwha Solutions Corporation	270 th public bonds	2023.04.21	2.38	210,000,000	210,000,000
Hanwha Solutions Corporation	271 st privately placed bonds	2023.06.30	2.63	40,000,000	40,000,000
Hanwha Solutions Corporation(formerly, Hanwha Galleria Co., Ltd.) (*)	272 nd privately placed bonds	-	-	-	32,640,000
Hanwha Solutions Corporation(formerly, Hanwha Galleria Co., Ltd.) (*)	273 rd FRN	2022.07.19	3ML+0.95	35,565,000	32,640,000
Hanwha Solutions Corporation	Green bonds	2024.04.19	3.00	186,260,000	-
Hanwha Solutions Corporation	275-1 st public bonds	2024.06.17	1.70	70,000,000	-
Hanwha Solutions Corporation	275-2 nd public bonds	2026.06.17	2.06	30,000,000	-
Hanwha Solutions Corporation	276 th FRN	2026.10.07	3M EL+1.20	134,234,000	-
Hanwha Solutions Corporation	277 th FRN	2024.11.23	3ML+1.04	118,550,000	-
Hanwha Solutions Corporation	278 th FRN	2024.12.30	3ML+0.81	82,985,000	-
Hanwha Q CELLS Co., Ltd.	FRN	2022.01.10	3ML+1.65	47,420,000	43,454,622
Hanwha Q CELLS Co., Ltd.	FRN	-	-	-	21,718,625
Hanwha Q CELLS Investment Co., Ltd.	1 st privately placed bonds	2023.06.16	1.70	79,993,420	80,001,485
Hanwha Q CELLS Malaysia Sdn. Bhd.	1 st public bonds	2024.08.30	3.05	42,199,484	-
				<u>2,262,131,904</u>	<u>1,953,574,732</u>
Add : Redemption premium on debentures				-	755,150
Less: Discount on debentures				(6,296,725)	(6,682,187)
Less: Current portion of debentures				<u>(607,175,996)</u>	<u>(395,823,788)</u>
				<u>₩ 1,648,659,183</u>	<u>1,551,823,907</u>

(*) These were debentures of Hanwha Galleria Co., Ltd. as of December 31, 2020, and acquired by Hanwha Solutions Corporation for the year ended December 31, 2021.

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

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23. Other financial liabilities (Non-financial business)

Other financial liabilities as of December 31, 2021 and 2020 are as follows:

<i>In thousands of won</i>	December 31, 2021		December 31, 2020	
	Current	Non-current	Current	Non-current
Derivatives liabilities	₩ 4,916,756	365,478	18,728,931	54,435,922
Lease liabilities	83,754,576	435,243,301	55,258,979	300,571,210
Deposits	10,676,090	2,040,688	13,714,446	1,624,377
Accrued expense	192,853,652	24,634,161	134,307,485	15,998,073
Financial guarantee liabilities(*)	8,294	-	147,668	-
Non-controlling interests	-	7,078,867	-	7,362,589
	₩ <u>292,209,368</u>	<u>469,362,495</u>	<u>222,157,509</u>	<u>379,992,171</u>

(*) The Group provides payment guarantees to related parties as of December 31, 2021 (see Note 56).

24. Other liabilities (Non-financial business)

(1) Other liabilities as of December 31, 2021 and 2020 are as follows:

<i>In thousands of won</i>	December 31, 2021		December 31, 2020	
	Current	Non-current	Current	Non-current
Advances from customers	₩ 3,295,099	3,216,769	-	-
Withholdings	11,995,089	-	11,618,007	-
Value-added tax payables	40,305,228	-	23,889,955	-
Unearned revenues	2,880,450	2,663,194	-	-
Refund liabilities	1,457,361	-	766,998	-
Contract liabilities	236,644,449	-	266,301,080	6,381,505
	₩ <u>296,577,676</u>	<u>5,879,963</u>	<u>302,576,040</u>	<u>6,381,505</u>

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24. Other liabilities (Non-financial business), Continued

(2) Contract asset and contract liability as of December 31, 2021 and 2020 are as follows:

(i) Contract assets and liabilities regarding from contracts with customers as of December 31, 2021 and 2020 are as follows:

<i>In thousands of won</i>	<u>December 31, 2021</u>	<u>December 31, 2020</u>
Refund asset		
Right to retrieve refunded inventories	₩ 90,064	54,727
Refund liability		
Refund liability	₩ 1,457,361	766,998
Contract asset		
Amount due from customers for contract work	₩ 35,456,239	16,736,006
Prepaid construction costs		
Prepaid construction costs	₩ 6,046,697	2,050,264
Contract liability		
Customer loyalty	₩ 32,599,312	21,657,888
Amount due to customers for contract work	29,314,971	23,725,692
Advances from customers	173,324,865	208,489,179
Deferred income	1,405,301	18,809,826
	₩ 236,644,449	272,682,585

(ii) Details of effects on current and future profit or loss and changes in contract assets and liabilities of changes in estimated gross contract revenue and costs of in-progress solar power plant construction contracts as of December 31, 2021, are as follows:

<i>In thousands of won</i>	Changes in estimated gross contract revenue	Changes in estimated gross contract costs	Effects on current profit or loss	Effects on future profit or loss	Changes in contract assets	Changes in contract liabilities
Domestic construction	₩ 33,473	(1,150,998)	1,184,599	(128)	1,185,499	900
Overseas construction	93,502,544	87,592,271	17,688,181	(11,777,908)	-	(17,688,181)
	₩ 93,536,017	86,441,273	18,872,780	(11,778,036)	1,185,499	(17,687,281)

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25. Net defined benefit liabilities (Non-financial business)

(1) Net defined benefit liabilities as of December 31, 2021 and 2020 are as follows:

<i>In thousands of won</i>		<u>December 31, 2021</u>	<u>December 31, 2020</u>
Present value of defined benefit obligation	₩	606,683,560	583,397,134
Fair value of plan assets		<u>(151,460,551)</u>	<u>(136,831,995)</u>
Net defined benefit liabilities	₩	<u>455,223,009</u>	<u>446,565,139</u>

(2) Changes in the present value of defined benefit obligation for the years ended December 31, 2021 and 2020 are as follows:

<i>In thousands of won</i>		<u>2021</u>	<u>2020</u>
Balance at 1 January	₩	583,397,134	552,109,259
Current service cost		73,163,227	55,174,825
Interest expense		17,728,171	16,272,048
Remeasurements(*)		(27,653,071)	(2,797,601)
Benefits paid		(40,084,102)	(34,715,665)
Changes in scope of consolidation		544,080	-
Changes in exchange rates		<u>(411,879)</u>	<u>(2,645,732)</u>
Balance at 31 December	₩	<u>606,683,560</u>	<u>583,397,134</u>

(*) Remeasurement of defined benefit obligation is as follows:

<i>In thousand won</i>		<u>2021</u>	<u>2020</u>
Actuarial losses (gains) due to empirical adjustments	₩	(26,170,223)	(2,332,348)
Actuarial losses (gains) due to changes in financial assumptions		(1,197,616)	(465,253)
Actuarial (gains) losses due to changes in retirement age		<u>(285,232)</u>	<u>-</u>
	₩	<u>(27,653,071)</u>	<u>(2,797,601)</u>

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

<i>In thousand won</i>		<u>2021</u>	<u>2020</u>
Balance at 1 January	₩	136,831,995	140,314,752
Interest income		4,035,174	4,773,921
Remeasurements(*)		(1,714,280)	(1,222,972)
Contributions by the employer		21,372,635	1,547,092
Benefits paid		(9,917,076)	(7,281,979)
Changes in scope of consolidation		(121,945)	-
Changes in exchange rates		<u>974,048</u>	<u>(1,298,819)</u>
Balance at 31 December	₩	<u>151,460,551</u>	<u>136,831,995</u>

(*) Return on plan assets (excluding amounts included in interest income).

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
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25. Net defined benefit liabilities (Non-financial business), Continued

(4) Plan assets as of December 31, 2021 and 2020 are as follows:

<i>In thousand won</i>		<u>December 31, 2021</u>	<u>December 31, 2020</u>
Equity instruments	₩	1,462,299	1,359,704
Debt instruments		12,396,643	11,829,428
Principal guaranteed financial instruments		136,077,870	122,485,465
Others		1,523,739	1,157,398
	₩	<u>151,460,551</u>	<u>136,831,995</u>

(5) Expenses recognized in the consolidated statements of comprehensive income for the years ended December 31, 2021 and 2020 are as follows:

<i>In thousand won</i>		<u>2021</u>	<u>2020</u>
Current service cost	₩	73,163,227	55,174,825
Net interest cost		13,692,997	11,498,127
	₩	<u>86,856,224</u>	<u>66,672,952</u>

Retirement benefits of ₩952 million and ₩629 million were transferred to construction in progress under property, plant and equipment for the years ended December 31, 2021 and 2020.

(6) Key actuarial assumptions for the years ended December 31, 2021 and 2020 are as follows:

<i>In thousand won</i>	<u>December 31, 2021</u>	<u>December 31, 2020</u>
Discount rate	2.48 ~ 3.91%	2.91 ~ 3.49%
Expected salary growth rate	2.85 ~ 4.92%	3.36 ~ 4.65%

(7) Key actuarial assumptions for the years ended December 31, 2021 and 2020 are as follows:

	<u>Change in assumption</u>	<u>Increase in assumption</u>	<u>Decrease in assumption</u>
Discount rate	1.00%	6.38% Decrease	7.31% Increase
Expected salary growth rate	1.00%	7.37% Increase	6.54% Decrease

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26. Provisions (Non-financial business)

(1) Provisions as of December 31, 2021 and 2020 are as follows:

In thousand won

	December 31, 2021		December 31, 2020	
	Current	Non-current	Current	Non-current
Construction warranties	₩ -	1,688,409	-	1,523,610
Provision for restoration	-	2,563,434	-	2,108,400
Provision for litigation	2,444,000	-	2,444,000	-
Product warranties	49,507,449	101,789,702	36,239,360	99,990,485
Others	2,506,660	6,151,153	12,375,902	3,235,144
	₩ 54,458,109	112,192,698	51,059,262	106,857,639

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

In thousands of won

		2021					
		Construction warranties	Provision for restoration	Provision for litigation	Product warranties	Others	Total
Balance at 1 January, 2021	₩	1,523,610	2,108,400	2,444,000	136,229,845	15,611,046	157,916,901
Established		655,447	455,034	-	16,283,361	5,081,012	22,474,854
Used		(39,507)	-	-	(7,553,502)	(9,500,000)	(17,093,009)
Reversal		(465,989)	-	-	(346,734)	(2,250,304)	(3,063,027)
Changes in exchange rates and others		14,848	-	-	6,684,181	(283,941)	6,415,088
Balance at 31 December 2021	₩	1,688,409	2,563,434	2,444,000	151,297,151	8,657,813	166,650,807
Current	₩	-	-	2,444,000	49,507,449	2,506,660	54,458,109
Non-current		1,688,409	2,563,434	-	101,789,702	6,151,153	112,192,698

In thousand won

		2020						
		Construction warranties	Provision for restoration	Provision for litigation	Product warranties	Emissions liabilities	Others	Total
Balance at 1 January 2020	₩	1,491,543	2,019,841	-	124,033,307	1,710,883	22,274,270	151,529,844
Changes in scope of consolidation		-	(977,551)	-	-	-	-	(977,551)
Established		233,792	1,047,347	2,444,000	17,661,013	(9,763,340)	13,940,967	25,563,779
Used		(76,152)	-	-	(6,594,450)	-	(16,119,100)	(22,789,702)
Reversal		(114,134)	-	-	-	-	(7,673,351)	(7,787,485)
Transfer		-	-	-	-	8,052,457	3,188,260	11,240,717
Changes in exchange rates and others		(11,439)	18,763	-	1,129,975	-	-	1,137,299
Balance at 31 December 2020	₩	1,523,610	2,108,400	2,444,000	136,229,845	-	15,611,046	157,916,901
Current	₩	-	-	2,444,000	36,239,360	-	12,375,902	51,059,262
Non-current		1,523,610	2,108,400	-	99,990,485	-	3,235,144	106,857,639

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27. Financial instruments by category (Financial business)

(1) Details of financial assets held by the Group as of December 31, 2021 are as follows:

In thousand won

	December 31, 2021			
	Financial assets at amortized cost	Financial assets at FVTPL	Financial assets at FVTOCI	Total
Cash and cash equivalents	₩ 84,367,727	-	-	84,367,727
Deposit	114,422,945	-	-	114,422,945
Securities	-	88,445,756	1,492,153	89,937,909
Loan receivables and others	1,099,170,123	-	-	1,099,170,123
Derivative assets	7,738,016	-	-	7,738,016
Other financial assets	2,730,509	-	-	2,730,509
	₩ 1,308,429,320	88,445,756	1,492,153	1,398,367,229

(2) Details of financial liabilities held by the Group as of December 31, 2021 are as follows:

In thousand won

	December 31, 2021			
	Financial liabilities at FVTPL	Derivatives for hedge	Financial liabilities at amortized cost	Total
Other financial liabilities	₩ -	-	15,818,977	15,818,977

28. Cash and cash equivalents and deposit (Financial business)

(1) Details of cash and cash equivalents and deposit as of December 31, 2021 are as follows:

In thousands of won

	December 31, 2021	
Cash and cash equivalents		
Cash and demand deposit	₩	84,367,727
Deposit		114,422,945
	₩	198,790,672

(2) Deposit, which are restricted in use, as of December 31, 2021 are as follows:

In thousand won	Financial institution	December 31, 2021	Reason
Deposit	Korea Federation of Savings Banks and others	₩ 49,422,945	Reserve assets and financial business collateral

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29. Fair Value Financial Assets (Financial business)

Fair value financial assets as of December 31, 2021 are as follows:

<i>In thousand won</i>	December 31, 2021
Financial assets at FVTPL	
Equity securities	
Securities	₩ 32,108,799
Beneficiary securities	46,697,492
Other securities	9,639,465
	<hr/>
	88,445,756
Financial assets at FVTOCI	
Debt securities	
Debentures	1,492,154
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	₩ 89,937,910
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30. Loan receivables and other receivables (Financial business)

(1) Details of loan receivables and other receivables as of December 31, 2021 are as follows:

<i>In thousands of won</i>	December 31, 2021
Loan receivables - Financial assets at amortized cost	₩ 1,099,170,123

(2) Details of loan receivables and other receivables as of December 31, 2021 are as follows:

<i>In thousand won</i>	December 31, 2021
Deposit-backed loan	₩ 132,050
Securities-secured loan	175,654,966
Real estate mortgage	432,723,917
Credit loan	508,078,857
Others	1,212,249
	<hr/>
	1,117,802,039
Income from deferred loan	(1,566,253)
Present value discount	(136,087)
Allowances for doubtful accounts	(16,929,576)
	<hr/>
	₩ 1,099,170,123
	<hr/> <hr/>

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30. Loan receivables and other receivables (Financial business), Continued

(3) The details of loan receivables that are impaired or overdue as of December 31, 2021 are as follows:

<i>In thousand won</i>	December 31, 2021
Loan receivables not past due(*):	₩ 1,073,539,072
Past due but not impaired(*):	
Less than 1 month	462,113
Less than 2 months	-
Less than 3 months	-
Over 3 months	-
	<u>462,113</u>
Impaired:	<u>25,168,938</u>
	<u>₩ 1,099,170,123</u>

(*) Classified based on the principal of loan receivables.

31. Other financial assets (Financial business)

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

<i>In thousand won</i>	December 31, 2021
Other receivables	₩ 9,292
Accrued revenue	2,773,564
Allowances for doubtful accounts	<u>(52,347)</u>
	<u>₩ 2,730,509</u>

(2) Changes in other financial assets for the years ended December 31, 2021 are as follows:

<i>In thousand won</i>	December 31, 2021
Balance at 1 January, 2021	₩ -
Changes in scope of consolidation	55,096
Net transfer	<u>(2,749)</u>
Balance at 31 December, 2021	<u>₩ 52,347</u>

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32. Derivative financial instruments (Financial business)

Derivative financial instruments as of December 31, 2021 are as follows:

In thousand won

		December 31, 2021	
		Assets	Liabilities
Trading:	₩		
Other derivative instruments		7,738,016	-

33. Other Assets (Financial business)

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

In thousand won

		December 31, 2021	
Prepaid expenses	₩		45,742
Advance payments			65,574
Othes			3,933,492
	₩		<u>4,044,808</u>

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34. Property, Plant and Equipment (Financial business)

(1) Property, Plant and Equipments as of December 31, 2021 are as follows:

In thousands of won

		December 31, 2021		
		Acquisition Cost	Accumulated depreciation	Book value
Land	₩	1,177,413	-	1,177,413
Buildings		3,107,097	(1,363,590)	1,743,507
Tools and equipments		636,852	(458,381)	178,471
Others		1,010,281	(745,942)	264,339
	₩	<u>5,931,643</u>	<u>(2,567,913)</u>	<u>3,363,730</u>

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

In thousands of won

		2021				
		Land	Buildings	Tools and equipments	Others	Total
Balance at 1 January, 2021	₩	-	-	-	-	-
Acquisition		-	-	63,800	294	64,094
Changes in scope of consolidation		1,182,981	2,082,353	146,738	318,300	3,730,372
Disposal		(5,568)	(316,212)	(136)	(1)	(321,917)
Depreciation		-	(22,634)	(31,931)	(54,254)	(108,819)
Balance at 31 December 2021	₩	<u>1,177,413</u>	<u>1,743,507</u>	<u>178,471</u>	<u>264,339</u>	<u>3,363,730</u>

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35. Intangible Assets (Financial business)

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

In thousands of won

		December 31, 2021		
		Acquisition Cost	Accumulated depreciation	Book value
Membership	₩	772,159	-	772,159
Other intangible assets		2,301,662	(1,172,286)	1,129,376
	₩	<u>3,073,821</u>	<u>(1,172,286)</u>	<u>1,901,535</u>

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

In thousands of won

		December 31, 2021		
		Membership	Other intangible assets	Total
Balance at 1 January 2021	₩	-	-	-
Changes in scope of consolidation		312,159	1,224,173	1,536,332
Acquisition		460,000	20,147	480,147
Amortization		-	(114,944)	(114,944)
Balance at 31 December 2021	₩	<u>772,159</u>	<u>1,129,376</u>	<u>1,901,535</u>

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36. Lease (Financial business)

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

<i>In thousand won</i>	December 31, 2021	
	Rental store facilities	Total
Balance at 1 January, 2021	₩ -	-
Changes in scope of consolidation	667,494	667,494
Depreciation	(54,121)	(54,121)
Balance at 31 December, 2021	₩ 613,373	613,373

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

<i>In thousand won</i>	2021
Depreciation of right-of-use assets	₩ 54,121

(3) Lease liabilities as of December 31, 2021 are as follows:

<i>In thousand won</i>	2021
Less than 1 year	₩ 36,081
Over 1 year and less than 5 year	180,404
Over 5 year	396,888
	613,373
Less: present value discount	-
Present value of lease liabilities	₩ 613,373

37. Deposit liabilities (Financial business)

Deposit liabilities as of December 31, 2021 are as follows:

<i>In thousand won</i>	Interest rate(%)	December 31, 2021
Ordinary deposit	0.1	₩ 3,053,865
Term deposit	0.8~5.0	1,194,258,382
Fixed deposit	1.05~7.0	25,843,734
Others	0~4.3	992,733
		₩ 1,224,148,714

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38. Net defined benefit liabilities (Financial business)

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

<i>In thousand won</i>	<u>December 31, 2021</u>
Present value of defined benefit obligation	₩ 3,921,067
Fair value of plan assets	(3,976,989)
Net defined benefit liabilities	<u>₩ (55,922)</u>

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

<i>In thousand won</i>	<u>2021</u>
Balance at 1 January, 2021	₩ -
Current service cost	147,689
Interest expense	27,683
Remeasurements(*)	(124,879)
Benefits paid	(567,520)
Changes in scope of consolidation	4,438,094
Balance at 31 December 2021	<u>₩ 3,921,067</u>

(*) Remeasurement of defined benefit obligation is as follows:

<i>In thousand won</i>	<u>2021</u>
Actuarial losses (gains) due to empirical adjustments	₩ 121,146
Actuarial losses (gains) due to changes in financial assumptions	(246,025)
	<u>₩ (124,879)</u>

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

<i>In thousand won</i>	<u>2021</u>
Balance at 1 January, 2021	₩ -
Interest income	23,362
Remeasurements(*)	(3,229)
Contributions by the employer	841,119
Benefits paid	(369,548)
Changes in scope of consolidation	3,485,285
Balance at 31 December 2021	<u>₩ 3,976,989</u>

(*) Return on plan assets (Excluding the amount included in interest income)

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38. Net defined benefit liabilities (Financial business), Continued

(4) Plan assets as of December 31, 2021 are as follows:

<i>In thousand won</i>	December 31, 2021
Debt instruments	₩ 3,975,518
Others	1,471
	<u>₩ 3,976,989</u>

(5) Expenses recognized in the consolidated statements of comprehensive income for the years ended December 31, 2021 are as follows:

<i>In thousand won</i>	2021
Current service cost	₩ 147,689
Net interest cost	4,321
	<u>₩ 152,010</u>

(6) Key actuarial assumptions for the years ended December 31, 2021 are as follows:

	December 31, 2021
Discount rate	3.57%
Expected salary growth rate	3.20%

(7) Key actuarial assumptions for the years ended December 31, 2021 are as follows:

	<u>Change in assumption</u>	<u>Increase in assumption</u>	<u>Decrease in assumption</u>
Discount rate	1.00%	5.63% Decrease	6.35% Increase
Expected salary growth rate	1.00%	6.42% Increase	5.80% Decrease

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39. Provisions (Financial business)

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

In thousand won

		2021		
		Provision for restoration	Unused Limit Liabilities	Total
Balance at 1 January, 2021		-	-	-
Changes in scope of consolidation	₩	40,778	65,717	106,495
Reversal		-	3,424	3,424
Others		139	-	139
Balance at 31 December, 2021	₩	<u>40,917</u>	<u>69,141</u>	<u>110,058</u>

40. Other Financial Liabilities (Financial business)

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

In thousand won

		2021
Other payables	₩	1,218,907
Accrued expense		13,986,697
Lease liabilities		613,373
	₩	<u>15,818,977</u>

41. Other Liabilities (Financial business)

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

In thousand won

		2021
Unearned revenues	₩	2,954
Others		2,574,706
	₩	<u>2,577,660</u>

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42. Capital Stock and Surplus

(1) Capital stock as of December 31, 2021 and December 31, 2020, is as follows:

In thousands of won, except for share data

	December 31, 2021		December 31, 2020	
	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	159,864,497	1,123,737
Capital	₩ 972,621,970	5,618,685	815,551,970	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, 2021, 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, 2021 and 2020 are as follows:

In thousands of won

	December 31, 2021		December 31, 2020	
	Common shares	Preferred shares	Common shares	Preferred shares
Balance at 1 January	₩ 159,464,937	1,123,737	161,479,290	1,123,737
Retirement of treasury stock	-	-	(1,614,793)	-
Acquisition of treasury stock	(300,000)	-	(399,560)	-
Disposal of treasury stock	1,443	-	-	-
Paid-in capital increase	31,414,000	-	-	-
	₩ 190,580,380	1,123,737	159,464,937	1,123,737

(3) Capital surplus as of December 31, 2021 and December 31, 2020 is as follows:

In thousands of won

	December 31, 2021	December 31, 2020
Paid-in capital in excess of par value	₩ 1,668,350,654	486,753,224
Gain from merger	218,556,235	86,071,253
Revaluation reserve	75,670,859	75,670,859
Other capital surplus	40,671,711	149,974,815
	₩ 2,003,249,459	798,470,151

43. Capital Adjustments

Consolidated capital adjustments as of December 31, 2021 and December 31, 2020 are composed of other capital adjustments recognized during the prior acquisition of subsidiaries.

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44. Accumulated Other Comprehensive Income

Accumulated other comprehensive income as of December 31, 2021 and December 31, 2020 are as follows:

<i>In thousands of won</i>	<u>December 31, 2021</u>	<u>December 31, 2020</u>
Gain(Loss) on valuation of FVTOCI - financial assets(debt instrument) ₩	(96,173)	30,398
Loss on valuation of FVTOCI - financial assets(equity instrument)	(49,173,729)	(58,598,834)
Share of other comprehensive income of associates and joint ventures	198,390,588	65,675,705
Gain(Loss) on valuation of derivatives	(201,951)	(399,546)
Currency translation adjustments	1,739,387	(116,717,319)
Revaluation surplus(OCI)	34,763	-
	<u>₩ 150,692,885</u>	<u>(110,009,596)</u>

45. Retained Earnings

Retained earnings as of December 31, 2021 and December 31, 2020 are as follows:

<i>In thousands of won</i>	<u>December 31, 2021</u>	<u>December 31, 2020</u>
Legal reserves ₩	107,999,058	68,399,058
Voluntary reserves	3,742,431,385	3,035,951,218
Retained earnings from equity method investees	697,333,822	697,368,585
Unappropriated retained earnings	503,649,433	628,070,318
	<u>₩ 5,051,413,698</u>	<u>4,429,789,179</u>

46. Dividends

- (1) During the year ended December 31, 2020, dividends on the Group's common shares of ₩32,296 million (₩200 per share) were paid out and dividends on preferred shares of ₩281 million (₩250 per share) were paid out for the year ended December 31, 2019.
- (2) No dividends on common shares and preferred shares for the year ended December 31, 2020.
- (3) No dividends on common shares and preferred shares for the year ended December 31, 2021 are to be proposed at the regular general shareholders' meeting scheduled for March 23, 2022.

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47. Revenue

(1) Revenue of non-financial business for the year ended December 31, 2021 and 2020 are as follows:

<i>In thousands of won</i>		2021	2020
Sales - finished goods	₩	7,567,161,107	6,331,532,220
Sales - merchandise		2,581,298,690	2,140,284,784
Sales - construction		143,358,595	199,846,057
Others		414,307,688	523,345,067
	₩	<u>10,706,126,080</u>	<u>9,195,008,128</u>

(2) Revenue of financial business for the year ended December 31, 2021 are as follows:

<i>In thousand won</i>		2021
Commission income	₩	401,354
Investment operating income		18,664,951
	₩	<u>19,066,305</u>

48. Cost of Sale

(1) Cost of sale of non-financial business for the year ended December 31, 2021 and 2020 is as follows:

<i>In thousands of won</i>		2021	2020
Cost of sale - finished goods	₩	7,257,639,588	5,949,490,840
Cost of sale - merchandise		856,887,881	807,695,202
Construction cost		132,496,690	110,060,731
Others		268,633,218	401,868,726
	₩	<u>8,515,657,377</u>	<u>7,269,115,499</u>

(2) Cost of sale of financial business for the year ended December 31, 2021 is as follows:

<i>In thousand won</i>		2021
Commission expense	₩	566,430
Investment operating expense		7,179,387
Others		5,609,152
	₩	<u>13,354,969</u>

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49. Selling and Administrative Expenses

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

<i>In thousands of won</i>	<u>2021</u>	<u>2020</u>
Salaries	₩ 344,248,661	330,974,678
Retirement benefits	39,166,827	26,418,895
Other long-term employee benefits	319,233	3,746,022
Voluntary resignation benefits	141,486	1,204,832
Welfare expenses	58,092,400	64,066,359
Rental expenses	16,094,140	13,927,183
Lease expenses	7,795,368	6,513,221
Reception expenses	8,811,942	7,731,340
Depreciation on investment property	1,475,023	1,574,048
Depreciation on property, plant and equipment	77,629,402	70,373,138
Amortization of intangible assets	10,670,311	9,453,775
Depreciation on right-of-use assets	43,781,149	37,008,889
Taxes and dues	44,785,168	30,728,428
Advertising expenses	45,004,976	40,883,321
Bad debt expenses	12,160,799	3,527,756
Travel expenses	9,330,791	7,129,780
Travel expenses for overseas branch	158,018	89,866
Conference expenses	1,796,284	1,646,619
Communication charges	5,364,470	5,235,900
Supplies expenses	5,928,491	7,236,084
Publication expenses	1,586,374	1,315,564
Outsourcing expenses	84,775,965	77,243,671
Freight expenses	194,528,053	154,358,879
Warehousing charges	44,922,012	48,789,896
Sample and packing expenses	6,614,671	7,508,439
Utility expenses	17,264,805	16,025,087
Sales commissions	19,351,130	14,019,546
Export selling expenses	65,181,963	60,185,259
Repair expenses	10,124,650	10,059,194
Insurance expenses	16,449,368	15,025,044
Commissions	134,912,989	116,330,695
Research expenses	54,042,350	72,617,987
Ordinary development expenses	40,291,196	31,741,870
Market development expenses	3,204,712	3,704,482
Product warranties expenses	20,466,737	18,266,694
Training expenses	4,949,405	3,445,850
Product handling commission	998,258	901,791
Others	5,412,807	10,699,429
	<u>₩ 1,457,832,384</u>	<u>1,331,709,511</u>

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50. Expenses by Nature

Details of expenses by nature for the years ended December 31, 2021 and 2020 are as follows:

<i>In thousands of won</i>	2021	2020
Changes in finished goods, semi finished goods, work in process ₩	(213,771,921)	(191,927,490)
Merchandise sales	856,887,881	807,695,202
Use of raw materials and supplies	5,794,379,057	4,979,198,645
Employee benefits(*)	1,055,934,296	940,210,321
Welfare expenses	162,747,417	153,602,200
Rental expenses	24,303,550	25,840,627
Lease expenses	15,073,032	13,427,987
Depreciation of investment property	2,150,449	2,368,498
Depreciation	560,577,655	516,820,551
Amortization	31,205,645	30,390,019
Depreciation of right-of-use assets	54,768,575	45,209,024
Freight and warehousing expenses	269,477,875	208,878,942
Utility expenses	161,058,326	150,061,077
Outsourcing expenses	668,500,307	428,046,285
Export selling expenses	65,233,304	60,821,433
Taxes and dues	63,736,401	40,889,106
Others	414,582,881	389,292,583
	<u>₩ 9,986,844,730</u>	<u>8,600,825,010</u>

(*) Includes salaries and wages, and retirement benefits.

The total amount is the sum of cost of sales and selling and administrative expenses in the consolidated financial statements of comprehensive income.

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51. Other Non-Operating Income and Expenses

(1) Other non-operating income for the years ended December 31, 2021 and 2020 is as follows:

In thousands of won

	<u>2021</u>	<u>2020</u>
Gain on foreign currency transactions	₩ 118,717,689	171,361,575
Gain on foreign currency translations	131,925,469	216,226,755
Gain on valuation of derivatives	98,517,657	18,329,923
Gain on disposal of investment in associates	10,804,435	8,871,894
Gain on transactions of derivatives	26,960,678	35,521,382
Gain on valuation of FVTPL – financial assets	1,900,613	58,296
Gain on disposal of FVTPL – financial assets	-	61,832
Gain on disposal of investment property	3,987	2,698,837
Reversal of impairment losses on investment property	12,818	-
Gain on disposal of property, plant and equipment	23,364,859	3,392,554
Reversal of impairment losses on property, plant and equipment	-	1,500,229
Gain on disposal of intangible assets	-	1,128,895
Reversal of impairment losses on intangible assets	-	672,857
Reversal of impairment losses on right-of-use assets	9,313,123	-
Gain on disposal of non-current assets held for sale	206,211,666	54,201,706
Reversal of other allowance for bad debts	16,445	-
Reversal of other bad debt expense	-	3,484,522
Rental income	460,366	383,808
Others	31,577,281	24,330,888
	<u>₩ 659,787,086</u>	<u>542,225,953</u>

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51. Other Non-Operating Income and Expenses, Continued

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

In thousands of won

	<u>2021</u>	<u>2020</u>
Loss on foreign currency transactions	₩ 117,968,477	192,651,669
Loss on foreign currency translations	220,886,382	163,192,743
Loss on valuation of derivatives	4,166,071	80,664,031
Loss on disposal of investment in associates	57,924,531	29,997,790
Impairment loss on investment in associates	9,333,452	-
Loss on transactions of derivatives	49,791,172	20,866,968
Loss on valuation of FVTPL—financial asset	15,225	520,079
Loss on transactions of FVTOCI—financial asset	123,756	18,058
Loss on disposal of trade receivables	559,649	548,803
Loss on disposal of investment property	-	37,671
Loss on disposal of property, plant and equipment	14,824,347	30,447,238
Loss on disposal of intangible assets	1,508,915	4,961,099
Impairment loss on property, plant and equipment	149,698,097	56,007,058
Impairment loss on intangible assets	9,829,303	158,630
Impairment loss on right-of-use assets	8,262,892	7,033,070
Impairment loss on non-current assets held for sale	-	689,561
Other bad debt expenses	1,014,830	21,471,387
Loss on inventory abandoned	1,052,006	1,124,207
Commissions (non-operating)	9,558,414	6,736,904
Donations	5,370,236	5,981,664
Other expenses	18,157,712	42,100,830
	<u>₩ 680,045,467</u>	<u>665,209,460</u>

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52. Financial Income and Expenses

(1) Financial income for the years ended December 31, 2021 and 2020 are as follows:

<i>In thousands of won</i>	2021	2020
Interest income	₩ 18,506,377	24,586,296
Dividends income	1,795,245	879,802
Gain on valuation of non-controlling interest liability	1,599,328	-
	₩ 21,900,950	25,466,098

(2) Financial expenses for the years ended December 31, 2021 and 2020, are as follows:

<i>In thousands of won</i>	2021	2020
Interest expense	₩ 147,547,828	205,280,548

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53. Income Tax Expense

(1) Income tax expense for the years ended December 31, 2021 and 2020 is as follows:

<i>In thousands of won</i>	<u>2021</u>	<u>2020</u>
Current income tax:		
Current income taxes (*)	₩ 262,885,177	165,894,329
Adjustments for prior years	<u>(2,095,616)</u>	<u>(7,496,445)</u>
	<u>260,789,561</u>	<u>158,397,884</u>
Deferred income tax:		
Changes of temporary differences	<u>(1,929,326)</u>	<u>(77,645,650)</u>
Income tax charged directly to equity	<u>(19,850,173)</u>	<u>15,933,043</u>
Income tax expense	<u>₩ 239,010,062</u>	<u>96,685,277</u>

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

(2) The actual income tax expense on the Group's profit before income tax, which differs from the amount that is computed using the tax calculated at the weighted average of annual corporate income tax rates rate applied to profits of consolidated entities, for the years ended December 31, 2021 and 2020 are as follows:

<i>In thousands of won</i>	<u>2021</u>	<u>2020</u>
Profit (loss) before income tax	₩ 855,338,283	398,407,651
Income tax based on statutory tax rate	<u>235,218,028</u>	<u>109,562,104</u>
Adjustments:	-	-
Permanent differences	(15,736,385)	(104,279,422)
Adjustments for prior years	(2,095,616)	(7,496,445)
Tax credit	(48,665,587)	(3,092,702)
Effects of unrecognized deferred tax	60,735,669	104,652,355
Others	<u>9,553,953</u>	<u>(2,660,613)</u>
	<u>3,792,034</u>	<u>(12,876,827)</u>
	<u>₩ 239,010,062</u>	<u>96,685,277</u>

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53. Income Tax Expense, Continued

(3) Income tax credited(charged) directly to equity for the years ended December 31, 2021 and 2020 are as follows:

<i>In thousands of won</i>	<u>2021</u>	<u>2020</u>
Current income tax:		
Remeasurement of net defined benefit liabilities	₩ 494,398	311,686
Deferred income tax:		
Gain (loss) on valuation of fair value of financial assets	2,869,048	(582,090)
Share of other comprehensive loss (income) of associates and joint ventures	(17,735,438)	3,742,297
Gain (loss) on valuation of derivatives	(336,971)	62,785
Currency translation adjustments	(242,817)	3,308,331
Remeasurement of net retirement benefit liabilities	(6,895,400)	(2,761,417)
Share of remeasurements of net defined benefit liabilities of associates and joint ventures	(350,890)	451,114
Other capital surplus	2,245,955	11,399,399
Other capital adjustments	101,942	938
	<u>(20,344,571)</u>	<u>15,621,357</u>
	₩ <u>(19,850,173)</u>	<u>15,933,043</u>

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53. Income Tax Expense, Continued

(4) Changes in deferred income tax for the years ended December 31, 2021 and 2020 are as follows:

In thousands of won

	2021					Balance at December 31, 2021
	Balance at January 1, 2021	Profit or loss	Other comprehensive income	Equity	Changes in scope of consolidation	
Allowance for doubtful accounts	₩ 7,932,196	1,099,279	-	-	-	9,031,475
Loss on valuation of inventories	4,488,812	11,393,004	-	-	-	15,881,816
Gain (loss) on valuation of derivatives	(158,792)	2,509,722	(336,971)	-	-	2,013,959
FVTOCI - financial assets	24,043,732	(787,002)	2,869,048	-	-	26,125,778
Bonuses	16,971,249	17,804,732	-	-	-	34,775,981
Depreciation	(47,756,024)	1,918,526	-	-	-	(45,837,498)
Defined benefit obligation	115,279,363	17,887,941	(6,895,400)	-	-	126,271,904
Plan assets	(33,391,166)	(4,032,748)	-	-	-	(37,423,914)
Revaluation reserve	(28,940,779)	459,319	-	-	-	(28,481,460)
Revaluation surplus	(201,519,686)	(26,225,045)	-	-	-	(227,744,731)
Share of remeasurements of net defined benefit liabilities of associates and joint ventures	(32,172,343)	699,937	(18,329,145)	2,347,897	8,478,145	(38,975,509)
Others	19,989,350	(453,768)	-	-	-	19,535,582
Balance at December 31, 2021	₩ (155,234,088)	22,273,897	(22,692,468)	2,347,897	8,478,145	(144,826,617)

In thousands of won

	2020					Balance at December 31, 2020
	Balance at January 1, 2020	Profit or loss	Other comprehensive income	Equity	Changes in scope of consolidation	
Allowance for doubtful accounts	₩ 11,047,431	(3,115,235)	-	-	-	7,932,196
Loss on valuation of inventories	5,127,247	(638,435)	-	-	-	4,488,812
Gain (loss) on valuation of derivatives	(1,077,354)	855,777	62,785	-	-	(158,792)
FVTOCI - financial assets	24,081,165	544,657	(582,090)	-	-	24,043,732
Bonuses	3,867,695	13,103,554	-	-	-	16,971,249
Depreciation	(43,147,831)	(4,608,193)	-	-	-	(47,756,024)
Defined benefit obligation	100,298,287	17,742,493	(2,761,417)	-	-	115,279,363
Plan assets	(33,163,378)	(227,788)	-	-	-	(33,391,166)
Revaluation reserve	(29,078,048)	137,269	-	-	-	(28,940,779)
Revaluation surplus	(209,642,048)	8,122,362	-	-	-	(201,519,686)
Share of remeasurements of net defined benefit liabilities of associates and joint ventures	(76,520,139)	25,059,247	7,501,742	11,400,337	386,470	(32,172,343)
Others	14,940,766	5,048,584	-	-	-	19,989,350
Balance at December 31, 2020	₩ (233,266,207)	62,024,292	4,221,020	11,400,337	386,470	(155,234,088)

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53. Income Tax Expense, Continued

(5) Deductible(taxable) temporary differences not recognized as deferred income tax as of December 31, 2021 and 2020 are as follows:

<i>In thousands of won</i>	<u>Balance at 31, December 2021</u>	<u>Balance at 31, December 2020</u>
Investments in associates and joint ventures (*) ₩	831,202,589	682,031,699

<i>In thousands of won</i>	<u>Balance at 31 December 2021</u>	<u>Balance at 31 December 2020</u>
Investments in associates and joint ventures (*) ₩	831,202,589	682,031,699

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

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54. Earnings Per Share

(1) Basic earnings per common shares from continuing operations for the years ended December 31, 2021 and 2020 are as follows:

<i>In thousands of won, except for share data and eps</i>	<u>2021</u>	<u>2020</u>
Profit from continuing operations	₩ 616,328,220	339,574,260
Profit from continuing operations attributable to owners of the Group	619,050,615	346,928,520
Profit from continuing operations available to common shares	615,263,638	344,451,948
Weighted average number of common shares outstanding	<u>185,321,202</u>	<u>159,922,212</u>
Basic earnings per common share (In won)	₩ <u>3,320</u>	<u>2,154</u>

(2) Basic loss per common share from discontinued operations for the year ended December 31, 2020 is as follows:

<i>In thousands of won, except for share data and eps</i>	<u>2020</u>
Loss from discontinued operations	₩ (37,851,886)
Loss from discontinued operations attributable to owners of the Group	(37,851,886)
Loss from discontinued operations available to common shares	(37,587,765)
Weighted average number of common shares outstanding	<u>159,922,212</u>
Basic loss per common shares from discontinued operations (In won)	₩ <u>(235)</u>

(3) Basic earnings per preferred shares from continuing operations for the years ended December 31, 2021 and 2020 are as follows:

<i>In thousands of won, except for share data and eps</i>	<u>2021(*)</u>	<u>2020(*)</u>
Profit from continuing operations	₩ 616,328,220	339,574,260
Profit from continuing operations attributable to owners of the Group	619,050,615	346,928,520
Profit from continuing operations available to preferred shares	3,786,977	2,476,572
Weighted average number of preferred shares outstanding	<u>1,123,737</u>	<u>1,123,737</u>
Basic earnings per preferred shares from continuing operations (In won)	₩ <u>3,370</u>	<u>2,204</u>

(*) 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.

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
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54. Earnings Per Share, Continued

(4) Basic loss per preferred shares from discontinued operations for the years ended December 31, 2020 is as follows:

In thousands of won, except for share data and eps

	<u>2020(*)</u>
Loss from discontinued operations	₩ (37,851,886)
Loss from discontinued operations attributable to owners of the Group	(37,851,886)
Loss from discontinued operations available to preferred shares	(264,121)
Weighted average number of preferred shares outstanding	<u>1,123,737</u>
Basic earnings per preferred share (In won)	<u>₩ (235)</u>

(*) 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.

(5) Potential ordinary shares as of December 31, 2021 and 2020 are as follows:

<i>in shares</i>	<u>Balance at 31 December 2021</u>	<u>Balance at 31 December 2020</u>
RSU (*)	609,156	287,102

(*) Basic and diluted earnings per for the years ended December 31, 2021 and 2020 are identical due to the antidilutive effect of RSU shares.

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55. Commitments and Contingencies

(1) Credit limits provided by financial institutions as of December 31, 2021 are as follows:

<i>In thousands of won, In USD, EUR</i>	<u>Currency</u>	<u>Limit</u>
Overdraft	KRW	15,500,000
	CZK	124,300,000
	THB	30,000,000
Usance	USD	352,700,000
	USD	50,000,000
D/A, D/P, Local and foreign trade	THB	70,000,000
	KRW	2,005,145,000
Others	USD	1,938,297,388
	EUR	393,922,380
	CNY	2,235,000,000
	MYR	794,899,449
	CZK	348,040,000
	THB	90,000,000
	MXN	112,534,518
	KRW	2,020,645,000
	USD	2,340,997,388
	EUR	393,922,380
CNY	2,235,000,000	
MYR	794,899,449	
CZK	472,340,000	
THB	190,000,000	
MXN	112,534,518	

(2) Details of assets provided as a collateral for borrowing as of December 31, 2021 are as follows:

<i>In thousands of won</i>	<u>Guaranteed amount</u>	<u>Collateral right holder</u>
Cash and cash equivalents	7,013,917	Industrial Bank of Korea and others
Trade receivables and other receivables	311,038,048	KDB and others
Other financial assets	194,063,676	Shinhan Bank and others
Inventories	58,130,277	KDB and others
Property, plant and equipment	1,632,539,272	KDB and others
Intangible assets	28,251,127	KEB Hana Bank and others
Investments in subsidiaries	81,419,000	KDB and others

(3) Details of Guarantees provided to others as of December 31, 2021 are as follows:

As of December 31, 2021, the Group is responsible for the obligations to guarantee of construction of photovoltaic plant and construction warranties to Korea Hydro & Nuclear Power Co., Ltd. and others.

As of December 31, 2021, the Group provides payment guarantees totaling ₩32,969 million for loans taken out by employees from financial institutions.

As of December 31, 2021, the Group provides payment guarantees and collateral for related parties (see Note 56).

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55. Commitments and Contingencies, Continued

(4) Details of Guarantees provided by others are as of December 31, 2021 are as follows:

In thousands of won, USD, EUR, CNY

Guarantee details	Guaranteed by	Currency	Amount
Contract performance guarantee	KEB Hana Bank	USD	20,000,000
FRN Payment guarantee	KEB Hana Bank	USD	150,000,000
	Shinhan Bank	USD	52,000,000
		EUR	100,000,000
	NongHyup Bank	USD	51,000,000
Foreign currency payment guarantee	CGIF	CNY	1,000,000,000
	The Export-Import Bank of Korea	CNY	545,666,667
Payment guarantee	KEB Hana Bank	KRW	80,340,000
Youngwook Lee	Joint guarantees	KRW	15,112,800
		KRW	150,890,188
		USD	273,000,000
		EUR	100,000,000
		CNY	1,545,666,667

As of December 31, 2021, the Group is provided contract performance guarantee for construction of photovoltaic plant from Seoul Guarantee Insurance and others.

- (5) The Group is a plaintiff in twenty-eight pending litigations involving an aggregate litigation amount of ₩168,867 million and is a defendant in thirty-six pending litigations involving an aggregate amount of ₩68,946 million and is a auxiliary participation of the defendant in one pending litigation as of December 31, 2021. The outcome of any of these proceedings cannot be reasonably estimated.
- (6) On July 30, 2021, the Group acquired the shares of Hanwha Impact Corporation (formerly Hanwha General Chemical Co., Ltd.) from Samsung C&T Corporation and Samsung SDI. The Group has completed the first payment for acquisition cost and interest of approximately ₩191.7 billion of the total of ₩479.3 billion, and plans to pay the second and third payments of ₩287.6 billion by July 2023. The Group has pledged some of shares acquired that are transferred to secure payment of second and third installments.
- (7) On August 19, 2021, the Group acquired 100% of the shares of WOS Inc. from Wave Electronics Co., Ltd., thereby has obtained control. In relation to the consideration transferred, an additional ₩40 billion contingent consideration (earn-out) clause is included, and up to ₩40 billion will be paid in installments from 2022 to 2025 when the order and sales targets are achieved.
- (8) As of December 31, 2021, the Group provides guarantees to Bayerische Motoren Werke AG (the "BMW") and its affiliates for damages which may be caused from the non-compliance of contractual obligations of the Group in the course of transaction with the BMW. The period of guarantees is from submission date of the letter of guarantees to 15 years from the last order on the last project with the BMW, and the amount of guarantees is unlimited.
- (9) As of December 31, 2021, the Group provides guarantee in relation to the commercial transaction with Mercedes Benz AG limited of EUR 30,000,000.

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55. Commitments and Contingencies, Continued

- (10) As of December 31, 2021, two guarantees are provided by the Group in relation to Hanwha Q CELLS America Inc.'s contract, which is the module supply agreement of USD 11,183,172 and USD 207,366,000 with NextEra Energy Constructors, LLC. In addition, guarantees of construction has been provided for the contracts of Hanwha Q CELLS USA Corp with RBC Kellam Holding Co, LLC. amounts of USD 27,028,000.

In addition, as of December 31, 2021, the Group provides performance guarantee of USD 30,836,926 for the construction contracts signed with Hanwha Q CELLS EPC USA, LLC, and Oberon Solar1A, LLC that worth USD 154,184,632.

In addition, as of December 31, 2021, the Group provides performance guarantee of USD 82,225,908 for the construction contracts signed with Hanwha Q CELLS EPC USA, LLC, and Grizzly Ridge Solar, LLC.

In addition, as of December 31, 2021, the Group provides performance guarantee of EUR 33,488,209 for the project contracts signed with RES Mediterranee and ORIT Holdings Limited and 5 other companies

In addition, as of December 31, 2021, the Group provides ₩72,000 million as a cash deficiency agreement for the prior PF agreement to West Ochang Techno Valley Co., Ltd.

- (11) As of December 31, 2021, the Group provides guarantees for equity ownership of USD 68,577,030 for the sale of shares contract signed with Zia Guclu, the purchaser of 18 subsidiaries of Hanwha Q CELLS Turkey.

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56. Related Parties

(1) Details of related parties as of December 31, 2021 are as follows:

Description		Company name	
Parent company		Hanwha Corporation	
Associates/Joint ventures	Domestic	Smile ventures Co., Ltd.	
		H2 Co., Ltd	
		Ulsan Complex City Development Co., Ltd.	
		HANWHA Eagles Professional Baseball Club	
		YEOCHUN NCC Co., Ltd.	
		Eagles Energy Co.,Ltd	
		Envisioning Climate Solutions Fund	
		HANWHA FUND INVESTMENT 1 HO	
		Hanwha Station Development Co., Ltd.	
		Hanwha Impact Corporation (formerly, Hanwha General Chemical Co., Ltd.)	
		Hanwha Hotels and Resort Co., Ltd.	
		Overseas	Burdur Enerji A.S.
			CONIGLIO TAX EQUITY PARTNERSHIP, LLC
			Crystal Solar Inc.
	Finless Foods 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		
	JV Cooke Solar, LLC		
	Kellam Tax Equity Partnership, LLC		
	Lakeshore East Retail LLC		
	Lancium Technologies Corporation		
	Luxbon Solar S.A.		
	Parcel O LLC		
	Q&G PV Solutions GmbH		
Simply Foods Inc.			
SwitchDin Pty Limited			
Conglomerate(*)	Domestic	Data Analytics Lab	
		Seoulyeokbukbuyeoksegwon Development Co.	
		SIT CO.,LTD	
		SIT Tech CO.,LTD	
		HPND Co., Ltd.	
		Yeosu sea world corporation	
		Ilsan sea world corporation	
		Kyongju Aerospace Electrical Systems Co., Ltd	
		HANWHA 63 CITY CORPORATION	
		Hanwha Engineering & Construction Corporation	
		Hanwha Estate Service Co., Ltd.	
		The Tastable Co., Ltd	
		Hanwha aqua planet	

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56. Related Parties, Continued

(1) Details of related parties as of December 31, 2021 are as follows, continued:

Description		Company name
Conglomerate(*)	Domestic	Eco E&O corporation Jeju Ocean Science Museum Corporation Carrot Co., Ltd Tg Solar Co., Ltd. Hanwha Defense HANWHA LIFE LAB Co., Ltd. (formerly, Hanwha Life Asset Co., Ltd.) Hanwha Life Financial Service Co, Ltd. Hanwha LIFE INSURANCE CO., LTD. Hanwha General Insurance Co., Ltd. HANWHA I&A Co., Ltd. HANWHA SYSTEMS Co., Ltd. Hanwha Energy Corporation HANWHA AEROSPACE CO., LTD Hanwha Asset Management Co., Ltd. Hanwha Precision Machinery Co., Ltd. HANWHA TECHWIN CO., LTD. HANWHA TOTAL PETROCHEMICAL Co., Ltd. HANWHA INVESTMENT AND SECURITIES CO., LTD. Hanwha Power System Co. Ltd. Haenara Solar Co., Ltd. and others
	Overseas	174 PG Torreon, S. de R.L. de C.V. Alfabeto En. San. ve Tic. A.S. Altinorda Enerji IC ve Dis Ticaret Sanayi ve Ticaret Ltd. Sti. Bahcesaray Enerji IC ve Dis Ticaret Sanayi ve Ticaret Ltd. Sti. BT1 Enerji IC ve Dis Ticaret Sanayi ve Ticaret Ltd. Sti. Cento En. San. ve Tic. Ltd. Sti. Gunesim En. San. ve Tic. Ltd. Sti. HANWHA AERO ENGINES.,LTD Hanwha Aerospace USA Hanwha Asset Management (USA) Ltd. Hanwha Energy Australia Pty. Ltd. Hanwha Energy Corporation Japan Hanwha Energy Corporation Singapore Pte. Ltd. Hanwha Energy USA Holdings Corporation Hanwha Europe GmbH Hanwha General Chemical AU Pty Ltd Hanwha Impact Partners INC (formerly, Hanwha General Chemical USA Corp.) HANWHA MINING SERVICE USA INC. Hanwha Power Systems Americas, Inc. Hanwha Power Systems (Shanghai) Co.,LTD Hanwha Q CELLS Japan Co.,Ltd. Hanwha Solar Power USA Corp. HANWHA TECHWIN AMERICA, INC.

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56. Related Parties, Continued

(1) Details of related parties as of December 31, 2021 are as follows, continued:

Description		Company name
Conglomerate(*)	Overseas	Hanwha Techwin Automation Americas, Inc. HQC Tatanka Wi Solar Power Generation Station, LLC Jindera Solar Farm Pty. Ltd. Lamda En. San. ve Tic. A.S. Meca Enerji IC ve Dis Ticaret Sanayi ve Ticaret Ltd. Sti. NHS Agri-Service Pty Ltd NHS Holdings Pty Ltd Raggio En. San. ve Tic. Ltd. Sti. Razin GES Elektrik Sanayi ve Ticaret A.S. Razin Gunes Enerjisi Sanayi ve Ticaret A.S. Razin Elektrik Uretim Sanayi ve Ticaret A.S. Razin En. San. ve Tic. A.S. Tessa En. San. ve Tic. Ltd. Sti. Vizi En. San. ve Tic. Ltd. Sti. and others

(*) Although these companies are not applicable to related parties defined in K-IFRS 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 1024 Paragraph 10.

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56. Related Parties, Continued

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

In thousands of won

Company name	2021			
	Sales	Disposal of fixed assets	Purchase	Acquisition of fixed assets
Parent company:				
Hanwha Corporation	₩ 146,508,273	-	43,447,235	91,975,265
Associates:				
Hanwha Savings Bank Co., Ltd.	4,690	-	-	-
Eagles Energy Co.,Ltd	83,917	-	-	-
Hanwha Station Development Co., Ltd.	52,480	-	602,501	-
HANWHA Eagles Professional Baseball Club	42,094	-	1,156,175	-
Hanwha Impact Corporation(formerly, Hanwha General Chemical Co., Ltd.)	7,245,881	-	33,153,493	-
Hanwha Hotels and Resort Co., Ltd.	2,218,231	2,959,473	16,721,300	147,000
International Polymers Company(*1)	23,552	-	234,221,453	-
Joint ventures:				
Ulsan Complex City Development Co., Ltd.	1,721,735	-	-	-
YEOCHUN NCC Co., Ltd.(*2)	28,491,973	-	1,652,065,606	-
Gulf Advanced Cables Insulation Company	157,619	-	-	-
Conglomerate:				
174 Power Global O&M, LLC	-	-	904,099	-
Data Analytics Lab	630	-	-	-
Seoulyeokbukbuyeoksegwon Development Co.	2,371	-	-	-
SIT CO.,LTD	61,088	-	-	-
SIT Tech CO.,LTD	11,238	-	-	-
HPND Co., Ltd.	7,250	-	-	-
Yeosu sea world corporation	114	-	-	-
Ilsan sea world corporation	77	-	-	-
HANWHA 63 CITY CORPORATION	226,061	-	56,024	-
Hanwha Engineering & Construction Corporation	2,110,012	-	38,510	62,559,477
Hanwha Estate Co., Ltd.	139,804	-	13,885,404	55,300
Hanwha Estate Service Co., Ltd.	5,880	-	607	-
The Tastable Co., Ltd	274,088	-	134,901	-
Hanwha aqua planet	188,240	-	-	-
H-Solution Corporation(*3)	210	-	-	-
Eco E&O corporation	133,140	-	399,619	-
Jeju Ocean Science Museum Corporation	32	-	-	-
Carrot Co., Ltd	49,541	-	751,486	-
Foodist Food Culture(Shanghai) Co., Ltd.	-	-	764,169	-
DNC Plaza	27	-	-	-
Hanwha Defense	2,571,808	-	-	-
HANWHA LIFE LAB Co., Ltd. (formerly, Hanwha Life Asset Co., Ltd.)	46,880	-	-	-

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
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56. Related Parties, Continued

(2) Transactions with related parties for the years ended December 31, 2021 and 2020 are as follows, continued:

In thousands of won

Company name	2021			
	Sales	Disposal of fixed assets	Purchase	Acquisition of fixed assets
Conglomerate:				
Hanwha Life Financial Service Co, Ltd.	₩ 914,003	-	-	-
Hanwha LIFE INSURANCE CO., LTD.(*4)	7,167,780	-	23,304,427	-
Hanwha General Insurance Co., Ltd.	2,893,258	-	12,761,528	263
HANWHA I&A Co., Ltd.	119,426	-	-	-
HANWHA SYSTEMS Co., Ltd.	4,867,420	-	51,088,329	24,543,066
Hanwha Energy Corporation	850,176	-	159,446,246	-
HANWHA AEROSPACE CO., LTD	2,641,154	-	-	-
Hanwha Asset Management Co., Ltd.	89,106	-	-	-
Hanwha Precision Machinery Co., Ltd.	582,236	-	6,978,297	545,985
HANWHA TECHWIN CO., LTD.	605,002	-	40,500	80,200
HANWHA TOTAL PETROCHEMICAL Co., Ltd.	10,884,517	-	131,230,110	-
HANWHA INVESTMENT AND SECURITIES CO., LTD.	887,581	-	264,357	-
Hanwha Power System Co. Ltd.	257,855	-	279,094	138,390
Alfabet En. San. ve Tic. A.S.	11,572	-	-	-
Altinorda Enerji IC ve Dis Ticaret Sanayi ve Ticaret Ltd. Sti.	11,177	-	-	-
Bahcesaray Enerji IC ve Dis Ticaret Sanayi ve Ticaret Ltd. Sti.	11,177	-	-	-
BT1 Enerji IC ve Dis Ticaret Sanayi ve Ticaret Ltd. Sti.	45,416	-	-	-
Cento En. San. ve Tic. Ltd. Sti.	23,145	-	-	-
Gunesim En. San. ve Tic. Ltd. Sti.	11,572	-	-	-
Hanwha Aerospace USA	30,431	-	-	-
Hanwha Asset Management (USA) Ltd.	32,394	-	-	-
Hanwha Energy USA Holdings Corporation	745,153	-	-	-
Hanwha Europe GmbH	132,917,786	-	307,104	-
Hanwha General Chemical AU Pty Ltd	10,313	-	-	-
Hanwha Impact Partners INC (formerly, Hanwha General Chemical USA Corp.)	1,961,939	-	450,916	-
Hanwha Power Systems Americas, Inc.	30,261	-	-	-
Hanwha Q CELLS Japan Co.,Ltd.	191,219,992	-	179,648,076	-
Hanwha Solar Power USA Corp.	16,472	-	-	-
Hanwha Systems USA Corporation	26,227	-	-	-
HANWHA TECHWIN AMERICA, INC.	133,615	-	-	-
Hanwha Techwin Automation Americas, Inc.	48,955	-	112,160	-
Lamda En. San. ve Tic. A.S.	11,211	-	-	-
Meca Enerji IC ve Dis Ticaret Sanayi ve Ticaret Ltd. Sti.	11,354	-	-	-
NHS Agri-Service Pty Ltd	6,871	-	-	-
NHS Holdings Pty Ltd	1,718	-	-	-
Raggio En. San. ve Tic. Ltd. Sti.	11,572	-	-	-
Razin GES Elektrik Sanayi ve Ticaret A.S.	14,321	-	-	-
Razin Gunes Enerjisi Sanayi ve Ticaret A.S.	21,517	-	-	-
Razin Elektrik Uretim Sanayi ve Ticaret A.S.	56,978	-	-	-

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56. Related Parties, Continued

(2) Transactions with related parties for the years ended December 31, 2021 and 2020 are as follows, continued:

In thousands of won

Company name	2021			
	Sales	Disposal of fixed assets	Purchase	Acquisition of fixed assets
Conglomerate:				
Razin En. San. ve Tic. A.S.	₩ 22,964	-	-	-
Tessa En. San. ve Tic. Ltd. Sti.	23,145	-	-	-
Vizi En. San. ve Tic. Ltd. Sti.	11,572	-	-	-
	₩ 552,619,270	2,959,473	2,564,213,726	180,044,946

(*1) The Group received dividends of ₩35,668 million from International Polymers Company for the year ended December 31, 2021.

(*2) The Group received dividends of ₩170,000 million from YEOCHUN NCC Co., Ltd. for the year ended December 31, 2021.

(*3) This is the transaction details before the merger with Hanwha Energy Corporation.

(*4) The Group received dividends of ₩456 million from Hanwha LIFE INSURANCE CO., LTD. for the year ended December 31, 2021. In addition to the above dividend receipts, the Group received dividends of ₩286 million and ₩1,117 million from HSP TW TE, LLC and Lakeshore East Retail LLC, respectively.

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56. Related Parties, Continued

(2) Transactions with related parties for the years ended December 31, 2021 and 2020 are as follows, continued:

In thousands of won

Company name	2020			
	Sales	Disposal of fixed assets	Purchase	Acquisition of fixed assets
Parent company:				
Hanwha Corporation(*1)	₩ 142,710,723	-	38,003,988	79,381,201
Associates:				
Hanwha Savings Bank Co., Ltd.	41,010	-	-	-
Eagles Energy Co.,Ltd	216,988	-	-	-
Hanwha Station Development Co., Ltd.(*2)	26,559	-	838,662	-
HANWHA Eagles Professional Baseball Club	26,077	-	1,320,788	-
Hanwha Impact Corporation(formerly, Hanwha General Chemical Co., Ltd.)	6,067,273	-	23,761,703	-
HANWHA INVESTMENT AND SECURITIES CO., LTD.	1,239,320	-	14,558	-
Hanwha Hotels and Resort Co., Ltd.	1,959,652	-	6,821,319	926,909
International Polymers Company(*3)	-	-	140,880,618	-
Luxbon Solar S.A.	4,567,870	-	-	-
Saudi Specialized Products Company	3,867	-	-	-
Joint ventures:				
YEOCHUN NCC Co., Ltd.(*4)	21,723,021	-	1,100,048,243	-
Gulf Advanced Cables Insulation Company	284,228	-	-	-
Kellam Tax Equity Partnership, LLC	95,926,596	-	-	-
JV Cooke Solar, LLC	92,590,979	-	-	-
Conglomerate:				
174 PG Torreon, S. de R.L. de C.V.	2,089,893	-	11,162	-
Data Analytics Lab	3,580	-	-	-
Seoulyeokbukbuyeoksegwon Development Co.	7,285	-	-	-
101 Global Co., Ltd.	8,178	-	228,486	-
SIT CO.,LTD	77,792	-	-	2,700
SIT Tech CO.,LTD	9,170	-	-	-
HPND Co., Ltd.	49,500	-	-	50,000,000
Yeosu sea world corporation	80	-	18,337	-

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56. Related Parties, Continued

(2) Transactions with related parties for the years ended December 31, 2021 and 2020 are as follows, continued:

In thousands of won

Company name	2020			
	Sales	Disposal of fixed assets	Purchase	Acquisition of fixed assets
Conglomerate:				
Ilisan sea world corporation	₩ 92	-	6,665	-
Gtention	1,330	-	-	-
Kyongju Aerospace Electrical Systems Co., Ltd	1,950	-	-	-
HANWHA 63 CITY CORPORATION	233,587	-	50,863	-
Hanwha Financial Asset Co.Ltd	1,957	-	-	-
Hanwha Engineering & Construction Corporation	2,221,683	-	3,397,400	243,219,653
Hanwha Estate Co., Ltd.	407,214	-	30,831,066	13,295
Hanwha Estate Service Co., Ltd.	4,410	-	433	-
Agricultural Corporation Company Green Tomorrow Co.,Ltd.	3,129	-	-	-
H-Global Partners Limited	10,759	-	-	-
H-Solution Corporation	3,549	-	-	-
Eco E&O corporation	19,027	-	323,428	-
Jeju Ocean Science Museum Corporation	15	-	16,922	-
Carrot Co., Ltd	23,520	-	584,475	-
Tg Solar Co., Ltd.	67,750	-	-	-
Foodist Food Culture(Shanghai) Co., Ltd.	-	-	3,532,566	-
DNC Plaza	78	-	1,680	-
Hanwha Defense	2,509,084	-	-	-
HANWHA LIFE LAB Co., Ltd. (formerly, Hanwha Life Asset Co., Ltd.)	20,495	-	-	-
Hanwha LIFE INSURANCE CO., LTD.(*5)	6,061,966	-	23,485,184	-
Hanwha General Insurance Co., Ltd.	2,526,149	-	10,473,279	-
HANWHA I&A Co., Ltd.	212,157	-	-	-
HANWHA SYSTEMS Co., Ltd.	7,707,127	-	45,655,997	9,925,914
Hanwha Energy Corporation	7,302,858	-	149,501,505	-
HANWHA AEROSPACE CO., LTD	2,819,817	-	-	-
Hanwha Asset Management Co., Ltd.	128,471	-	-	-
Hanwha Precision Machinery Co., Ltd.	484,956	-	2,915,453	309,200
HANWHA TECHWIN CO., LTD.	509,899	-	-	-
HANWHA TOTAL PETROCHEMICAL Co., Ltd.	11,506,029	675,000	68,970,284	-
Hanwha Power System Co. Ltd.	231,159	-	335,899	82,284
Alfabeta En. San. ve Tic. A.S.	24,454	-	-	-
Altinorda Enerji IC ve Dis Ticaret Sanayi ve Ticaret Ltd. Sti.	21,779	-	-	-
Bahcesaray Enerji IC ve Dis Ticaret Sanayi ve Ticaret Ltd. Sti.	23,712	-	-	-
BT1 Enerji IC ve Dis Ticaret Sanayi ve Ticaret Ltd. Sti.	95,971	-	-	-
Cento En. San. ve Tic. Ltd. Sti.	48,908	-	-	-
Gunesim En. San. ve Tic. Ltd. Sti.	25,098	-	-	-
HANWHA AERO ENGINES.,LTD	483,556	-	-	-
Hanwha Aerospace USA	12,544	-	-	-
Hanwha Asset Management (USA) Ltd.	10,249	-	-	-
Hanwha Canada Development Inc.	67,681	-	160,723	-
Hanwha Energy USA Holdings Corporation	82,823,547	-	32,974	-
Hanwha Europe GmbH	86,441,582	-	519,157	-

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
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56. Related Parties, Continued

(2) Transactions with related parties for the years ended December 31, 2021 and 2020 are as follows, continued:

In thousands of won

Company name	2020			
	Sales	Disposal of fixed assets	Purchase	Acquisition of fixed assets
Conglomerate:				
Hanwha General Chemical AU Pty Ltd	₩ 9,759	-	-	-
Hanwha Impact Partners INC (formerly, Hanwha General Chemical USA Corp.)	1,570,487	-	288,704	-
HANWHA MINING SERVICE USA INC.	10,927	-	-	-
Hanwha Power Systems (Shanghai) Co.,LTD	-	-	283,947	-
Hanwha Power Systems Americas, Inc.	5,952	-	-	-
Hanwha Q CELLS Japan Co.,Ltd.	231,720,708	-	148,320,369	-
Hanwha Solar Power USA Corp.	17,001	-	-	-
HANWHA TECHWIN AMERICA, INC.	226,703	-	-	-
Hanwha Techwin Automation Americas, Inc.	48,015	-	438,799	-
Lamda En. San. ve Tic. A.S.	23,690	-	-	-
Meca Enerji IC ve Dis Ticaret Sanayi ve Ticaret Ltd. Sti.	23,860	-	-	-
NHS Agri-Service Pty Ltd	7,807	-	-	-
NHS Holdings Pty Ltd	1,952	-	-	-
Raggio En. San. ve Tic. Ltd. Sti.	24,454	-	-	-
Razin GES Elektrik Sanayi ve Ticaret A.S.	51,428	-	-	-
Razin Gunes Enerjisi Sanayi ve Ticaret A.S.	45,469	-	-	-
Razin Elektrik Uretim Sanayi ve Ticaret A.S.	120,403	-	-	-
Razin En. San. ve Tic. A.S.	57,851	-	-	-
S&P World Networks DMCC	2,634,116	-	-	-
Sol Caltivante II S.A.	70,086	-	-	-
Sol Caltivante III S.A.	161,531	-	-	-
Sol Caltivante IV S.A.	100,396	-	-	-
Sol Caltivante VI S.A.	210,259	-	-	-
Tessa En. San. ve Tic. Ltd. Sti.	48,908	-	-	-
Vizi En. San. ve Tic. Ltd. Sti.	24,454	-	-	-
	₩ 821,945,155	675,000	1,802,075,636	383,861,156

(*1) The Group paid dividends of ₩11,909 million to Hanwha Corporation for the year ended December 31, 2020.

(*2) The Group received dividends of ₩1,582 million from Hanwha Station Development Co., Ltd. for the year ended December 31, 2020.

(*3) The Group received dividends of ₩7,539 million from International Polymers Company for the year ended December 31, 2020.

(*4) The Group received dividends of ₩165,000 million from YEOCHUN NCC Co., Ltd. for the year ended December 31, 2020.

(*5) The Group received dividends of ₩456 million from Hanwha LIFE INSURANCE CO., LTD. for the year ended December 31, 2020. In addition to the above dividend receipts, the Group received dividends of ₩293 million and ₩570 million from HSP TW TE, LLC and Lakeshore East Retail LLC, respectively.

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
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56. Related Parties, Continued

(3) Outstanding receivables and payables from transactions with related parties as of December 31, 2021 and December 2020 are as follows:

In thousands of won

	December 31, 2021				
	Receivables			Payables	
	Accounts receivable	Loans	Other receivables	Accounts payable	Other payables
Parent company:					
Hanwha Corporation	₩ 6,740,633	-	2,078,390	11,531,988	21,432,676
Associates:					
HANWHA Eagles Professional Baseball Club	-	-	408,293	-	-
Eagles Energy Co.,Ltd	51,489	-	120,000	-	-
Hanwha Station Development Co., Ltd.	151,881	-	560,000	-	185,831
Hanwha Impact Corporation(formerly, Hanwha General Chemical Co., Ltd.)	1,983,866	-	104,950	6,573,927	150,397
Hanwha Hotels and Resort Co., Ltd.	197,162	-	30,304,832	41,704	2,179,206
Crystal Solar Inc.(*1)	-	1,866,931	347,906	-	-
International Polymers Company	-	-	1,843,582	44,848,219	-
Luxbon Solar S.A.	-	-	3,182,183	-	-
Joint ventures:					
YEOCHUN NCC Co., Ltd.	2,687,322	-	144,712	305,475,308	8,717,266
Gulf Advanced Cables Insulation Company(*2)	-	16,216,125	447,411	-	-
Conglomerate:					
SIT CO.,LTD	2,309	-	-	-	-
Hanwha Engineering & Construction Corporation	37,339	-	1,003	9,128,000	-
HANWHA 63 CITY CORPORATION	96	-	-	-	465
The Tastable Co., Ltd	7,279	-	-	2,836	3,023
Hanwha aqua planet	14,885	-	1,012	-	-
Eco E&O corporation	-	-	127,035	-	-
Hanwha Defense	566,522	-	2,340	-	-
HANWHA LIFE LAB Co., Ltd. (formerly, Hanwha Life Asset Co., Ltd.)	1,284	-	-	-	-
Hanwha Life Financial Service Co, Ltd.	9,321	-	-	-	3,269
Hanwha LIFE INSURANCE CO., LTD.	613,015	-	102,844,048	-	137,918,193
Hanwha General Insurance Co., Ltd.	48,690	-	276,022	510	50,850
HANWHA SYSTEMS Co., Ltd.	617,939	-	-	1,295,775	10,299,247
Hanwha Energy Corporation	58,053	-	7,312	16,327,363	21,464
HANWHA AEROSPACE CO., LTD	127,878	-	5,682	-	-
Hanwha Asset Management Co., Ltd.	1,654	-	-	-	-
Hanwha Precision Machinery Co., Ltd.	6,645	-	-	2,974,961	118,293
HANWHA TOTAL PETROCHEMICAL Co., Ltd.	1,441,133	-	1,397,339	14,948,694	-
HANWHA INVESTMENT AND SECURITIES CO., LTD.	16,423	-	-	-	7,837,538
Hanwha Power System Co. Ltd.	-	-	-	-	244,838
Hanwha Aerospace USA	1,227	-	-	-	-
Hanwha Asset Management (USA) Ltd.	7,735	-	-	-	-
Hanwha Energy USA Holdings Corporation	2,540,635	-	-	-	-
Hanwha Europe GmbH	37,140,464	-	-	8,505	344
Hanwha General Chemical AU Pty Ltd	-	-	945	-	-
Hanwha Impact Partners INC (formerly, Hanwha General Chemical USA Corp.)	8,743	-	-	-	-
Hanwha Power Systems (Shanghai) Co.,LTD	94,993	-	-	31,254	-
Hanwha Power Systems Americas, Inc.	16,716	-	-	-	-
Hanwha Q CELLS Japan Co., Ltd.	24,936,161	-	1,009,960	7,157,961	1,880,434
Hanwha Solar Power USA Corp.	2,845	-	-	-	-
Hanwha Systems USA Corporation	26,283	-	-	-	-
Hanwha Techwin Automation Americas, Inc.	-	2,375,075	-	-	-
	₩ 80,158,620	20,458,131	145,214,957	420,347,005	191,043,334

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

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

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
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56. Related Parties, Continued

(3) Outstanding receivables and payables from transactions with related parties as of December 31, 2021 and December 2020 are as follows:

In thousands of won

	December 31, 2020				
	Receivables			Payables	
	Accounts receivable	Loans	Other receivables	Accounts payable	Other payables
Parent company:					
Hanwha Corporation	₩ 7,715,754	-	2,971,683	6,682,204	24,228,034
Associates:					
HANWHA Eagles Professional Baseball Club	-	-	209,178	-	-
Eagles Energy Co.,Ltd	-	-	53,000	-	-
Hanwha Station Development Co., Ltd.	38,630	-	1,120,000	-	46,183
Hanwha Impact Corporation(formerly, Hanwha General Chemical Co., Ltd.)	1,301,730	-	1,100,826	2,090,269	123,752
HANWHA INVESTMENT AND SECURITIES CO., LTD.	60,258	-	18	-	18
Hanwha Hotels and Resort Co., Ltd.	291,494	-	32,736,632	46,812	449,324
Crystal Solar Inc.(*1)	-	1,866,931	319,293	-	-
International Polymers Company	-	-	1,691,869	29,202,595	-
Luxbon Solar S.A.	-	-	3,172,464	-	-
Joint ventures:					
YEOCHUN NCC Co., Ltd.	3,502,533	-	286,530	165,678,829	10,140,428
Gulf Advanced Cables Insulation Company(*2)	-	15,941,122	630,300	-	-
JV Cooke Solar, LLC	33,434,978	-	-	-	-
Kellam Tax Equity Partnership, LLC	74,839,127	-	-	-	-
Conglomerate:					
101 Global Co., Ltd.	-	-	-	-	3,932
SIT CO.,LTD	1,800	-	-	-	-
Hanwha Financial Asset Co.Ltd	74	-	-	-	-
Hanwha Engineering & Construction Corporation	50,849	-	2,216	125,387	8,084,276
Hanwha Estate Co., Ltd.	4,628	-	-	-	2,519,967
HANWHA 63 CITY CORPORATION	36,111	-	-	-	223
Eco E&O corporation	156	-	-	-	-
Foodist Food Culture(Shanghai) Co., Ltd.	-	-	-	-	36,286
Hanwha Defense	1,054,709	-	5,177	-	-
HANWHA LIFE LAB Co., Ltd. (formerly, Hanwha Life Asset Co., Ltd.)	705	-	-	-	-
Hanwha LIFE INSURANCE CO., LTD.	44,674	-	101,049,733	-	118,737
Hanwha General Insurance Co., Ltd.	159,264	-	261,524	75	32,981
HANWHA SYSTEMS Co., Ltd.	1,187,371	-	-	658,649	5,780,875
Hanwha Energy Corporation	54,319	-	11,302	17,144,595	102,306
HANWHA AEROSPACE CO., LTD	240,343	-	12,572	-	-
Hanwha Asset Management Co., Ltd.	991	-	-	-	-
Hanwha Precision Machinery Co., Ltd.	21,166	-	-	3,098,410	42,350
HANWHA TECHWIN CO., LTD.	47,688	-	-	-	-
HANWHA TOTAL PETROCHEMICAL Co., Ltd.	2,043,686	-	-	9,329,561	366
Hanwha Power System Co. Ltd.	27,720	-	-	163,680	86,803
HANWHA AERO ENGINES.,LTD	430,770	-	-	-	422,938
Hanwha Energy USA Holdings Corporation	5,737,252	-	1,900	-	-
Hanwha Europe GmbH	10,280,132	-	-	-	1,729
Hanwha General Chemical AU Pty Ltd	-	-	920	-	-
Hanwha Impact Partners INC (formerly, Hanwha General Chemical USA Corp.)	11,882	-	-	-	-
HANWHA MINING SERVICE USA INC.	3,264	-	-	-	-
Hanwha Power Systems (Shanghai) Co.,LTD	-	-	-	28,016	-
Hanwha Q CELLS Japan Co., Ltd.	22,015,290	-	31,573	9,485,733	418,324
HANWHA TECHWIN AMERICA, INC.	4,896	-	-	-	-
Hanwha Techwin Automation Americas, Inc.	1,469	2,187,592	-	13,883	-

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
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For the years ended December, 2021 and 2020

56. Related Parties, Continued

(3) Outstanding receivables and payables from transactions with related parties as of December 31, 2021 and December 2020 are as follows, continued:

In thousands of won

	December 31, 2020				
	Receivables			Payables	
	Accounts receivable	Loans	Other receivables	Accounts payable	Other payables
Conglomerate:					
HQC Tatanka Wi Solar Power Generation Station, LLC	₩ 1,280,768	-	-	-	-
NHS Agri-Service Pty Ltd	-	-	736	-	-
NHS Holdings Pty Ltd	-	-	184	-	-
	₩ 165,926,481	19,995,645	145,669,630	243,748,698	52,639,832

(*1) The Group recognized allowance for doubtful accounts for loans and others of Crystal Solar Inc as of December 31, 2020.

(*2) The Group recognized allowance for doubtful accounts for loans and others of Gulf Advanced Cables Insulation Company as of December 31, 2020.

(4) Loan transactions with related parties for the years ended December 31, 2021 and 2020 are as follows:

In thousands of won

	Company	2021					Balance at 31 December 2021
		Balance at 1 January 2021	Business combination	Increase	Decrease	Others(*)	
Associate:	Crystal Solar Inc.	₩ 1,866,931	-	-	-	-	1,866,931
Joint venture:	Gulf Advanced Cables Insulation Company	15,941,122	-	-	-	275,003	16,216,125
Conglomerate:	Hanwha Techwin Automation Americas, Inc.	2,187,592	-	-	-	187,483	2,375,075
		₩ 19,995,645	-	-	-	462,486	20,458,131

(*) Includes the accrued interest income on loans.

In thousands of won

	Company	2020					Balance at 31 December 2021
		Balance at 1 January 2021	Business combination	Increase	Decrease	Others(*)	
Associate:	Alterpower Digos Solar, Inc.	₩ 16,080,592	5,529,820	5,529,820	(19,305,414)	(2,304,998)	-
	Crystal Solar Inc.	1,866,931	-	-	-	-	1,866,931
	Luxbon Solar S.A.	12,199,397	-	-	(8,216,520)	(3,982,877)	-
	Saudi Specialized Products Company	14,424,381	-	-	(14,059,603)	(364,778)	-
Joint venture:	Gulf Advanced Cables Insulation Company	16,624,074	-	-	-	(682,952)	15,941,122
Conglomerate:	Hanwha Techwin Automation Americas, Inc.	2,323,431	-	-	-	(135,839)	2,187,592
		₩ 63,518,806	5,529,820	5,529,820	(41,581,537)	(7,471,444)	19,995,645

(*) Includes the accrued interest income on loans.

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
Notes to the Consolidated Financial Statements
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56. Related Parties, Continued

(5) Equity transactions with the Group's related parties for the years ended December 31, 2021 and 2020, are as follows:

<i>In thousands of won</i>		2021		
		Transaction	Company	Amount
Joint venture:	Capital increase	Gulf Advanced Cables Insulation Company	₩	9,334,557
		Kellam Tax Equity Partnership, LLC		53,294,825
		CONIGLIO TAX EQUITY PARTNERSHIP, LLC		116,781,711
Associate:	Capital increase	Hanwha Hotels and Resort Co., Ltd.		28,778,900
	Share acquisitions	Hanwha Hotels and Resort Co., Ltd.		29,699,570
Conglomerate:	Share sales	Hanwha Asset Management Co., Ltd.		214,617,234
	Share acquisitions	Hanwha Engineering & Construction Corporation		70,082,460
		HANWHA TechM CO.,LTD		17,734,000
<i>In thousands of won</i>		2020		
		Transaction	Company	Amount
Associate:	Share sales	Alterpower Specialist, Inc.	₩	81,927
		Renew Akshay Urja Privated Limited		24,082,617
		Saudi Specialized Products Company		1,272
		Alterpower Digos Solar, Inc.		1,558,903
	Capital increase	Saudi Specialized Products Company		4,956,734

(6) Payment guarantees provided for related parties as of December 31, 2021 are as follows:

<i>In USD</i>		Payment guarantee		Use of payment guarantee
		Guarantee	Currency	
International Polymers Company	USD	5,600,000	5,600,000	Borrowings from financial institutions
Burdur Enerji A.S.	USD	9,296,000	5,066,506	Borrowings from financial institutions
	USD	14,896,000	10,666,506	

(7) Collaterals provided for related parties as of December 31, 2021, are as follows:

Related party	Collaterals	Collateral amount	Borrower
Eagles Energy Co.,Ltd	Investments in associates	₩ 21,300,500	Consus New Energy Private Fund Special Asset Trust No.1

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
Notes to the Consolidated Financial Statements
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56. Related Parties, Continued

(8) Performance guarantees provided for related parties as of December 31, 2021 are as follows:

In USD, JPY, thousands of won

Company	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 EPC USA, LLC	Oberon Solar 1B, LLC	USD	7,593,219
Hanwha Q CELLS USA Corp.	CONIGLIO TAX EQUITY PARTNERSHIP, LLC (*)	USD	68,973,431
Hanwha Station Development Co., Ltd.	Korea National Railway	KRW	3,202,968
		USD	210,093,168
		JPY	7,148,708,708
		KRW	3,202,968

(*) Due to the nature of simultaneous guarantees for projects such as the performance guarantee, the Group provides a payment guarantee for BT Coniglio Solar LLC's payment of the difference in electricity price with a limit of USD 65 million. The sum of the two guarantee limits does not exceed USD 72 million.

(9) Details of compensation for key executives for the years ended December 31, 2021 and 2020, are as follows:

In thousands of won

		2021	2020
Short-term employee benefits(*)	₩	65,225,086	57,856,868
Retirement benefits		8,873,637	6,892,989
Other long-term employee benefits		25,605	18,474
	₩	74,124,328	64,768,331

(*) Share-based Payments of ₩22,206 million and ₩24,315 million for the years ended December 31, 2021 and 2020, respectively, are included in short-term employee benefits.

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
Notes to the Consolidated Financial Statements
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56. Related Parties, Continued

(10) Changes in lease liabilities about related parties, including conglomerates for years ended December 31, 2021 and 2020 are as follows:

In thousands of won

		2021		
Company		Balance at 1 January 2021	Variation	Balance at 31 December 2021
Parent company:	Hanwha Corporation	₩ 18,443,320	(2,018,767)	16,424,553
Associates/Joint ventures:	Hanwha Station Development Co., Ltd.	207,868	4,471	212,339
Conglomerate:	Hanwha LIFE INSURANCE CO., LTD.	109,420,622	(64,165,874)	45,254,748
	Hanwha General Insurance Co., Ltd.	380,230	(47,158)	333,072
	Hanwha Energy Corporation	38,263	(37,528)	735
		₩ 128,490,303	(66,264,856)	62,225,447

In thousands of won

		2020		
Company		Balance at 1 January 2021	Variation	Balance at 31 December 2021
Parent company:	Hanwha Corporation	₩ 12,629,862	5,813,458	18,443,320
Associates/Joint ventures:	Hanwha Station Development Co., Ltd.	2,329,517	(2,121,649)	207,868
Conglomerate:	Hanwha LIFE INSURANCE CO., LTD.	81,591,209	27,829,413	109,420,622
	Hanwha General Insurance Co., Ltd.	438,565	(58,335)	380,230
	Hanwha Energy Corporation	-	38,263	38,263
	HANWHA TOTAL ETROCHEMICAL Co., Ltd.	2,680	(2,680)	-
	Hanwha Engineering & Construction Corporation	96,366	(96,366)	-
		₩ 97,088,199	31,402,104	128,490,303

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
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For the years ended December, 2021 and 2020

57. Cash Flows

(1) Cash flows generated from operating activities for the years ended December 31, 2021 and 2020 are as follows:

In thousands of won

	<u>2021</u>	<u>2020</u>
Income before income tax expense	₩ 855,338,283	398,407,651
Adjustments:	700,731,723	872,341,619
Retirement benefits(*)	86,056,174	66,043,573
Other long-term employee benefits	3,376,162	5,771,013
Depreciation of investment property	2,150,449	2,368,498
Depreciation of property, plant and equipment	560,577,655	517,306,668
Amortization	31,205,645	30,390,019
Depreciation of right-of-use assets	54,768,575	45,276,283
Bad debt expenses	13,676,911	3,350,232
Rental expenses	111,041	271,841
Transfer of provisions	13,940,655	17,776,292
Gain on valuation of derivatives	(98,517,657)	(18,329,923)
Gain on foreign currency translation	(131,925,469)	(216,226,755)
Gain on disposal of trade receivables	(42,500)	-
Gain on disposal of investment in associates	(10,804,435)	(8,871,894)
Gain on valuation of FVTPL – financial assets	(3,705,862)	(58,296)
Gain on disposal of FVTPL – financial assets	(587,002)	(61,832)
Gain on disposal of investment property	(3,987)	(2,698,837)
Reversal of impairment loss of investment property	(12,818)	-
Gain on disposal of property, plant and equipment	(23,364,859)	(4,676,675)
Gain on disposal of intangible assets	-	(1,128,895)
Gain on disposal of non-current assets held for sale	(206,211,666)	(54,201,706)
Reversal of impairment loss of property, plant and equipment	-	(1,500,229)
Reversal of impairment losses of intangible assets	-	(672,857)
Gain on disposal of right-of-use assets	(92)	-
Reversal of impairment losses of right-of-use assets	(9,313,123)	-
Reversal of other bad debt expense	-	(3,484,522)
Loss on foreign currency translation	220,886,382	163,192,743
Loss on disposal of trade receivables	559,649	569,120
Loss on disposal of FVTOCI—financial asset	123,756	18,058
Loss on disposal of investment in associates and joint ventures	57,924,531	29,997,790
Impairment loss of investment in associates and joint ventures	9,333,452	-
Loss on valuation of FVTPL – financial assets	90,945	520,079
Loss on valuation of derivatives	4,166,071	80,664,031
Loss on disposal of investment property	-	37,671
Loss on disposal of property, plant and equipment	14,824,347	30,593,267
Loss on disposal of intangible assets	1,508,915	4,961,099
Impairment loss of property, plant and equipment	149,698,097	59,961,614
Impairment loss of intangible assets	9,829,303	338,780
Impairment loss of right-of-use assets	8,262,892	7,033,070
Impairment loss of non-current assets held for sale	-	689,561
Other bad debt expense	1,010,698	21,471,387
Loss on inventory abandoned	2,992,036	3,834,106
Loss on valuation of inventories	46,141,562	28,172,511
Interest income	(18,506,377)	(24,595,323)

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57. Cash Flows

(1) Cash flows generated from operating activities for the years ended December 31, 2021 and 2020 are as follows:

<i>In thousands of won</i>	<u>2021</u>	<u>2020</u>
Income before income tax expense	₩ 855,338,283	398,407,651
Adjustments:	700,731,723	872,341,619
Dividends income	(1,795,245)	(879,802)
Interest income (finance business)	(16,233,623)	-
Interest expense	147,547,828	206,213,219
Interest expense (finance business)	5,571,110	-
Gain(loss) on equity method investments	(262,895,885)	(160,157,880)
Others	39,916,810	43,064,520
Gain on valuation of non-controlling interests's liabilities	(1,599,328)	-
Changes in operating assets and liabilities:	(191,216,246)	(129,088,179)
Trade receivables	(21,125,799)	111,043,046
Other receivables	(36,366,789)	71,274,905
Inventories	(691,583,516)	(26,229,200)
FVTOCI – financial assets	19	-
Other financial assets	(31,944,211)	15,503,379
Other current assets	34,216,779	57,443,387
Other non-current assets	(13,322,026)	(482,718)
Trade payables	506,564,107	11,806,997
Other payables	47,652,264	22,163,642
Other financial liabilities	12,980,730	(14,040,472)
Other current liabilities	(23,275,528)	(306,654,547)
Other non-current liabilities	(24,313,551)	(884,613)
Payment of severance indemnities	(42,295,400)	(34,715,665)
Plan assets	(12,509,365)	5,734,887
Payment of other long-term employee benefits	(4,080,910)	(3,607,091)
Provision	(17,092,870)	(22,789,702)
Financial guarantee liabilities	1,314,955	-
Payment of derivatives	22,830,494	(14,654,414)
Other Deposits	101,134,371	-
Cash generated from operations	₩ <u>1,364,853,760</u>	<u>1,141,661,091</u>

(*) Excludes ₩952 million (2020: ₩629 million) transferred to construction in progress from ₩87,008 million (2020: ₩66,673 million) for the years ended December 31, 2021.

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57. Cash Flows, Continued

(2) Significant transactions not affecting cash flows for the years ended December 31, 2021 and 2020 are as follows:

<i>In thousands of won</i>		<u>2021</u>	<u>2020</u>
Transfer to the related assets from construction in progress	₩	730,943,494	1,086,966,428
Transfer to stored goods from machinery in transit		5,350,985	7,701,610
Changes in advance payments due to acquisition of property, plant and equipment		17,766,904	16,353,413
Reclassification of current portion of debentures and borrowings		2,611,134,177	2,971,925,505
Transfer to intangible assets from property, plant and equipment		10,918,508	5,062,025

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

<i>In thousands of won</i>	<u>2021</u>		<u>2020</u>	
	<u>Borrowings and Debentures</u>	<u>Dividend payable</u>	<u>Borrowings and Debentures</u>	<u>Dividend payable</u>
Balance at 1 January	₩ 5,688,573,526	-	6,368,573,228	-
Changes in scope of consolidation	3,817,560	-	-	-
Changes in cashflows from financing activities	(71,181,277)	-	(570,963,022)	(36,076,792)
Decrease in retained earnings	-	-	-	32,576,792
Decrease in non-controlling interests	-	-	-	3,500,000
Others(*)	253,616,884	-	(109,036,680)	-
Balance at 31 December	₩ <u>5,874,826,693</u>	<u>-</u>	<u>5,688,573,526</u>	<u>-</u>

(*) Includes effects due to exchange rate changes.

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58. Operating Segment Information

The Group has four strategic business units as reportable segments. Each strategic business unit operates to provide distinguished products and services. As required technical capabilities and marketing strategies are different for these business units, they are separately operated. The chief decision maker reviews internal reports for each strategic business unit on at least a quarterly basis.

Details of segment reporting are as follows:

- a. Raw materials: manufacturing and distribution of PE, PVC and CA
- b. Manufacturing: manufacturing and distribution of automotive parts
- c. Retail: department stores, wholesaling and retailing
- d. Photovoltaic: manufacturing and distribution of solar products, such as ingots and modules
- e. Others: manufacturing, distribution and leasing

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES
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58. Operating Segment Information, Continued

(1) Operating income by each reportable segment for the years ended December 31, 2021 and 2020 are as follows:

In thousands of won

	2021							Total
	Raw material	Manufacturing	Retail	Photovoltaic	Others	Subtotal	Consolidated adjustment	
Revenue:								
External revenue	₩ 5,364,014,673	938,922,614	514,740,700	3,568,492,538	339,021,860	10,725,192,385	-	10,725,192,385
Inter-segment revenue	398,282,467	83,483,488	33,713,853	3,135,287,735	13,060,967	3,663,828,510	(3,663,828,510)	-
	<u>₩ 5,762,297,140</u>	<u>1,022,406,102</u>	<u>548,454,553</u>	<u>6,703,780,273</u>	<u>352,082,827</u>	<u>14,389,020,895</u>	<u>(3,663,828,510)</u>	<u>10,725,192,385</u>
Operating profit (*1)	₩ 1,046,045,481	11,107,461	26,793,156	(426,504,339)	(13,947,799)	643,493,960	94,853,695	738,347,655
Share of profit of associates and joint ventures								262,895,885
Other non-operating income and expenses								(20,258,380)
Financial income and expenses								(125,646,877)
Income before income tax expense:								855,338,283
Depreciation and amortization (*2)	217,244,632	55,017,228	69,496,043	300,758,113	10,867,784	653,383,800	(4,681,476)	648,702,324
Loss on valuation of inventories	7,125,082	5,249,432	1,083,135	55,431,838	991,005	69,880,492	(23,738,930)	46,141,562
Bad debt expenses	(279,881)	(344,698)	326,259	12,613,312	(154,193)	12,160,799	-	12,160,799
Capital expenditures (*3)	312,092,892	61,059,118	55,392,582	385,659,523	19,956,384	834,160,499	-	834,160,499

(*1) Total segment operating income is different from operating income in the consolidated statements of comprehensive income due to unrecognized income on inter-segment transactions, which were eliminated upon consolidation.

(*2) Total amount of depreciation of property, plant and equipment, investment property and right-of-use assets and amortization of intangible assets.

(*3) Capital expenditures consist of acquisition of property, plant and equipment, investment property and intangible assets.

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58. Operating Segment Information, Continued

(1) Operating income by each reportable segment for the years ended December 31, 2021 and 2020 are as follows, continued:

In thousands of won

	2020							
	Raw material	Manufacturing	Retail	Photovoltaic	Others	Subtotal	Consolidated adjustment	Total
Revenue:								
External revenue	₩ 3,326,474,423	751,898,352	452,652,165	3,702,289,424	961,693,764	9,195,008,128	-	9,195,008,128
Inter-segment revenue	283,777,402	95,808,314	33,447,542	2,835,734,662	26,683,834	3,275,451,754	(3,275,451,754)	
	<u>₩ 3,610,251,825</u>	<u>847,706,666</u>	<u>486,099,707</u>	<u>6,538,024,086</u>	<u>988,377,598</u>	<u>12,470,459,882</u>	<u>(3,275,451,754)</u>	<u>9,195,008,128</u>
Operating profit (*1)	₩ 379,438,068	(12,403,505)	2,816,325	172,218,611	26,953,582	569,023,081	25,160,037	594,183,118
Share of profit of associates and joint ventures								160,157,880
Other non-operating income and expenses								(122,983,507)
Financial income and expenses								(179,814,450)
Income before income tax expense:								451,543,041
Depreciation and amortization (*2)	189,805,467	45,440,254	54,715,584	279,004,156	26,848,860	595,814,321	-	595,814,321
Loss on valuation of inventories	4,627,723	6,615,135	1,870,258	13,203,353	1,856,042	28,172,511	-	28,172,511
Bad debt expenses	212,571	2,913,955	905,921	58,660	(563,351)	3,527,756	-	3,527,756
Capital expenditures (*3)	333,137,126	42,338,888	282,052,786	204,543,445	29,931,813	892,004,058	-	892,004,058

(*1) Total segment operating income is different from operating income in the consolidated statements of comprehensive income due to unrecognized income on inter-segment transactions, which were eliminated upon consolidation.

(*2) Total amount of depreciation of property, plant and equipment, investment property and right-of-use assets and amortization of intangible assets.

(*3) Capital expenditures consist of acquisition of property, plant and equipment, investment property and intangible assets.

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58. Operating Segment Information, Continued

(2) Operating segment information as of December 31, 2021 and December 31, 2020 are as follows:

In thousands of won

	December 31, 2021							
	Raw material	Manufacturing	Retail	Photovoltaic	Others (*)	Subtotal	Consolidated adjustment	Total
Segment assets:								
Current assets	₩ 1,643,784,745	542,437,343	342,650,246	4,078,224,500	1,128,218,852	7,735,315,686	(1,661,355,755)	6,073,959,931
Investment in associates and joint ventures	513,780,409	1,195,867,939	173,965,220	6,961,938,886	2,691,121,255	11,536,673,709	(8,098,270,696)	3,438,403,013
Other non-current assets	2,915,087,122	643,745,608	1,469,310,244	3,883,144,885	312,498,934	9,223,786,793	(138,619,973)	9,085,166,820
Finance business assets	-	-	-	-	1,410,042,430	1,410,042,430	-	1,410,042,430
	<u>₩ 5,072,652,276</u>	<u>2,382,050,890</u>	<u>1,985,925,710</u>	<u>14,923,308,271</u>	<u>5,541,881,471</u>	<u>29,905,818,618</u>	<u>(9,898,246,424)</u>	<u>20,007,572,194</u>
Segment liabilities:								
Current liabilities	₩ 1,235,927,136	475,884,326	582,977,783	3,506,925,586	1,756,925,807	7,558,640,638	(1,770,750,936)	5,787,889,702
Non-current liabilities	405,021,530	149,358,930	444,592,211	1,084,910,251	2,900,682,266	4,984,565,188	(210,087,241)	4,774,477,947
Finance business liabilities	-	-	-	-	1,243,957,426	1,243,957,426	-	1,243,957,426
	<u>₩ 1,640,948,666</u>	<u>625,243,256</u>	<u>1,027,569,994</u>	<u>4,591,835,837</u>	<u>5,901,565,499</u>	<u>13,787,163,252</u>	<u>(1,980,838,177)</u>	<u>11,806,325,075</u>

(*) Cash and borrowings of HANWHA SOLUTIONS CORPORATION are classified as 'Others' as classification by business segment is limited.

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58. Operating Segment Information, Continued

(2) Operating segment information as of December 31, 2021 and December 31, 2020 are as follows, continued:

In thousands of won

	December 31, 2020							
	Raw material	Manufacturing	Retail	Photovoltaic	Others (*)	Subtotal	Consolidated adjustment	Total
Segment assets:								
Current assets	₩ 973,169,046	371,516,198	659,245,742	3,267,664,546	817,429,736	6,089,025,268	(1,130,660,502)	4,958,364,766
Investment in associates and joint ventures	516,584,070	521,378,300	178,620,467	4,423,576,595	2,424,071,418	8,064,230,850	(5,379,067,302)	2,685,163,548
Other non-current assets	<u>2,744,037,809</u>	<u>600,382,587</u>	<u>1,407,333,716</u>	<u>2,628,737,392</u>	<u>351,025,002</u>	<u>7,731,516,506</u>	<u>(237,724,998)</u>	<u>7,493,791,508</u>
	<u>₩ 4,233,790,925</u>	<u>1,493,277,085</u>	<u>2,245,199,925</u>	<u>10,319,978,533</u>	<u>3,592,526,156</u>	<u>21,884,772,624</u>	<u>(6,747,452,802)</u>	<u>15,137,319,822</u>
Segment liabilities:								
Current liabilities	₩ 674,284,173	376,058,041	1,047,193,709	2,646,450,641	1,620,130,104	6,364,116,668	(1,112,991,081)	5,251,125,587
Non-current liabilities	<u>434,967,517</u>	<u>115,021,351</u>	<u>478,934,819</u>	<u>928,584,931</u>	<u>2,028,078,252</u>	<u>3,985,586,870</u>	<u>(67,108,126)</u>	<u>3,918,478,744</u>
	<u>₩ 1,109,251,690</u>	<u>491,079,392</u>	<u>1,526,128,528</u>	<u>3,575,035,572</u>	<u>3,648,208,356</u>	<u>10,349,703,538</u>	<u>(1,180,099,207)</u>	<u>9,169,604,331</u>

(*) Cash and borrowings of HANWHA SOLUTIONS CORPORATION are classified as 'Others' as classification by business segment is limited.

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58. Operating Segment Information, Continued

(3) Details of the consolidation adjustment for assets and liabilities in each sector as of December 31, 2021 and December 31, 2020 are as follows:

<i>In thousands of won</i>	<u>December 31, 2021</u>	<u>December 31, 2020</u>
Consolidated assets		
Segment assets		
Subtotal of assets	₩ 24,363,937,147	18,292,246,468
Other segment assets	5,541,881,471	3,592,526,156
Consolidated adjustment		
Investment capital offset	(8,098,270,696)	(5,379,067,302)
Internal transaction offset	(2,071,477,369)	(1,181,488,806)
Others	271,501,641	(186,896,694)
	<u>₩ 20,007,572,194</u>	<u>15,137,319,822</u>
Consolidated liabilities		
Segment liabilities		
Subtotal of liabilities	₩ 7,885,597,753	6,701,495,182
Other segment liabilities	5,901,565,499	3,648,208,356
Consolidated adjustment		
Internal transaction offset	(2,071,881,454)	(1,311,325,379)
Deferred tax liabilities	146,158,655	125,304,773
Others	(55,115,378)	5,921,399
	<u>₩ 11,806,325,075</u>	<u>9,169,604,331</u>

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58. Operating Segment Information, Continued

(4) Details of the Group's sales revenues by region for the years ended December 31, 2021 and 2020, and non-current assets by region as of December 31, 2021 and December 31, 2020, are as follows:

i) Sales revenues by region

<i>In thousands of won</i>		<u>2021</u>	<u>2020</u>
Domestic	₩	6,048,850,430	4,761,373,867
Oversea			
China		2,291,818,011	2,138,093,272
Germany		952,702,352	872,905,606
Others		1,431,821,592	1,422,635,383
		<u>4,676,341,955</u>	<u>4,433,634,261</u>
	₩	<u>10,725,192,385</u>	<u>9,195,008,128</u>

ii) Non-current assets by region

<i>In thousands of won</i>		<u>December 31, 2021</u>	<u>December 31, 2020</u>
Domestic	₩	9,639,650,078	8,021,616,401
Oversea			
China		747,763,535	803,081,135
Germany		215,332,884	212,767,049
Others		1,497,283,573	946,222,493
		<u>2,460,379,992</u>	<u>1,962,070,677</u>
	₩	<u>12,100,030,070</u>	<u>9,983,687,078</u>

(*) Financial assets and deferred income tax assets are excluded from these amounts.

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59. Revenue

The Group recognized sales revenue of each operating segment by transferring goods and services over time or at a point in time. The classification of revenue for each segment is consistent with operating segment information under K-IFRS 1108 (see Note 58.(1)).

<i>In thousands of won</i>	2021	2020
Revenue recognized at a point in time		
Raw materials	₩ 5,360,543,661	3,322,179,062
Manufacturing	933,044,341	751,722,660
Retail	505,870,048	452,652,165
Photovoltaic	3,422,456,482	3,499,446,434
Others	339,021,860	961,150,971
	<u>10,560,936,392</u>	<u>8,987,151,292</u>
Revenue recognized over time		
Raw materials	3,471,012	4,295,361
Manufacturing	5,878,273	175,692
Retail	8,870,652	-
Photovoltaic	146,036,056	202,842,990
Others	-	542,793
	<u>164,255,993</u>	<u>207,856,836</u>
	<u><u>10,725,192,385</u></u>	<u><u>9,195,008,128</u></u>

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60. Business Combination

(1) RES Mediterranee business acquisition

1) Generals of business combination

On October 28, 2021, the Group acquired a 100% share in RES Mediterranee located in France for the purpose of expanding the European renewable energy development business, and acquired the investee company and its 126 subsidiaries.

2) Fair value of the consideration transferred for business acquisition as of business acquisition date is as follows:

<i>In thousands of won</i>	<u>Amount</u>
Cash and cash equivalents	₩ 987,750,717

3) Fair value of acquired assets and liabilities for business acquisition as of business acquisition date are as follows:

<i>In thousands of won</i>	<u>Amount</u>
Fair value of identifiable assets	
Current assets:	
Cash and cash equivalents	₩ 18,089,156
Trade receivables and other receivables	17,391,800
Inventories	15,295,262
Other current assets	36,559,338
	<u>87,335,556</u>
Non-current assets:	
Property, plant and equipment	10,130,233
Intangible assets	222,612,053
Other non-current assets	12,067,051
	<u>244,809,337</u>
Fair value of identifiable liabilities	
Current liabilities:	
Trade payables and other payables	46,477,457
Borrowings	27,496,978
Provisions	3,129,118
Other current liabilities	7,374,189
	<u>84,477,742</u>
Non-current liabilities:	
Net defined benefit liabilities	328,433
Other non-current liabilities	61,676,687
	<u>62,005,120</u>
Fair value of identifiable net asset	₩ <u><u>185,662,031</u></u>

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60. Business Combination, Continued

(1) RES Mediterranee business acquisition, continued

4) Goodwill for business acquisition as of business acquisition date is as follows:

In thousands of won

		<u>Amount</u>
The consideration transferred	₩	987,750,717
Fair value of identifiable net asset		(185,662,031)
Amount of any non-controlling interests		<u>(76,958)</u>
Goodwill	₩	<u><u>802,011,728</u></u>

5) Cash outflows for business acquisition as of business acquisition date are as follows:

In thousands of won

		<u>Amount</u>
The consideration transferred in cash and cash equivalents	₩	987,750,717
Cash and cash equivalents of acquiree		<u>(18,089,156)</u>
	₩	<u><u>969,661,561</u></u>

(2) Acquisition of residual equity in Hanwha Savings Bank Co., Ltd.

1) Generals of business combination

On October 1, 2021, for the purpose of maximizing investment value, the Group acquired the residual equity in Hanwha Savings Bank, which was held by Hanwha Hotels and Resort Co., Ltd., Hanwha Engineering & Construction Corporation, and HANWHA TechM CO.,LTD. As a result, Hanwha Savings Bank Co., Ltd was transferred from equity method to subsidiary company that the consolidation is required.

2) Fair value of consideration transferred for acquisition of residual equity as of acquisition of residual equity date is as follows:

In thousands of won

		<u>Amount</u>
Cash and cash equivalents	₩	117,734,493
Fair value of the acquirer's previously held equity interest in the acquiree		<u>76,770,213</u>
	₩	<u><u>194,504,706</u></u>

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60. Business Combination, Continued

(2) Acquisition of residual equity in Hanwha Savings Bank Co., Ltd.

3) Fair value of acquired assets and liabilities as of acquisition of residual equity date are as follows:

In thousands of won

	<u>Amount</u>
Fair value of identifiable assets	
Finance business assets	
Cash and cash equivalents	₩ 33,647,739
Financial assets at amortized cost	1,059,081,393
Property, plant and equipment	3,730,372
Intangible assets	1,536,332
Other assets	203,976,957
	<u>1,301,972,793</u>
Fair value of identifiable liabilities	
Finance business liabilities:	
Deposits	1,123,014,342
Provisions	106,495
Net defined benefit liabilities	1,167,357
Other liabilities	14,526,994
	<u>1,138,815,188</u>
Fair value of identifiable net asset	<u>₩ 163,157,605</u>

4) Goodwill for acquisition of residual equity as acquisition of residual equity date is as follows:

In thousands of won

	<u>Amount</u>
The consideration transferred	₩ 194,504,706
Fair value of identifiable net asset	(163,157,605)
Adjustment of capital surplus based on equity transaction under common control	(12,193,854)
	<u>19,153,247</u>
Goodwill	<u>₩ 19,153,247</u>

5) Cash outflows for acquisition of residual equity as of acquisition of residual equity date are as follows:

In thousands of won

	<u>Amount</u>
The consideration transferred in cash and cash equivalents	₩ 117,734,493
Cash and cash equivalents of acquiree	(33,647,739)
	<u>₩ 84,086,754</u>

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61. Non-controlling interests

(1) Changes in accumulated non-controlling interests

Profit or loss allocated to non-controlling interests, net income attributable to non-controlling interests in equity and accumulated non-controlling interests of subsidiaries that are material to the Group for the years ended December 31, 2021 and 2020 are as follows:

In thousands of won

	Percentage of non-controlling interests	Balance at 1 January 2021	2021			Balance at 31 December 2021
			Net income allocated to noncontrolling interests	Dividends paid to non-controlling	Others	
Hanwha Holdings(USA), Inc.	20.00%	41,583,844	(2,646,460)	-	5,933,281	44,870,665

In thousands of won

	Percentage of non-controlling interests	Balance at 1 January 2021	2020			Balance at 31 December 2021
			Net income allocated to noncontrolling interests	Dividends paid to non-controlling	Others	
Hanwha Galleria Timeworld Co., Ltd.	0.01%	17,863,926	44,822	-	(17,908,600)	148
Hanwha Holdings(USA), Inc.	20.00%	52,426,717	(5,981,000)	-	(4,861,873)	41,583,844

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61. Non-controlling interests, Continued

(2) Summarized financial information of subsidiaries

Summarized financial information for each non-controlling interest that is material to the Group prior to the elimination of intercompany transactions is as follows:

1) Summarized consolidated statement of financial position as of December 31, 2021 and December 31, 2020 are as follows:

In thousands of won		December 31, 2021	
		Hanwha Holdings(USA), Inc.(*)	
Current assets	₩		347,963,979
Non-current assets			335,147,364
Current liabilities			335,055,188
Non-current liabilities			75,887,599
Equity			272,168,556

(*) Consolidated financial information of intermediate parent company Hanwha Holdings (USA), Inc. and its 14 subsidiaries.

In thousands of won		December 31, 2020	
		Hanwha Galleria Timeworld Co., Ltd.	Hanwha Holdings(USA), Inc.(*)
Current assets	₩	48,915,391	347,808,170
Non-current assets		293,560,696	297,681,248
Current liabilities		171,288,546	352,905,523
Non-current liabilities		36,908,535	38,380,775
Equity		134,279,006	254,203,120

(*) Consolidated financial information of intermediate parent company Hanwha Holdings (USA), Inc. and its 13 subsidiaries.

2) Summarized consolidated statement of comprehensive income for years ended December 31, 2021 and 2020 are as follows:

In thousands of won		2021	
		Hanwha Holdings(USA), Inc.(*)	
Revenue	₩		672,072,907
Net income for the year			(11,600,748)
Other comprehensive income (loss)			29,567,429
		₩	17,966,681

(*) Consolidated financial information of intermediate parent company Hanwha Holdings (USA), Inc. and its 14 subsidiaries.

In thousands of won		December 31, 2020	
		Hanwha Galleria Timeworld Co., Ltd.	Hanwha Holdings(USA), Inc.(*)
Revenue	₩	133,730,390	522,737,827
Net income for the year		7,035,573	(13,596,908)
Other comprehensive income (loss)		1,532,617	(23,638,652)
		₩	8,568,190
			(37,235,560)

(*) Consolidated financial information of intermediate parent company Hanwha Holdings (USA), Inc. and its 13 subsidiaries

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61. Non-controlling interests, Continued

(2) Summarized financial information of subsidiaries, continued

3) Summarized consolidated statements of cash flows for years ended December 31, 2021 and 2020 are as follows:

In thousands of won	2021	
		Hanwha Holdings(USA), Inc.(*)
Cash flows from operating activities	₩	(27,825,217)
Cash flows from investing activities		(2,192,416)
Cash flows from financing activities		(36,318,847)
Decrease in cash and cash equivalents		(66,336,480)
Balance at 1 January		123,213,049
Effects of foreign exchange rate		8,641,133
Balance at 31 December	₩	65,517,702

(*) Consolidated financial information of intermediate parent company Hanwha Holdings (USA), Inc. and its 14 subsidiaries.

In thousands of won	December 31, 2020	
	Hanwha Galleria Timeworld Co., Ltd.	Hanwha Holdings(USA), Inc.(*)
Cash flows from operating activities	₩ 14,488,120	53,111,919
Cash flows from investing activities	(17,575,383)	(30,202,441)
Cash flows from financing activities	(9,202,580)	47,612,491
Increase(decrease) in cash and cash equivalents	(12,289,843)	70,521,969
Balance at 1 January	40,661,344	61,949,305
Effects of foreign exchange rate	-	(9,258,225)
Balance at 31 December	₩ 28,371,501	123,213,049

(*) Consolidated financial information of intermediate parent company Hanwha Holdings (USA), Inc. and its 13 subsidiaries

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62. Discontinued Operation

(1) Decision to discontinue the Polysilicon Business Unit

The board of directors had decided to discontinue the Polysilicon Business Unit on February 20, 2020, expecting that it would be difficult to keep the cost competitiveness due to the decline in polysilicon price and unfavorable cost structures.

(2) Loss from discontinued operations for the year ended December 31, 2020 are as follows:

In thousands of won

		2020
Revenue	₩	3,599,880
Cost of Sale		(33,455,334)
Selling and administrative expenses		(583,241)
Other income (expenses)		(22,696,694)
Loss before income tax expense		(53,135,389)
Income tax benefit		15,283,503
		<hr/>
Loss from discontinued operations	₩	<u>(37,851,886)</u>

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

In thousands of won

		2020
Cash flows from operating activities	₩	(33,301,241)
Cash flows from investing activities		6,855,029
Cash flows from financing activities		26,443,523
		<hr/>
Net cash flows	₩	<u>(2,689)</u>

HANWHA SOLUTIONS CORPORATION AND SUBSIDIARIES

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63. Share-based payment

The Group granted 322,054 shares of Restrictive Stock Units (the "RSU") to executives above the vicepresident and below the executive director, and also granted the cash compensation linked with the share price. The Group recognized the compensation expenses of ₩22,206 million for the year ended December 31, 2021.

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 executives above vice president if they provide service for more than six months in the fiscal year in which it includes the grant date, while executives below executive 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.

64. Subsequent Events

(1) Acquisition of shares and investment securities of other corporations

The Group acquired REC Silicon ASA shares. (Acquisition amount: ₩190,081 million, acquisition date: January 17, 2022)

(2) Participation in share capital increase and acquisition/disposal of shares and investments of other corporations

The Group participated in the share capital increase of Hanwha EU ENERGY Solutions SE (Amount: ₩1,014,248 million, payment date: February 4, 2022), and the Group invested all of its RES Mediterranean shares in-kind in Hanwha EU ENERGY Solutions SE (a wholly owned subsidiary), and acquired 10,000,000 new shares issued by Hanwha EU ENERGY Solutions SE (Acquisition/disposition date: February 4, 2022).

(3) Decision to acquire/dispose of shares and investment of other corporations

The Group plans to invest all of its Hanwha Chemical (Ningbo) Co., Ltd. shares in-kind in HCC Holdings Co., Ltd. (a wholly owned subsidiary) (Expected acquisition/disposal date: March 31, 2022). The Group plans to dispose of 2,940,000 convertible preferred shares (49% ratio of shareholding) of HCC Holdings Co., Ltd., which will be held by the Group, to Heimdall Private Equity. (Expected disposal amount: ₩676,200 million, expected disposal date: March 31, 2022)

(4) Participation in share capital increase and acquisition of shares and investment of other corporations

The Group participated in the share capital increase of Hanwha Q CELLS Co., Ltd (hereinafter "HQCL"), a 100% overseas subsidiary. (Amount: ₩368,717 million, payment date: February 24, 2022).

(5) Investment in related parties

The Group participated in the share capital increase of Hanwha Global Asset Co., Ltd. (Investment amount: ₩72,324 million, investment date: February 24, 2022).

The Group plans to participate in the share capital increase of Hanwha NXMD Co., Ltd. (Expected investment amount: ₩105,800 million, expected investment date: March 28, 2022, July 25, 2022).

(6) Transfer of contractual status for related parties

The company has agreed to transfer some assets of communications module business contracted with SAMSUNG ELECTRO-MECHANICS CO.,LTD. and the status of the transferee as on the share transfer contract to Hanwha NXMD Co., Ltd. (transfer price: ₩7,070 million, transfer date: February 18, 2022).

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64. Subsequent Events, Continued

(7) Asset transferred/ operation transferred/ share acquired from related parties

The company plans to take over the site and building of Jirisan Mountain from Hanwha Hotels & Resorts CO., LTD. (planned transfer price: ~~₩~~10,424 million), and take over the Jade Palace golf course operation project and Jade Garden arboretum business (planned transfer price: ~~₩~~61,485 million).

In addition, from Hanwha Hotels & Resorts CO., LTD., (i) 50% interests in the Summit Apollo Eleven LLC, (ii) 100% of the partnership interest in HHR Development B LLC, (iii) 50% of specific investment interests and 24.95% of preferred investment interests of H Properties special purpose company, (iv) 25% of specific investment interest and 24.95% of preferred investment interests of Premium Hirafu Properties special purpose company are planned to acquire (estimated acquisition price: ~~₩~~31,634 million) (estimated transfer/estimated acquisition date: March 31, 2022)