

Hanwha Corporation

Separate Financial Statements

December 31, 2020 and 2019

Hanwha Corporation
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December 31, 2020 and 2019

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Independent Auditor's Report

(English Translation of a Report Originally Issued in Korean)

To the Board of Directors and Shareholders of
Hanwha Corporation

Opinion

We have audited the accompanying separate financial statements of Hanwha Corporation (the Company), which comprise the separate statements of financial position as at December 31, 2020 and 2019, and the separate statements of comprehensive income, separate statements of changes in equity and separate statements of cash flows for the years then ended, and notes to the separate financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying separate financial statements present fairly, in all material respects, the separate financial position of Hanwha Corporation as at December 31, 2020 and 2019, and its separate financial performance and its separate cash flows for the years then ended in accordance with International Financial Reporting Standards as adopted by the Republic of Korea (Korean IFRS).

We also have audited, in accordance with Korean Standards on Auditing, the Company's Internal Control over Financial Reporting as at December 31, 2020, based on Conceptual Framework for Designing and Operating Internal Control over Financial Reporting, and our report dated March 18, 2021 expressed an unqualified opinion.

Basis for Opinion

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

Emphasis of Matter

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

Key Audit Matters

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

Impairment Assessment on Investment in Hanwha Life Insurance Co., Ltd.

Why we determined this matter as a Key Audit Matter

The size of investment in Hanwha Life Insurance Co., Ltd. amounting to ₩ 913,983 million as at December 31, 2020 is significant and total market price of investment in Hanwha Life Insurance Co., Ltd. is less than the carrying amounts of net assets. Therefore, the Company determined that there are indications of impairment and conducted an impairment test in accordance with Korean IFRS 1036. The contract value assessment and adjusted net asset valuation included in the assessment of the 'value in use' of investment in Hanwha Life Insurance Co., Ltd. involve management's judgements about the future cash flows, actuarial assumptions and economic assumptions.

We decided to determine that the impairment assessment on investment in Hanwha Life Insurance Co., Ltd. as a Key Audit Matter, taking into account uncertainties in these judgements and estimates made by management and significant impact on the separate financial statements.

How our audit addressed the Key Audit Matter

We performed following audit procedures to address the Key Audit Matter.

- We evaluated the adequacy of valuation model used by management to estimate value-in-use.
- We understood and evaluated procedures and controls related to contract value assessment and adjusted net asset valuation performed by management.
- We compared Annualized Premium Equivalent (APE) and reserves used in the contract value assessment with the underlying data.
- We evaluated the reasonableness of the major assumptions used in the contract value assessment and adjusted net asset valuation.
- We compared the current year actual results with the prior year forecast to consider whether any forecasts included assumptions that, with hindsight, had been optimistic.
- We compared the discount rates that are independently calculated using an observable information with the discount rates applied by management.
- We evaluated the results of sensitivity analysis on the discount rates, payment rate of premium insurance, surrender and lapse rate and interest rate performed by management to assess the impact of changes in key assumptions on the impairment tests.
- We tested mathematical accuracy of calculation used in the valuation and evaluated appropriateness of value-in-use through sensitivity analysis.

Other Matter

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

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

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

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

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

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

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

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

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

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

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

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

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

The engagement partner on the audit resulting in this independent auditor's report is Youngseok Bae, Certified Public Accountant.

Seoul, Korea
March 18, 2021

<p>This report is effective as of March 18, 2021, the audit report date. Certain subsequent events or circumstances, which may occur between the audit report date and the time of reading this report, could have a material impact on the accompanying separate financial statements and notes thereto. Accordingly, the readers of the audit report should understand that there is a possibility that the above audit report may have to be revised to reflect the impact of such subsequent events or circumstances, if any.</p>

Hanwha Corporation
Separate Statements of Financial Position
December 31, 2020 and 2019

(in Korean won)	Notes	2020	2019
Assets			
Current assets			
Cash and cash equivalents	6,7,37,38,40	₩ 308,886,549,138	₩ 322,520,991,298
Trade and other receivables	7,8,36,40	365,228,114,045	582,099,344,137
Other financial assets	5,7,10,11,40	65,784,478,498	60,872,187,446
Other current assets	12,25	318,520,594,332	460,549,966,669
Inventories	13	571,708,055,560	764,008,204,421
		<u>1,630,127,791,573</u>	<u>2,190,050,693,971</u>
Non-current assets			
Trade and other receivables	7,8,36,40	39,397,693,641	18,850,513,845
Financial assets at fair value through profit or loss	7,9,40	17,098,223,368	16,663,391,126
Financial assets at fair value through other comprehensive income	7,9,40	58,859,360	78,859,360
Other financial assets	5,7,10,11,40	22,445,270,669	30,724,693,251
Investments in subsidiaries and associates	14	4,361,515,163,787	4,384,437,993,053
Investment property	15	16,407,165,309	23,211,630,226
Property, plant and equipment	16,37	1,177,475,217,432	1,151,086,408,390
Intangible assets	17	67,350,183,179	62,808,140,504
Right-of-use assets	18	30,464,921,319	51,044,369,317
Other non-current assets	12	454,752,445	2,338,352,693
		<u>5,732,667,450,509</u>	<u>5,741,244,351,765</u>
Total assets		<u>₩ 7,362,795,242,082</u>	<u>₩ 7,931,295,045,736</u>
Liabilities			
Current liabilities			
Trade and other payables	7,19,36,40	₩ 354,259,239,398	₩ 447,451,420,157
Borrowings and debentures	7,20,40	913,246,934,278	1,216,296,375,686
Other financial liabilities	7,11,18,21,40	71,381,945,391	120,723,367,633
Other current liabilities	22,25	722,330,581,400	1,082,677,191,590
Provisions	24	28,685,460,739	19,790,926,705
Current tax liabilities	34	31,215,048,000	18,844,028,165
		<u>2,121,119,209,206</u>	<u>2,905,783,309,936</u>
Non-current liabilities			
Trade and other payables	7,19,36,40	5,083,044,875	5,317,516,012
Borrowings and debentures	7,20,40	1,161,807,064,137	1,020,658,566,132
Other financial liabilities	7,11,18,21,40	43,092,489,100	40,652,576,364
Net defined benefit liabilities	23	313,427,841,480	311,638,905,000
Provisions	24	59,275,763,352	56,264,966,424
Deferred tax liabilities	34	166,526,175,613	167,030,920,907
		<u>1,749,212,378,557</u>	<u>1,601,563,450,839</u>
Total liabilities		<u>3,870,331,587,763</u>	<u>4,507,346,760,775</u>
Equity			
Share capital	26	489,550,145,000	489,550,145,000
Capital surplus	26	587,331,431,602	583,642,691,204
Capital adjustments	27	(24,034,356,414)	(20,751,089,414)
Retained earnings	28	2,439,616,434,131	2,371,506,538,171
Total equity		<u>3,492,463,654,319</u>	<u>3,423,948,284,961</u>
Total liabilities and equity		<u>₩ 7,362,795,242,082</u>	<u>₩ 7,931,295,045,736</u>

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

Hanwha Corporation
Separate Statements of Comprehensive Income
Years Ended December 31, 2020 and 2019

<i>(in Korean won)</i>	Notes	2020		2019	
Revenue	4,25,29,36	₩	4,000,774,860,973	₩	4,433,163,050,685
Cost of sales	25,29,31		<u>3,510,979,721,113</u>		<u>3,936,392,567,822</u>
Gross profit			489,795,139,860		496,770,482,863
Selling and administrative expenses	30,31		<u>322,835,427,725</u>		<u>307,821,699,361</u>
Operating profit			166,959,712,135		188,948,783,502
Other income	7,32		377,358,335,598		154,899,211,567
Other expenses	7,32		348,687,861,200		189,417,556,376
Finance income	7,33		25,023,501,355		36,345,916,517
Finance costs	7,33		<u>60,699,792,359</u>		<u>72,164,844,385</u>
Profit before income tax			159,953,895,529		118,611,510,825
Income tax expense	34		<u>31,275,872,188</u>		<u>18,341,657,002</u>
Profit for the year		₩	<u>128,678,023,341</u>	₩	<u>100,269,853,823</u>
Other comprehensive income (loss)					
<i>Items that will not be reclassified to profit or loss</i>					
Remeasurements of net defined benefit liability			4,903,028,439		(7,181,373,176)
Gain on valuation of financial assets at fair value through other comprehensive income			<u>97,429,180</u>		<u>-</u>
Other comprehensive income (loss) for the year, net of tax			<u>5,000,457,619</u>		<u>(7,181,373,176)</u>
Total comprehensive income for the year		₩	<u>133,678,480,960</u>	₩	<u>93,088,480,647</u>
Earnings per share					
Basic earnings per ordinary share	35	₩	1,607	₩	1,199
Basic earnings per preferred share	35		1,657		1,249

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

Hanwha Corporation
Separate Statements of Changes in Equity
Years Ended December 31, 2020 and 2019

(in Korean won)

	Share capital	Capital surplus	Capital adjustments	Retained Earnings	Total
Balance at January 1, 2019	₩ 489,550,145,000	₩ 583,642,691,204	₩ (20,751,089,414)	₩ 2,340,503,482,524	₩ 3,392,945,229,314
Dividends paid	-	-	-	(62,085,425,000)	(62,085,425,000)
Profit for the year	-	-	-	100,269,853,823	100,269,853,823
Remeasurements of net defined benefit liability	-	-	-	(7,181,373,176)	(7,181,373,176)
Balance at December 31, 2019	<u>₩ 489,550,145,000</u>	<u>₩ 583,642,691,204</u>	<u>₩ (20,751,089,414)</u>	<u>₩ 2,371,506,538,171</u>	<u>₩ 3,423,948,284,961</u>
Balance at January 1, 2020	₩ 489,550,145,000	₩ 583,642,691,204	₩ (20,751,089,414)	₩ 2,371,506,538,171	₩ 3,423,948,284,961
Dividends paid	-	-	-	(65,568,585,000)	(65,568,585,000)
Profit for the year	-	-	-	128,678,023,341	128,678,023,341
Acquisition of treasury shares	-	-	(3,283,267,000)	-	(3,283,267,000)
Grant of share options	-	4,140,276,000	-	-	4,140,276,000
Remeasurements of net defined benefit liability	-	-	-	4,903,028,439	4,903,028,439
Gain on valuation of financial assets at fair value through other comprehensive income	-	-	-	97,429,180	97,429,180
Transfer of business	-	(451,535,602)	-	-	(451,535,602)
Balance at December 31, 2020	<u>₩ 489,550,145,000</u>	<u>₩ 587,331,431,602</u>	<u>₩ (24,034,356,414)</u>	<u>₩ 2,439,616,434,131</u>	<u>₩ 3,492,463,654,319</u>

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

Hanwha Corporation
Separate Statements of Cash Flows
Years Ended December 31, 2020 and 2019

<i>(in Korean won)</i>	Note	2020	2019
Cash flows from operating activities			
Cash generated from operations	38	₩ 375,274,498,435	₩ 228,722,826,810
Income taxes paid		<u>(19,659,492,149)</u>	<u>(29,311,797,599)</u>
Net cash inflow from operating activities		<u>355,615,006,286</u>	<u>199,411,029,211</u>
Cash flows from investing activities			
Decrease in short-term financial instruments		204,777,471,340	56,986,357,358
Increase in short-term financial instruments		(210,522,138,550)	(49,173,074,050)
Proceeds from disposal of financial assets at fair value through profit or loss		59,541,915	33,205,513
Acquisition of financial assets at fair value through profit or loss		-	(1,512,320,000)
Proceeds from disposal of financial assets at fair value through other comprehensive income		117,429,180	-
Proceeds from disposal of investments in subsidiaries and associates		48,291,106,465	45,128,521,163
Acquisition of investments in subsidiaries and associates		(19,452,179,509)	(47,050,452,665)
Decrease in long-term financial instruments		4,700,000,000	2,000,000,000
Increase in long-term financial instruments		(2,600,000,000)	(1,600,000,000)
Decrease in short-term loans		-	100,000,000
Increase in short-term loans		(512,880,193)	(2,899,944,113)
Decrease in long-term loans		2,261,556,359	1,497,766,277
Increase in long-term loans		(1,101,156,000)	(417,009,536)
Decrease in leasehold deposits		10,092,314,279	5,541,896,655
Increase in leasehold deposits		(4,151,093,494)	(2,958,874,449)
Increase in receipt of government grants		2,149,942,884	-
Proceeds from disposal of investment property		489,491,849	-
Proceeds from disposal of property, plant and equipment		16,445,969,527	3,351,554,869
Acquisition of property, plant and equipment		(120,111,316,392)	(145,577,115,488)
Proceeds from disposal of intangible assets		940,924,261	33,419,697
Acquisition of intangible assets		(13,635,382,987)	(9,257,280,505)
Transfer of business		-	(8,543,000,000)
Business acquisition		(4,865,631,141)	-
Business split-off		(13,191,432,666)	-
Interests received		5,318,255,458	5,214,521,113
Dividends received		18,522,919,360	30,591,771,542
Net cash outflow from investing activities		<u>(75,976,288,055)</u>	<u>(118,510,056,619)</u>
Cash flows from financing activities			
Increase in short-term borrowings		700,596,538,625	685,578,109,025
Repayment of short-term borrowings		(640,812,498,120)	(946,681,886,336)
Repayment of current portion of long-term borrowings		(459,592,967,000)	(150,466,607,200)
Increase in long-term borrowings		504,727,207,000	202,234,310,200
Issuance of debentures		278,929,685,995	448,356,882,682
Repayment of debentures		(524,734,000,000)	(200,000,000,000)
Increase in leasehold deposits received		1,617,748,765	2,097,633,953
Decrease in leasehold deposits received		(1,847,130,900)	(55,506,920)
Increase in receipt of government grants		701,409	75,434,889
Repayment of receipt of government grants		-	(32,693,319)
Decrease in lease liabilities		(21,112,900,436)	(22,238,032,839)
Interests paid		(62,193,693,728)	(70,475,729,401)
Dividends paid		(65,568,585,000)	(62,085,425,000)
Acquisition of treasury shares		(3,283,267,000)	-
Net cash outflow from financing activities		<u>(293,273,160,390)</u>	<u>(113,693,510,266)</u>
Net decrease in cash and cash equivalents		(13,634,442,159)	(32,792,537,674)
Cash and cash equivalents at the beginning of the financial year		<u>322,520,991,298</u>	<u>355,313,528,972</u>
Cash and cash equivalents at the end of the year in the separate statement of financial position		<u>₩ 308,886,549,139</u>	<u>₩ 322,520,991,298</u>

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

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Notes to the Separate Financial Statements

December 31, 2020 and 2019

1. General Information

Hanwha Corporation (the "Company") was established on October 28, 1952, and is engaged in the manufacturing and selling of explosives and trading business. The Company has manufacturing facilities in the cities of Yeosu, Daejeon, Boeun, Gumi, Changwon, Asan and several business offices.

On June 24, 1976, the Company listed its stock on the Korea Exchange. Through several times of capital increase, the share capital of the Company as at December 31, 2020, amounted to ₩ 489,550 million. As at December 31, 2020, the Company's major shareholders consist of the following:

	Ordinary share (Number of shares)	Preferred share (Number of shares)	Total (Number of shares)	Percentage of ownership (%)
Kim Seung-Youn	16,977,949	1,470,000	18,447,949	18.84
Kim Dong-Kwan	3,330,000	860,654	4,190,654	4.28
H-Solution	3,181,010	1,106,279	4,287,289	4.38
Cheonan Bukil Institute and others	5,099,088	32,160	5,131,248	5.24
Treasury share	6,060,012	-	6,060,012	6.19
Others	40,310,676	19,482,201	59,792,877	61.07
	<u>74,958,735</u>	<u>22,951,294</u>	<u>97,910,029</u>	<u>100.00</u>

2. Significant Accounting Policies

2.1 Basis of Preparation

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

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

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

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Notes to the Separate Financial Statements

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

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

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

2.2 New and amended standards adopted by the Company

The Company has applied the following standards and amendments for the first time for their annual reporting period commencing January 1, 2020.

- Amendments to Korean IFRS 1001 Presentation of Financial Statements and Korean IFRS 1008 Accounting Policies, Changes in Accounting Estimates and Errors – Definition of Material

The amendments clarify the definition of material. Information is material if omitting, misstating or obscuring it could reasonably be expected to influence the decisions that the primary users of general-purpose financial statements make on the basis of those financial statements. The amendments do not have a significant impact on the financial statements.

- Amendments to Korean IFRS 1103 Business Combination – Definition of a Business

The amended definition of a business requires an acquisition to include an input and a substantive process that together significantly contribute to the ability to create outputs and the definition of output excludes the returns in the form of lower costs and other economic benefits. 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, an entity may elect to apply an optional concentration test that permits a simplified assessment of whether an acquired set of activities and assets is not a business. The amendments do not have a significant impact on the financial statements.

- Amendments to Korean IFRS 1109 Financial Instruments, Korean IFRS 1039 Financial Instruments: Recognition and Measurement and Korean IFRS 1107 Financial Instruments: Disclosure – Interest Rate Benchmark Reform

The amendments allow to apply the exceptions in relation the application of hedge accounting while uncertainties arising from interest rate benchmark reform exist. The exceptions require the Company assumes that the interest rate benchmark on which the hedged items and the hedging instruments are based on is not altered as a result of interest rate benchmark reform, when

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determining whether the expected cash flows are highly probable, whether an economic relationship between the hedged item and the hedging instrument exists, and when assessing the hedging relationship is highly effective. The amendments do not have a significant impact on the financial statements.

2.3 New standards and interpretations not yet adopted by the Company

The following new accounting standards and interpretations have been published that are not mandatory for December 31, 2020 reporting periods and have not been early adopted by the Company.

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

As a practical expedient, a lessee may elect not to assess whether a rent concession occurring as a direct consequence of the COVID-19 pandemic is a lease modification, and a lessee that makes this election shall account for any change in lease payments resulting from the rent concession the same way it would account for the change applying this Standard if the change were not a lease modification. The amendments should be applied for annual periods beginning on or after June 1, 2020, and earlier application is permitted. The Company does not expect that these amendments have a significant impact on the financial statements.

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

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

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

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

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

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

- Annual improvements to Korean IFRS 2018-2020

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

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

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

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

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

In relation to interest rate benchmark reform, the amendments provide exceptions including adjust effective interest rate instead of book amounts when interest rate benchmark of financial instruments at amortized costs is replaced, and apply hedge accounting without discontinuance although the interest rate benchmark is replaced in hedging relationship. The amendments should be applied for annual periods beginning on or after January 1, 2021, and earlier application is permitted. The Company does not expect that these amendments have a significant impact on the financial statements.

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2.4 Business Combination of Entities Under a Common Control

The Company applies the book amount method to account for business combinations of entities under a common control. Identifiable assets acquired and liabilities assumed in a business combination are measured at their book amounts on the consolidated financial statements of the Company. In addition, the difference between the sum of consolidated book amounts of the assets and liabilities transferred and accumulated other comprehensive income; and the consideration paid is recognized as capital surplus.

2.5 Investments in Subsidiaries, Associates and Joint Ventures

An associate is an entity over which the Company has significant influence. Significant influence is the power to participate in the financial and operating policy decisions of the investee, but does not have control or joint control over those policies.

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

The financial statements of the Company are the separate financial statements prepared in accordance with Korean IFRS 1027 *Separate Financial Statements*. Investments in subsidiaries and associates are recognized at cost method. Moreover, dividend income from subsidiaries and associates is recognized as profit when the Company's right to receive dividend payments is established.

The requirements of Korean IFRS 1036 are applied to determine whether it is necessary to recognize any impairment loss with respect to the Company's investment in an associate or a joint venture. When necessary, the entire carrying amount of the investment (including goodwill) is tested for impairment in accordance with Korean IFRS 1036 as a single asset by comparing its recoverable amount (higher of value in use and fair value less costs of disposal) with its carrying amount. Any impairment loss recognized is not allocated to any asset, including goodwill that forms part of the carrying amount of the investment. Any reversal of that impairment loss is recognized in accordance with Korean IFRS 1036 to the extent that the recoverable amount of the investment subsequently increases.

2.6 Share-based Payment

The Company operates equity-settled and cash-settled share-based payment transactions as the consideration for employee services received. The share-based payment transactions are recognized at fair value of equity instruments granted, and employee benefit expense is recognized over the vesting period. Under cash-settled share-based payment plan, the Company measures liabilities for the consideration for employee services received at fair value at initial recognition. The Company is required to remeasure the fair value of the liability at the end of each reporting period, with any changes in value recognized in profit or loss for the year.

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2.7 Revenue Recognition

The Company has applied Korean IFRS 1115. According to Korean IFRS 1115, all types of contracts are recognized by applying a five-step revenue recognition model (① Contract Identification — ② Performance Obligations Identification — ③ Transaction Price Calculation — ④ Transaction Price Allocations to Performance Obligations — ⑤ Revenue Recognition When Satisfied with Performance Obligations).

(1) Identify performance obligations

1. Point in time

The Company recognizes revenue when the goods or services are transferred to the customer. In addition, the Company exports a variety of finished goods or merchandises by Incoterms Group C condition (CIF and others). Since the seller provides logistics service after passing the control to the customer, the Company identifies the relative logistics service (including insurance) as separate performance obligation.

2. Overtime

Under Korean IFRS 1115, if performance obligations satisfy one or more of the three condition of paragraph 35, performance obligations would be identified as over-time, otherwise as point in time. The time of revenue recognition can be changed if the Company's performance obligations satisfy the three condition of paragraph 35.

(2) Allocate transaction price

The Company allocates the transaction price to the separate performance obligations in one contract based on the relative stand-alone selling price of each separate performance obligation. For estimating stand-alone selling price of each performance obligation, the Company uses the method of 'Market price adjustment approach' and others.

(3) Variable transaction price

The price the customer promises due to the return right granted by the Company in accordance with the contract of sale of the goods with the customer may change. In accordance with Korean IFRS 1115, the variable cost is estimated using a method that expects to be able to better anticipate the consideration to be entitled to the right to receive the expected or probable price of the right to receive the right. It recognizes revenue by including the variable price in the transaction price only to the extent that it is highly unlikely that it will carry out a significant portion of the cumulative revenue amount that has already been recognized.

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2.8 Leases

(1) Lessee accounting

The Company leases various offices, warehouses and cars. Lease contracts are typically made for fixed periods of 1 to 10 years, but may have extension options as described in (2) below.

Contracts may contain both lease and non-lease components. However, the Company applies the practical expedient which has elected not to separate non-lease components from lease components, and instead account for each lease component and any associated non-lease components as a single lease component.

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

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

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

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

Lease liability measurement also includes payments to be made in option periods if the lessee is reasonably certain to exercise an option to extend the lease.

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

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To determine the incremental borrowing rate, the Company:

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

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

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

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

The right-of-use asset is depreciated over the shorter of the asset's useful life and the lease term on a straight-line basis. If the Company is reasonably certain to exercise a purchase option, the right-of-use asset is depreciated over the underlying asset's useful life.

Payments associated with short-term leases of equipment and vehicles and leases of low-value assets are recognized on a straight-line basis as an expense in profit or loss. Short-term leases are leases with a lease term of 12 months or less. Low-value assets comprise IT-equipment and small items of office furniture.

(2) Extension and termination options

Extension and termination options are included in a number of property and equipment leases. These terms are used to maximize operational flexibility in terms of managing contracts. The majority of extension and termination options held are exercisable only by the Company and not by the respective lessor.

2.9 Foreign Currency Translation

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

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Foreign currency transactions are translated into the functional currency using the exchange rates at the dates of the transactions. At the end of each reporting period, monetary items denominated in foreign currencies are retranslated at the rates prevailing at that date. Non-monetary items carried at fair value that are denominated in foreign currencies are retranslated at the rates prevailing at the date when the fair value was determined. Non-monetary items that are measured in terms of historical cost in a foreign currency are not retranslated.

2.10 Borrowing Costs

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

To the extent that variable-rate borrowings are used to finance a qualifying asset and are hedged in an effective cash flow hedge of interest rate risk, the effective portion of the derivative is recognized in other comprehensive income and reclassified to profit or loss when the qualifying asset impacts profit or loss. To the extent that fixed rate borrowings are used to finance a qualifying asset and are hedged in an effective fair value hedge of interest rate risk, the capitalized borrowing costs reflect the hedged interest rate.

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

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

2.11 Government Grants

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

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

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

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

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2.12 Employee Benefits and Termination Benefits

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

For defined benefit retirement benefit plans, the cost of providing benefits is determined using the projected unit credit method, with actuarial valuations being carried out at the end of each reporting period. Remeasurement, comprising the actuarial gains and losses, the effect of the changes to the asset ceiling (if applicable) and the return on plan assets (excluding interest), is reflected immediately in the separate statements of financial position with a charge or credit recognized in other comprehensive income in the period in which it occurs. Remeasurement recognized in other comprehensive income is reflected immediately in retained earnings and will not be reclassified to profit or loss. Past service costs are recognized in profit or loss on the earlier of (1) the date of the plan amendment or curtailment and (2) the date that the Company recognizes restructuring-related costs. The Company recognized gains and losses on the settlement of a defined benefit plan when the settlement occurs.

Net interest is calculated by applying the discount rate to the net defined benefit liability or asset. Defined benefit costs are composed of service cost (including current service cost, past service cost as well as gains and losses on curtailments and settlements), net interest expense (income) and remeasurement.

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

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

The Company provides long-term employee benefits that are entitled to employees with service period for ten years and above. The expected costs of these benefits are accrued over the period of employment using the same accounting methodology as used for defined benefit pension plans. The Company recognizes service cost, net interest on other long-term employee benefits and remeasurements as profit or loss for the year. These liabilities are valued annually by an independent qualified actuary.

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

2.13 Current and Deferred Tax

Income tax expense represents the sum of the current tax and deferred tax.

(1) *Current tax*

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The tax currently payable is based on taxable profit for the year. Taxable profit differs from profit reported in the separate statements of comprehensive income because of items of income or expense that are taxable or deductible in other years and items that are non taxable or deductible. The Company's liability for current tax is calculated using tax rates that have been enacted or substantively enacted by the end of the reporting period.

A provision is recognized for those matters for which the tax determination is uncertain, but it is considered probable that there will be a future outflow of funds to a tax authority. The provision is measured at the best estimate of the amount expected to become payable. The assessment is based on the judgement supported by previous experience in respect of such activities and in certain cases based on specialist independent tax advice.

(2) Deferred tax

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

Deferred tax liabilities are recognized for taxable temporary differences associated with investments in subsidiaries and associates, and interests in joint ventures, except where the Company is able to control the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future. Deferred tax assets arising from deductible temporary differences associated with such investments and interests are only recognized to the extent that it is probable that there will be sufficient taxable profits against which to utilize the benefits of the temporary differences and they are expected to reverse in the foreseeable future.

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

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

Deferred tax assets and liabilities are offset if, and only if, the Company has a legally enforceable right to set off current tax assets against current tax liabilities, and the deferred tax assets and liabilities relate to income taxes levied by the same taxation authority on either the same taxable

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entity or different taxable entities, which intend either to settle current tax liabilities and assets on a net basis, or to realize the assets and settle the liabilities simultaneously, in each future period in which significant amounts of deferred tax liabilities or assets are expected to be settled or recovered.

Deferred tax assets and liabilities originated from investment properties are measured under the assumption that the book amount of investment properties is to be retrieved by sales. Therefore, if there is no solid evidence to state otherwise, the measurement of deferred tax assets and liabilities reflect the tax effect from sale of investment properties. However, if the sole purpose of the investment properties is to earn economic value overtime through depreciation rather than selling, above assumption does not meet.

(3) Current and deferred taxes for the year

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

2.14 Property, Plant and Equipment

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

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

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

	Useful lives
Buildings	20 - 40 years
Structures	20 - 40
Machinery	4 - 15
Vehicles	5 - 12
Tools and equipment	5 - 6

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

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

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

2.15 Investment Property

Investment properties are properties held to earn rentals or for capital. Investment properties are measured initially at cost, including transaction costs. Subsequent to initial recognition, investment properties are reported at cost, less accumulated depreciation and accumulated impairment losses.

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

While land is not depreciated, all other investment property is depreciated based on the respective assets' estimated useful lives ranging from 20-40 years using the straight-line method.

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

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

2.16 Intangible Assets

(1) Intangible assets acquired separately

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

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useful lives that are acquired separately are carried at cost, less accumulated impairment losses.

	Useful lives
Industrial property right	7 – 10 years
Development costs	3 – 5
Others	5 – 30

(2) Internally generated intangible assets - research and development expenditure

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

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

The amount initially recognized for internally generated intangible assets is the sum of the expenditure incurred from the date when the intangible asset first meets the recognition criteria. Where no internally generated intangible asset can be recognized, development expenditure is recognized in profit or loss in the period in which it is incurred.

Subsequent to initial recognition, internally generated intangible assets are reported at cost, less accumulated amortization and accumulated impairment losses.

(3) Intangible assets acquired in a business combination

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

(4) Derecognition of intangible assets

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

(5) Patent and Trademark

Patent and trademark are initially recognized at cost and amortized using the straight-line method over the estimated useful lives.

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(6) Others

Certain intangible assets that have an indefinite useful life are not subject to amortization because there is no foreseeable limit to the period over which the assets are expected to be utilized.

2.17 Impairment of Tangible and Intangible Assets Other Than Goodwill

At the end of each reporting period, the Company reviews the carrying amounts of its tangible and intangible assets to determine whether there is any indication that those assets have suffered an impairment loss. If any such indication exists, the recoverable amount of the asset is estimated in order to determine the extent of the impairment loss (if any). When it is not possible to estimate the recoverable amount of an individual asset, the Company estimates the recoverable amount of the CGU to which the asset belongs. Where a reasonable and consistent basis of allocation can be identified, corporate assets are also allocated to individual CGUs; otherwise, they are allocated to the smallest group of CGUs for which a reasonable and consistent allocation basis can be identified.

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

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

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

2.18 Inventories

Inventories are stated at the lower of cost or net realizable value. Cost of inventories is measured using the specific identification method or the moving-weighted average method, and consists of the purchase price, cost of conversion and other costs incurred in bringing the inventories to their present location and condition. Net realizable value represents the estimated selling price for inventories, less all estimated costs of completion and costs necessary to make the sale.

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

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2.19 Provisions

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

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

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

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

2.20 Financial Assets

All regular way purchases or sales of financial assets are recognized and derecognized on a trade-date basis. Regular way purchases or sales are purchases or sales of financial assets that require delivery of assets within the time frame established by regulation or convention in the marketplace.

All recognized financial assets are measured subsequently in their entirety at either amortized cost or fair value depending on the classification of the financial assets.

(1) Classification of financial assets

Debt instruments that meet the following conditions are measured subsequently at amortized cost:

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

Debt instruments that meet the following conditions are measured subsequently at FVTOCI:

- The financial asset is held within a business model whose objective is achieved by both collecting contractual cash flows and selling the financial assets.

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- The contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

By default, all other financial assets are measured subsequently at FVTPL. Despite the foregoing, the Company may make the following irrevocable election or designation at initial recognition of a financial asset:

- The Company may irrevocably elect to present subsequent changes in fair value of an equity investment in other comprehensive income if certain criteria are met (see (1-3) below).

- The Company may irrevocably designate a debt investment that meets the amortized cost or FVTOCI criteria as measured at FVTPL if doing so eliminates or significantly reduces an accounting mismatch (see (1-4) below).

1-1) Amortized cost and effective interest method

The effective interest method is a method of calculating the amortized cost of a debt instrument and allocating interest income over the relevant period. For financial assets other than purchased or originated credit-impaired financial assets (i.e., assets that are credit impaired on initial recognition), the effective interest rate is the rate that exactly discounts estimated future cash receipts (including all fees and points paid or received that form an integral part of the effective interest rate, transaction costs and other premiums or discounts), excluding ECLs, through the expected life of the debt instrument, or, where appropriate, a shorter period, to the gross carrying amount of the debt instrument on initial recognition. For purchased or originated credit-impaired financial assets, a credit-adjusted effective interest rate is calculated by discounting the estimated future cash flows, including ECLs, to the amortized cost of the debt instrument on initial recognition.

The amortized cost of a financial asset is the amount at which the financial asset is measured at initial recognition, minus the principal repayments, plus the cumulative amortization using the effective interest method of any difference between that initial amount and the maturity amount, adjusted for any loss allowance. The gross carrying amount of a financial asset is the amortized cost of the financial asset before adjusting for any loss allowance.

Interest income is recognized using the effective interest method for debt instruments measured subsequently at amortized cost and at FVTOCI. For financial assets other than purchased or originated credit-impaired financial assets, interest income is calculated by applying the effective interest rate to the gross carrying amount of a financial asset, except for financial assets that have subsequently become credit impaired (see below). For financial assets that have subsequently become credit impaired, interest income is recognized by applying the effective interest rate to the amortized cost of the financial asset. If, in subsequent reporting periods, the credit risk on the credit impaired-financial instrument improves so that the financial asset is no longer credit impaired, interest income is recognized by applying the effective interest rate to the gross carrying amount of the financial asset.

For purchased or originated credit-impaired financial assets, the Company recognizes interest income by applying the credit-adjusted effective interest rate to the amortized cost of the financial

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asset from initial recognition. The calculation does not revert to the gross basis even if the credit risk of the financial asset subsequently improves so that the financial asset is no longer credit impaired.

Interest income is recognized in profit or loss and is included in the "interest income - interest income according to the effective interest rate method" line item (Note 33).

1-2) Debt instruments classified as at FVTOCI

Fair value is determined using the valuation techniques described in Note 40. The corporate bonds are initially measured at fair value plus transaction costs. Subsequently, changes in the carrying amount of these corporate bonds as a result of foreign exchange gains and losses, impairment gains or losses and interest income calculated using the effective interest method are recognized in profit or loss. The amounts that are recognized in profit or loss are the same as the amounts that would have been recognized in profit or loss if these corporate bonds had been measured at amortized cost. All other changes in the carrying amount of these corporate bonds are recognized in other comprehensive income and accumulated under the heading of investments revaluation reserve. When these corporate bonds are derecognized, the cumulative gains or losses previously recognized in other comprehensive income are reclassified to profit or loss.

1-3) Equity instruments designated as at FVTOCI

On initial recognition, the Company may make an irrevocable election (on an instrument-by-instrument basis) to designate investments in equity instruments as at FVTOCI. Designation at FVTOCI is not permitted if the equity investment is held for trading or if it is a contingent consideration recognized by an acquirer in a business combination.

A financial asset is held for trading if:

- it has been acquired principally for the purpose of selling in the near term;
- on initial recognition, it is part of a portfolio of identified financial instruments that the Company manages together and has evidence of a recent actual pattern of short-term profit taking; or
- it is a derivative (except for a derivative that is a financial guarantee contract or a designated and effective hedging instrument).

Investments in equity instruments at FVTOCI are initially measured at fair value plus transaction costs. Subsequently, they are measured at fair value, with gains and losses arising from changes in fair value recognized in other comprehensive income and accumulated in the investments revaluation reserve. The cumulative gain or loss is not reclassified to profit or loss on disposal of the equity investments, instead it is transferred to retained earnings.

Dividends on these investments in equity instruments are recognized in profit or loss in accordance with Korean IFRS 1109, unless the dividends clearly represent a recovery of part of the cost of the investment. Dividends are included in the 'dividend income' line item (Note 33) in

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profit or loss.

1-4) Financial assets at FVTPL

Financial assets that do not meet the criteria for being measured at amortized cost or FVTOCI are measured at FVTPL. Specifically:

- Investments in equity instruments are classified as at FVTPL, unless the Company designates an equity investment that is neither held for trading nor a contingent consideration arising from a business combination as at FVTOCI on initial recognition (see (1-3) above).
- Debt instruments that do not meet the amortized cost criteria or the FVTOCI criteria (see (1-1) and (1-2) above) are classified as at FVTPL. In addition, debt instruments that meet either the amortized cost criteria or the FVTOCI criteria may be designated as at FVTPL upon initial recognition if such designation eliminates or significantly reduces a measurement or recognition inconsistency (so called 'accounting mismatch') that would arise from measuring assets or liabilities or recognizing the gains and losses on them on different bases

Financial assets at FVTPL are measured at fair value at the end of each reporting period, with any fair value gains or losses recognized in profit or loss to the extent they are not part of a designated hedging relationship. The net gain or loss recognized in profit or loss includes dividends earned on the financial asset in the 'other non-operating income and expenses.' Meanwhile, interests on financial assets at FVTPL are recognized in 'interest income-other' (Note 33). The fair value is determined as described in Note 40.

(2) Foreign exchange gains and losses

The carrying amount of financial assets that are denominated in a foreign currency is determined in that foreign currency and translated at the spot rate at the end of each reporting period. Specifically:

- For financial assets measured at amortized cost that are not part of a designated hedging relationship, exchange differences are recognized in profit or loss in the 'other non-operating gains and losses' line item.
- For debt instruments measured at FVTOCI that are not part of a designated hedging relationship, exchange differences on the amortized cost of the debt instrument are recognized in profit or loss in the 'other non-operating gains and losses.' Other exchange differences are recognized in other comprehensive income in the investments revaluation reserve:
- For financial assets measured at FVTPL that are not part of a designated hedging relationship, exchange differences are recognized in profit or loss in the 'other non-operating gains and losses' line item.
- For equity instruments measured at FVTOCI, exchange differences are recognized in other comprehensive income in the investments revaluation reserve.

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(3) Impairment of financial assets

The Company recognizes a loss allowance for ECLs on investments in debt instruments that are measured at amortized cost or at FVTOCI, lease receivables, trade receivables and contract assets, as well as on financial guarantee contracts. The amount of ECLs is updated at each reporting date to reflect changes in credit risk since initial recognition of the respective financial instrument.

The Company always recognizes lifetime ECL for trade receivables, contract assets and lease receivables. The ECLs on these financial assets are estimated using a provision matrix based on the Company's historical credit loss experience, adjusted for factors that are specific to the debtors, general economic conditions and an assessment of both the current as well as the forecast direction of conditions at the reporting date, including time value of money where appropriate.

For all other financial instruments, the Company recognizes lifetime ECL when there has been a significant increase in credit risk since initial recognition.

3-1) Significant increase in credit risk

In assessing whether the credit risk on a financial instrument has increased significantly since initial recognition, the Company compares the risk of a default occurring on the financial instrument at the reporting date with the risk of a default occurring on the financial instrument at the date of initial recognition. In making this assessment, the Company considers both quantitative and qualitative information that is reasonable and supportable, including historical experience and forward-looking information that is available without undue cost or effort.

In particular, the following information is taken into account when assessing whether credit risk has increased significantly since initial recognition:

- an actual or expected significant deterioration in the financial instrument's external (if available) or internal credit rating;
- significant increases in credit risk on other financial instruments of the same debtor

Despite the foregoing, the Company assumes that the credit risk on a financial instrument has not increased significantly since initial recognition if the financial instrument is determined to have low credit risk at the reporting date. A financial instrument is determined to have low credit risk if: (1) the financial instrument has a low risk of default, (2) the debtor has a strong capacity to meet its contractual cash flow obligations in the near term, and (3) adverse changes in economic and business conditions in the longer term may, but will not necessarily, reduce the ability of the borrower to fulfil its contractual cash flow obligations.

The Company regularly monitors the effectiveness of the criteria used to identify whether there has been a significant increase in credit risk and revises them as appropriate to ensure that the criteria are capable of identifying significant increase in credit risk before the amount becomes past due.

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3-2) Definition of loss event

The Company assumes to be a loss event when debtor fails to perform contractual agreements in the past experience for the purpose of internal managing credit risk.

3-3) Credit-impaired financial assets

Financial assets are impaired when detrimental evidences show that the present value of estimated future cash flow decreases. These evidences include, but not limited to:

- significant financial difficulty of issuer or obligor; or
- a breach of contract, such as a default or delinquency in interest or principal payments;

3-4) Write-off policy

The Company writes off financial assets when the assets are determined to be no longer recoverable by borrower's financial difficulty, such as bankruptcy. Financial assets written-off can be object of collectable process with adequate legal procedure.

3-5) Measurement and recognition of ECLs

The measurement of ECLs is a function of the probability of default, loss-given default (i.e., the magnitude of the loss if there is a default) and the exposure at default. The assessment of the probability of default and loss-given default is based on historical data adjusted by forward-looking information as described above. As for the exposure at default, for financial assets, this is represented by the assets' gross carrying amount at the reporting date; for financial guarantee contracts, the exposure includes the amount drawn down as at the reporting date.

For financial assets, the ECL is estimated as the difference between all contractual cash flows that are due to the Company in accordance with the contract and all the cash flows that the Company expects to receive, discounted at the original effective interest rate.

For a financial guarantee contract, as the Company is required to make payments only in the event of a default by the debtor in accordance with the terms of the instrument that is guaranteed, the expected loss allowance is the expected payments to reimburse the holder for a credit loss that it incurs, less any amounts that the Company expects to receive from the holder, the debtor or any other party.

The Company recognizes an impairment gain or loss in profit or loss for all financial instruments with a corresponding adjustment to their carrying amount through a loss allowance account, except for investments in debt instruments that are measured at FVTOCI, for which the loss allowance is recognized in other comprehensive income and accumulated in the investment revaluation reserve, and does not reduce the carrying amount of the financial asset in the separate statements of financial position.

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(4) Derecognition of financial assets

The Company derecognizes a financial asset only when the contractual rights to the cash flows from the asset expire, or when it transfers the financial asset and substantially all the risks and rewards of ownership of the asset to another entity. If the Company neither transfers nor retains substantially all the risks and rewards of ownership and continues to control the transferred asset, the Company recognizes its retained interest in the asset and an associated liability for amounts it may have to pay. If the Company retains substantially all the risks and rewards of ownership of a transferred financial asset, the Company continues to recognize the financial asset and also recognizes a collateralized borrowing for the proceeds received.

On derecognition of a financial asset measured at amortized cost, the difference between the asset's carrying amount and the sum of the consideration received and receivable is recognized in profit or loss. In addition, on derecognition of an investment in a debt instrument classified as at FVTOCI, the cumulative gain or loss previously accumulated in the investments revaluation reserve is reclassified to profit or loss. In contrast, on derecognition of an investment in equity instrument, which the Company has elected on initial recognition to measure at FVTOCI, the cumulative gain or loss previously accumulated in the investments revaluation reserve is not reclassified to profit or loss, but is transferred to retained earnings.

2.21 Financial Liabilities and Equity Instruments

(1) Classification as debt or equity

Debt and equity instruments are classified as either financial liabilities or as equity in accordance with the substance of the contractual arrangement and the definitions of a financial liability and an equity instrument.

(2) Equity instruments

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

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

(3) Compound instruments

The component parts of compound instruments are classified separately as financial liabilities and equity in accordance with the substance of the contractual arrangements and the definitions of a financial liability and equity instrument. At the date of issue, the fair value of the liability component is estimated using the prevailing market interest rate for a similar non-convertible instrument. The conversion option classified as equity is determined by deducting the amount of the liability component from the fair value of the compound instrument as a whole. This is recognized and included in equity, net of income tax effects, and is not subsequently remeasured.

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(4) Financial liability

All financial liabilities are measured subsequently at amortized cost using the effective interest method or at FVTPL. However, financial liabilities that arise when a transfer of a financial asset does not qualify for derecognition or when the continuing involvement approach applies, and financial guarantee contracts are issued by the Company, are measured in accordance with the specific accounting policies set out below.

(5) Financial liabilities at FVTPL

Financial liabilities are classified as at FVTPL when a financial liability is a contingent consideration that may be paid by an acquirer as part of a business combination to which Korean IFRS 1103 applies or held for trading, or it is designated as at FVTPL.

A financial liability is classified as held for trading if:

- it has been acquired principally for the purpose of repurchasing in the near term;
- on initial recognition, it is part of a portfolio of identified financial instruments that the Company manages together and has a recent actual pattern of short-term profit taking; or
- it is a derivative that is not designated and effective as a hedging instrument.

A financial liability other than a financial liability held for trading or a contingent consideration that may be paid by an acquirer as part of a business combination may be designated as at FVTPL upon initial recognition if:

- such designation eliminates or significantly reduces a measurement or recognition inconsistency that would otherwise arise;
- the financial liability forms part of a group of financial assets or financial liabilities or both, which is managed and its performance is evaluated on a fair value basis, in accordance with the Company's documented risk management or investment strategy, and information about the grouping is provided internally on that basis; or
- it forms part of a contract containing one or more embedded derivatives, and Korean IFRS 1109 permits the entire combined contract (asset or liability) to be designated as at FVTPL.

Financial liabilities at FVTPL are measured at fair value, with any gains or losses arising on changes in fair value recognized in profit or loss to the extent that they are not part of a designated hedging relationship (see Hedge accounting policy). The net gain or loss recognized in profit or loss incorporates any interest paid on the financial liability and is included in the 'other income or expenses' line item in separate statements of comprehensive income.

However, for financial liabilities that are designated as at FVTPL, the amount of change in the fair value of the financial liability that is attributable to changes in the credit risk of that liability is recognized in other comprehensive income, unless the recognition of the effects of changes in the liability's credit risk in other comprehensive income would create or enlarge an accounting

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mismatch in profit or loss. The remaining amount of change in the fair value of liability is recognized in profit or loss. Changes in fair value attributable to a financial liability's credit risk that are recognized in other comprehensive income are not subsequently reclassified to profit or loss; instead, they are transferred to retained earnings upon derecognition of the financial liability.

Gains or losses on financial guarantee contracts issued by the Company that are designated by the Company as at FVTPL are recognized in profit or loss.

(6) Financial liabilities measured subsequently at amortized cost

Financial liabilities that are not (1) contingent consideration of an acquirer in a business combination, (2) held for trading or (3) designated as at FVTPL are measured subsequently at amortized cost using the effective interest method.

The effective interest method is a method of calculating the amortized cost of a financial liability and allocating interest expense over the relevant period. The effective interest rate is the rate that exactly discounts estimated future cash payments, including all fees and points paid or received (that form an integral part of the effective interest rate) transaction costs and other premiums or discounts through the expected life of the financial liability, or (where appropriate) a shorter period, to the net carrying amount on initial recognition.

(7) Financial guarantee contracts

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

Financial guarantee contract liabilities are initially measured at their fair values and, if not designated as at FVTPL, are subsequently measured at the higher of:

- the amount of loss allowance, as determined in accordance with Korean IFRS 1109 (see "Financial assets" above) or
- the amount initially recognized, less cumulative amortization recognized in accordance with Korean IFRS 1115.

(8) Foreign exchange gains and losses

For financial liabilities that are denominated in a foreign currency and are measured at amortized cost at the end of each reporting period, the foreign exchange gains and losses are determined based on the amortized cost of the instruments. These foreign exchange gains and losses are recognized in the 'other income or expenses' line item in separate statements of comprehensive income for financial liabilities that are not part of a designated hedging relationship. For those which are designated as a hedging instrument for a hedge of foreign currency risk, foreign exchange gains and losses are recognized in other comprehensive income and accumulated in a separate component of equity.

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The fair value of financial liabilities denominated in a foreign currency is determined in that foreign currency and translated at the spot rate at the end of the reporting period. For financial liabilities that are measured as at FVTPL, the foreign exchange component forms part of the fair value gains or losses and is recognized in profit or loss for financial liabilities that are not part of a designated hedging relationship.

(9) Derecognition of financial liabilities

The Company derecognizes financial liabilities when, the Company's obligations are discharged, cancelled or have expired. The difference between the carrying amount of the financial liability derecognized and the consideration paid and payable is recognized in profit or loss.

When the Company exchanges with the existing lender one debt instrument for another one with substantially different terms, such exchange is accounted for as an extinguishment of the original financial liability and the recognition of a new financial liability. Similarly, the Company accounts for substantial modification of terms of an existing liability or part of it as an extinguishment of the original financial liability and the recognition of a new liability.

2.22 Derivative Financial Instruments

The Company enters into a variety of derivative financial instruments to manage its exposure to interest rate and foreign exchange rate risk, including foreign exchange forward contracts, interest rate swaps and cross-currency swaps.

Derivatives are initially recognized at fair value at the date the derivative contract is entered into and are subsequently remeasured to their fair value at the end of each reporting period. The resulting gain or loss is recognized in profit or loss immediately, unless the derivative is designated and effective as a hedging instrument; in such case, the timing of the recognition in profit or loss depends on the nature of the hedge relationship.

A derivative with a positive fair value is recognized as a financial asset, and a derivative with a negative fair value is recognized as a financial liability. The Company does not offset a derivative financial instrument unless there is a legal right or intention to offset. A derivative is presented as a non-current asset or a non-current liability if the remaining maturity of the instrument is more than 12 months and it is not expected to be realized or settled within 12 months. Other derivatives are presented as current assets or current liabilities.

The Company recognizes changes in the fair value of derivatives that are designated as hedging instruments and changes in the fair value of the hedged item in profit or loss.

2.23 Accounting related to the Greenhouse Gas Emission Rights Cap and Trade Scheme

The Company classifies the emission rights as intangible assets. Emission rights allowances the government allocated free of charge are measured at nil, and emission rights allowances purchased are measured at cost, which the Company paid to purchase the allowances. If emission rights the government allocated free of charge are sufficient to settle the emission rights allowances allotted for vintage year, the emission liabilities are measured at nil. However, for the

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emission liabilities that exceed the allowances allocated free of charge, the shortfall is measured at best estimate at the end of the reporting period.

2.24 Approval of Issuance of the Financial Statements

The separate financial statements 2020 were approved for issue by the Board of Directors on February 26, 2021 and are subject to change with the approval of shareholders at their Annual General Meeting.

3. Critical Accounting Estimates and Assumptions

In the application of the Company accounting policies, which are described in Note 2, management is required to make judgments, estimates and assumptions about the carrying amounts of assets and liabilities that are not readily apparent from other sources. The estimates and associated assumptions are based on historical experience and other factors that are considered to be relevant. Actual results may differ from these estimates.

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

(1) Important decision applied in accounting policies

1) Capitalization of borrowing costs

As noted in Note 2, the Company capitalizes borrowing costs related to the acquisition, construction or production of the qualifying assets as part of the cost of such assets.

2) Evaluation of business model

The classification and measurement of financial assets is based on contractual cash flow characteristics and business model (see Note 2 'Financial Assets' section). The business model is determined to reflect how groups of financial assets are managed together to meet specific business objectives. These assessments include judgements that reflect all relevant evidence. The relevant evidences include how the performance of an asset is assessed and measured, risks that could affect the performance of an asset, and the way those risks are managed, and compensation of the asset manager. When a financial asset measured at amortized cost or FVTOCI was derecognized before maturity, the Company observed to determine whether if it is consistent with the objective of the business model for financial asset management. Observations are part of our ongoing assessment of whether the business model for the remaining financial assets is appropriate and if not appropriate, there has been a change in the business model and a consequent change in the classification of financial assets. No such changes were required during the indicated period.

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3) Significant increase in credit risk

As described in Note 2, the loss allowance is measured for assets that have significant increase in ECLs for the whole period or have been impaired since initial recognition. Korean IFRS 1109 does not define what constitutes a significant increase in credit risk. When assessing whether the credit risk of an asset has increased significantly, the Company considers forward-looking information that is quantitatively and qualitatively reasonable and supported.

(2) Key sources of estimation uncertainty

1) Income tax

The income is subject to income taxes based on tax laws and interpretations of tax authorities in numerous jurisdictions. There are many transactions and calculations for which the ultimate tax determination is uncertain.

2) Fair value of financial instruments

The fair value of financial instruments that are not traded in an active market is determined by using valuation techniques. The Company uses its judgment to select a variety of methods and make assumptions that are mainly based on market conditions existing at the end of each reporting period (Note 40).

3) Impairment of financial assets

The provisions for impairment for financial assets are based on assumptions about risk of default and expected loss rates. The Company uses judgement in making these assumptions and selecting the inputs to the impairment calculation based on the Company's past history, existing market conditions as well as forward looking estimates at the end of each reporting period (Note 40).

4) Net defined benefit liabilities

The present value of net defined benefit liability depends on a number of factors that are determined on an actuarial basis using a number of assumptions including the discount rate (Note 23).

5) Uncertainty on the estimation of the total construction revenue and total construction cost

Although total contract revenue is measured based on the contract amount initially agreed, measurement of contract revenue is subject to various uncertainties related to the outcome of future events. This is because as the contract is executed, it may decrease depending on the change of construction, compensation, incentives or delayed completion due to the Company's reasons.

The amount of construction revenues is affected by the progress measured based on the cumulative incurred contract costs. Total contract costs are based on future estimates of material costs, labor costs, overhead costs, etc. There are uncertainties that may change.

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6) Provision

The Company has recorded provision for product warranties and construction warranties at the end of each reporting period. These provisions are based on estimates based on historical experience and forecasts of future events. However, there may be a significant difference between past events and forecasts, and there are uncertainties that may cause significant differences between the estimates based on future events and actual events.

7) Impairment of non-financial assets

The Company assesses the existence of impairment on all non-financial assets at the end of each reporting period. For intangible assets with indefinite useful lives, impairment tests are carried out annually or in the event of impairment. For other non-financial assets, the Company carries out impairment tests when there are indications that the carrying amount will not be recoverable. To determine the use value, management must estimate future cash flows from the asset or CGU and choose an appropriate discount rate.

8) Setting allowance for bad debts for trade receivables

In order to estimate the impairment loss on trade receivables, the Company estimates the amount of credit loss based on the age of the current receivables, past credit experience and other economic environment factors.

9) Lease

In determining the lease term, management considers all facts and circumstances that create an economic incentive to exercise an extension option, or not exercise a termination option.

Extension options (or periods after termination options) are only included in the lease term if the lease is reasonably certain to be extended (or not terminated).

For leases of warehouses, retail stores and equipment, the following factors are normally the most relevant:

- If there are significant penalties to terminate (or not extend), the Company is typically reasonably certain to extend (or not terminate).
- If any leasehold improvements are expected to have a significant remaining value, the Company is typically reasonably certain to extend (or not terminate).
- Otherwise, the Company considers other factors including historical lease durations and the costs and business disruption required to replace the leased asset.

Most extension options in offices and vehicles leases have not been included in the lease liability, because the Company could replace the assets without significant cost or business disruption.

The lease term is reassessed if an option is actually exercised (or not exercised) or the Company becomes obliged to exercise (or not exercise) it. The assessment of reasonable certainty is only revised if a significant event or a significant change in circumstances occurs, which affects this

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assessment, and that is within the control of the lessee.

10) Spread of Coronavirus disease 2019 (“COVID-19”)

The world is facing uncertainty for severe economic recession and economic depression due to the spread of Coronavirus disease 2019 (COVID-19). An exposure to the business risk of the Company arising from COVID-19 has been reviewed, but no risks have been identified that could impact the financial performance or position of the Company as at December 31, 2020. The Company has sufficient funding capacity to meet existing borrowing agreements and sufficient working capital and undrawn financing facilities to service its operating activities and ongoing investments.

4. Segment Information

(1) The Company's reportable segments and details are as follows:

Business section	Main business
Explosives and production	Manufacturing and selling of explosive (Defense products, Industrial explosive and others)
Trading and retails	Trading and retails
Machinery and production	Manufacturing and selling of machine tool and industrial machinery

(2) A profit or loss by each segment for the years ended December 31, 2020 and 2019, is as follows:

<i>(in thousands of Korean won)</i>	2020			
	Explosives and production	Trading and retails	Machinery and production	Total
Total segment revenue	₩ 2,103,255,138	₩ 1,415,481,790	₩ 490,416,641	₩ 4,009,153,569
(-) Intersegment revenue	(1,006,645)	(6,997,227)	(374,836)	(8,378,708)
Revenue from external customers	2,102,248,493	1,408,484,563	490,041,805	4,000,774,861
Operating profit	188,187,997	(28,352,473)	7,124,187	166,959,711
Finance income (costs) and others	(35,046,148)	1,381,425	(4,616,965)	(38,281,688)
Profit (loss) for the year	₩ 153,141,849	₩ (26,971,048)	₩ 2,507,222	₩ 128,678,023

<i>(in thousands of Korean won)</i>	2019			
	Explosives and production	Trading and retails	Machinery and production	Total
Total segment revenue	₩ 1,865,495,787	₩ 1,924,207,012	₩ 655,270,080	₩ 4,444,972,879
(-) Intersegment revenue	(1,847,223)	(9,898,310)	(64,295)	(11,809,828)
Revenue from external customers	1,863,648,564	1,914,308,702	655,205,785	4,433,163,051
Operating profit	127,699,998	30,827,648	30,421,138	188,948,784
Finance income (costs) and others	(38,067,160)	(36,754,263)	(13,857,507)	(88,678,930)

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Profit for the year	₩ 89,632,838	₩ (5,926,615)	₩ 16,563,631	₩ 100,269,854
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(3) Segment assets and liabilities as at December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020			
	Explosives and production	Trading and retails	Machinery and production	Total
Total assets	₩ 6,734,557,109	₩ 268,085,389	₩ 360,152,744	₩ 7,362,795,242
Total liabilities	3,258,422,121	425,442,960	186,466,507	3,870,331,588

<i>(in thousands of Korean won)</i>	2019			
	Explosives and production	Trading and retails	Machinery and production	Total
Total assets	₩ 6,960,256,944	₩ 523,001,369	₩ 448,036,733	₩ 7,931,295,046
Total liabilities	3,576,748,748	654,699,583	275,898,430	4,507,346,761

(4) Details of depreciation and amortization costs, and acquisition of non-current assets for the years ended December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	Depreciation and amortization costs		Acquisition costs of non-current assets	
	2020	2019	2020	2019
	Explosive and production	₩ 81,585,740	₩ 76,625,957	₩ 148,822,233
Trading and retails	10,237,220	10,829,376	6,640,951	38,263,765
Machinery and production	7,669,337	6,789,030	6,049,673	6,171,554
	₩ 99,492,297	₩ 94,244,363	₩ 161,512,856	₩ 215,259,138

In addition to the depreciation and amortization costs stated above, the Company recognized ₩ 43,501 million and ₩ 29,611 million as impairment loss of non-current assets for the years ended December 31, 2020 and 2019, respectively. The impairment loss per segment is as follows:

<i>(in thousands of Korean won)</i>	2020	2019
Explosive and production	₩ 36,175,273	₩ 4,829,880
Trading and retails	6,368,433	24,533,472
Machinery and production	957,511	247,967
	₩ 43,501,217	₩ 29,611,319

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(5) Breakdown of the revenue of the Company for the years ended December 31, 2020 and 2019, from all geographic areas, is as follows:

<i>(in thousands of Korean won)</i>	2020		2019	
Domestic	₩	2,624,121,330	₩	2,742,051,146
USA		109,340,455		121,083,371
Asia		1,182,025,869		1,392,040,628
Others		85,287,207		177,987,906
	₩	<u>4,000,774,861</u>	₩	<u>4,433,163,051</u>

(6) Total revenue of ₩ 4,000,775 million (2019: ₩ 4,433,163 million) includes sales of the biggest customer of ₩ 861,300 million (2019: ₩ 755,944 million). No single customer accounts for more than 10% of revenue for the years ended December 31, 2020 and 2019.

5. Restricted-to-use and Secured Financial Assets

Restricted-to-use and secured financial assets as at December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	Description	2020		2019	
Short-term financial instruments	National projects and others	₩	3,537,926	₩	3,976,783
Long-term financial instruments	Guarantees for deposit for opening of checking account and others		471,000		497,415
		₩	<u>4,008,926</u>	₩	<u>4,474,198</u>

6. Cash and Cash Equivalents

Details of cash and cash equivalents as at December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020		2019	
Cash on hand	₩	5,000	₩	5,000
Cash in bank		2,920,806		3,012,111
Other cash and cash equivalents		305,960,743		319,503,880
	₩	<u>308,886,549</u>	₩	<u>322,520,991</u>

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7. Financial Instruments by Category

(1) Categorizations of financial assets as at December 31, 2020 and 2019, are as follows:

(in thousands of Korean won)

	2020				
	Financial assets at amortized cost	Financial assets at fair value through profit or loss	Hedging derivative financial instruments	Equity instruments at fair value through other comprehensive income	Total
Current assets:					
Cash and cash equivalents	₩ 68,886,549	₩ 240,000,000	₩ -	₩ -	₩ 308,886,549
Trade and other receivables	360,920,761	4,307,353	-	-	365,228,114
Other financial assets	9,422,315	55,277,961	1,084,203	-	65,784,479
	<u>439,229,625</u>	<u>299,585,314</u>	<u>1,084,203</u>	<u>-</u>	<u>739,899,142</u>
Non-current assets:					
Trade and other receivables	39,397,694	-	-	-	39,397,694
Financial assets at fair value through profit or loss	-	17,098,223	-	-	17,098,223
Financial assets at fair value through other comprehensive income	-	-	-	58,859	58,859
Other financial assets	22,445,271	-	-	-	22,445,271
	<u>61,842,965</u>	<u>17,098,223</u>	<u>-</u>	<u>58,859</u>	<u>79,000,047</u>
	<u>₩ 501,072,590</u>	<u>₩ 316,683,537</u>	<u>₩ 1,084,203</u>	<u>₩ 58,859</u>	<u>₩ 818,899,189</u>

(in thousands of Korean won)

	2019				
	Financial assets at amortized cost	Financial assets at fair value through profit or loss	Hedging derivative financial instruments	Equity instruments at fair value through other comprehensive income	Total
Current assets:					
Cash and cash equivalents	₩ 105,520,991	₩ 217,000,000	₩ -	₩ -	₩ 322,520,991
Trade and other receivables	545,650,698	36,448,646	-	-	582,099,344
Other financial assets	9,246,641	39,085,204	12,540,342	-	60,872,187
	<u>660,418,330</u>	<u>292,533,850</u>	<u>12,540,342</u>	<u>-</u>	<u>965,492,522</u>
Non-current assets:					
Trade and other receivables	18,850,514	-	-	-	18,850,514
Financial assets at fair value through profit or loss	-	16,663,391	-	-	16,663,391
Financial assets at fair value through other comprehensive income	-	-	-	78,859	78,859
Other financial assets	30,724,693	-	-	-	30,724,693
	<u>49,575,207</u>	<u>16,663,391</u>	<u>-</u>	<u>78,859</u>	<u>66,317,457</u>
	<u>₩ 709,993,537</u>	<u>₩ 309,197,241</u>	<u>₩ 12,540,342</u>	<u>₩ 78,859</u>	<u>₩ 1,031,809,979</u>

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(2) Categorizations of financial liabilities as at December 31, 2020 and 2019, are as follows:

(in thousands of Korean won)

	2020			
	Financial liabilities at amortized cost	Financial liabilities at fair value through profit or loss	Hedging derivative financial instruments	Total
Current liabilities:				
Trade and other payables	₩ 354,259,239	₩ -	₩ -	₩ 354,259,239
Borrowings and debentures	913,246,934	-	-	913,246,934
Other financial liabilities	43,114,134	12,901,048	1,084,203	57,099,385
	<u>1,310,620,307</u>	<u>12,901,048</u>	<u>1,084,203</u>	<u>1,324,605,558</u>
Non-current liabilities:				
Trade and other payables	5,083,045	-	-	5,083,045
Borrowings and debentures	1,161,807,064	-	-	1,161,807,064
Other financial liabilities	8,801,870	16,386,431	-	25,188,301
	<u>1,175,691,979</u>	<u>16,386,431</u>	<u>-</u>	<u>1,192,078,410</u>
	<u>₩ 2,486,312,286</u>	<u>₩ 29,287,479</u>	<u>₩ 1,084,203</u>	<u>₩ 2,516,683,968</u>

(in thousands of Korean won)

	2019			
	Financial liabilities at amortized cost	Financial liabilities at fair value through profit or loss	Hedging derivative financial instruments	Total
Current liabilities:				
Trade and other payables	₩ 447,451,420	₩ -	₩ -	₩ 447,451,420
Borrowings and debentures	1,216,296,376	-	-	1,216,296,376
Other financial liabilities	45,492,562	50,636,891	8,191,006	104,320,459
	<u>1,709,240,358</u>	<u>50,636,891</u>	<u>8,191,006</u>	<u>1,768,068,255</u>
Non-current liabilities:				
Trade and other payables	5,317,516	-	-	5,317,516
Borrowings and debentures	1,020,658,566	-	-	1,020,658,566
Other financial liabilities	3,954,641	409,866	-	4,364,507
	<u>1,029,930,723</u>	<u>409,866</u>	<u>-</u>	<u>1,030,340,589</u>
	<u>₩ 2,739,171,081</u>	<u>₩ 51,046,757</u>	<u>₩ 8,191,006</u>	<u>₩ 2,798,408,844</u>

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(3) Net gains or losses on each category of financial instruments for the years ended December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020		2019	
Financial assets at amortized cost:				
Loss on transactions	₩	(752,618)	₩	(2,344,954)
Interest income		6,438,253		5,614,808
Gain (loss) on valuation		(4,322,873)		13,839,096
Loss on foreign currency translation		(13,953,611)		(638,703)
Gain (loss) on foreign currency transaction		(1,856,098)		12,669,014
Financial assets and liabilities at fair value through profit or loss:				
Gain (loss) on transactions		10,501,792		(23,194,215)
Gain on valuation		18,648,185		11,146,104
Dividend income		7,020		4,511
Hedging derivative financial instruments:				
Gain (loss) on valuation		345,246		(3,841,670)
Financial assets at fair value through other comprehensive income:				
Gain (loss) on transactions		-		-
Interest income		-		29
Dividend income		170		170
Financial liabilities at amortized cost:				
Interest expenses		(59,570,272)		(70,340,686)
Gain on foreign currency translation		23,888,472		397,168
Gain (loss) on foreign currency transaction		3,596,376		(17,677,745)

8. Trade and Other Receivables

(1) Details of trade and other receivables as at December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020		2019	
	Current	Non-current	Current	Non-current
Trade receivables	₩ 363,810,732	₩ 59,162,051	₩ 573,220,583	₩ 45,006,243
Less: Present value discounts	-	-	-	-
Less: Provisions for impairment	(2,329,309)	(25,836,018)	(4,524,813)	(26,236,181)
Other receivables	3,746,854	6,729,243	14,952,697	504,331
Less: Provisions for impairment	(163)	(657,582)	(1,549,123)	(423,879)
	<u>₩ 365,228,114</u>	<u>₩ 39,397,694</u>	<u>₩ 582,099,344</u>	<u>₩ 18,850,514</u>

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(2) Credit risk and Provisions for impairment

The Company always recognizes lifetime ECL for trade receivables. The ECLs on these trade receivables are estimated using a provision matrix based on the adjusted for factors that are specific to the debtors, past default experiences of the debtor, general economic conditions and an assessment of both the current as well as the forecast direction of conditions at the reporting date, including time value of money where appropriate.

The Company recognizes allowance for bad debt individually, if there is a sign that the debtor undergoes bankruptcy or experiencing significant financial problem. There is no change in assessment method or assumption for the year ended in December 31, 2020.

1) Changes in provisions for impairment of trade and other receivables for the years ended December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020		2019	
Beginning balance	₩	32,733,996	₩	55,009,046
Increase in loss allowance recognized in profit or loss during the year		2,266,924		7,090,955
Decrease in loss allowance recognized in profit or loss during the year		(247,054)		(20,648,855)
Receivables written off during the year as uncollectible		(5,930,793)		(8,717,150)
Ending balance	₩	28,823,073	₩	32,733,996

2) Impairment loss recognized for the years ended December 31, 2020 and 2019, is as follows:

<i>(in thousands of Korean won)</i>	2020		2019	
Impairment loss				
- Increase (decrease) in loss allowance recognized in profit or loss during the year	₩	2,019,870	₩	(13,557,900)

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(3) The aging analysis of the trade and other receivables as at December 31, 2020 and 2019, is as follows:

<i>(in thousands of Korean won)</i>	2020		2019	
Receivables not past due	₩	331,843,157	₩	480,722,591
		<u>331,843,157</u>		<u>480,722,591</u>
Past due but not impaired				
Less than 3 months		42,339,966		77,287,651
Between 3 months and 6 months		9,439,136		19,130,833
Between 6 months and 1 year		9,897,854		9,640,471
More than 1 year		12,997,492		11,455,502
		<u>74,674,448</u>		<u>117,514,457</u>
Impaired				
Less than 3 months		-		3,922,937
Between 3 months and 6 months		37,438		965,464
Between 6 months and 1 year		826,944		2,649,619
More than 1 year		26,066,892		27,908,786
		<u>26,931,274</u>		<u>35,446,806</u>
	₩	<u>433,448,879</u>	₩	<u>633,683,854</u>

(4) Details of transferred financial assets that are not derecognized in their entirety as at December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	Trade receivables			
		2020		2019
Book amount of transferred financial assets	₩	30,831,913	₩	53,988,047
Related liabilities ¹		(30,831,913)		(53,988,047)

¹ The Company transferred trade receivables to banks and collected cash. The Company has responsibility of recourse as at December 31, 2020. In addition, the related liabilities are recognized as collateralized borrowing (Note 20).

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9. Financial Assets

(1) Details of financial assets measured at fair value through profit or loss as at December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020		2019	
Equity securities				
Beneficiary certificate ¹	₩	16,662	₩	72,770
Unlisted securities		2,000,000		2,000,000
Debt securities				
Capital contribution		15,081,562		14,590,621
	₩	<u>17,098,224</u>	₩	<u>16,663,391</u>

¹ The fair value of beneficiary certificate is determined using valuation techniques performed by independent external experts.

(2) Details of financial assets measured at fair value through other comprehensive income as at December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020		2019	
Equity securities ¹				
Unlisted securities	₩	58,859	₩	78,859

¹ The Company irrevocably classified equity securities which purpose is not held for trading but strategic investment as financial assets measured at fair value through other comprehensive income on the initial date of application.

10. Other Financial Assets

(1) Details of other financial assets as at December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020		2019	
	Current	Non-current	Current	Non-current
Long and short-term financial instruments	₩ 42,893,801	₩ 2,871,000	₩ 33,749,134	₩ 3,697,415
Loans ¹	3,312,824	4,665,005	2,799,944	6,185,807
Guarantee	69,555	14,909,265	86,344	20,841,471
Derivative financial instruments	18,362,164	-	23,625,546	-
Others ²	1,146,134	-	611,219	-
	₩ <u>65,784,478</u>	₩ <u>22,445,270</u>	₩ <u>60,872,187</u>	₩ <u>30,724,693</u>

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¹ It consists of loans to affiliates, general customers and employees. The interest rate is 0%-4.5% (Note 36).

² Others consist of project deposits, government grants and accrued revenues.

(2) Impairment on other financial assets

When management recognizes ECL, not only the bankruptcy history and financial status of the counterparty, but also reports disclosed by economic and financial experts are taken into consideration. Also, various sources of information from renowned institute are used when deriving possibility of default and its expected amounts of loss during the evaluation period.

For the year ended December 31, 2020, there are no significant changes in method or assumption related to evaluating provision for impairment on other financial assets.

(3) There are no changes in ECL of each financial assets for the year ended December 31, 2020.

11. Derivative Financial Instruments

(1) Details of derivative financial assets as at December 31, 2020 and 2019, are as follows:

(in thousands of Korean won)

	2020		2019	
	Current	Non-current	Current	Non-current
Currency forward	₩ 17,277,961	₩ -	₩ 11,085,204	₩ -
Commodity future	1,084,203	-	12,540,342	-
	<u>₩ 18,362,164</u>	<u>₩ -</u>	<u>₩ 23,625,546</u>	<u>₩ -</u>

(2) Details of derivative financial liabilities as at December 31, 2020 and 2019, are as follows:

(in thousands of Korean won)

	2020		2019	
	Current	Non-current	Current	Non-current
Currency forward	₩ 9,992,491	₩ -	₩ 1,168,179	₩ -
Currency swap	2,908,557	2,394,661	-	111,064
Interest swap	-	525,771	84,376	298,802
Commodity futures	1,084,203	-	12,540,342	-
Shareholders' agreement (Note 37)	-	13,466,000	45,035,000	-
	<u>₩ 13,985,251</u>	<u>₩ 16,386,432</u>	<u>₩ 58,827,897</u>	<u>₩ 409,866</u>

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12. Other Assets

(1) Details of other assets as at December 31, 2020 and 2019, are as follows:

(in thousands of Korean won)

	2020		2019	
	Current	Non-current	Current	Non-current
Advance payments	₩ 211,849,814	₩ -	₩ 341,861,253	₩ -
Prepaid expenses	10,062,099	454,752	9,674,451	2,338,353
Contract assets ¹	96,231,491	-	105,378,269	-
Others	377,189	-	3,635,994	-
	<u>₩ 318,520,593</u>	<u>₩ 454,752</u>	<u>₩ 460,549,967</u>	<u>₩ 2,338,353</u>

¹ Contract assets include amount due to customers for contract work.

13. Inventories

Details of inventories as at December 31, 2020 and 2019, are as follows:

(in thousands of Korean won)

	2020	2019
Finished goods	₩ 99,292,471	₩ 63,352,486
Less: Valuation allowance	(20,250,411)	(8,610,022)
Merchandise	54,166,683	130,894,157
Less: Valuation allowance	(9,217,627)	(10,096,652)
Work in progress	232,653,107	292,850,842
Less: Valuation allowance	(1,275,567)	(1,989,812)
Raw materials	205,910,882	265,318,893
Less: Valuation allowance	(5,566,881)	(3,110,839)
Materials in transit	15,995,401	35,399,151
	<u>₩ 571,708,058</u>	<u>₩ 764,008,204</u>

The valuation allowance of inventories recognized as expense and included in 'cost of sales' amounts to ₩ 9,857 million (2019: ₩ 17,392 million) for the year ended December 31, 2020.

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14. Investments in Subsidiaries and Associates

(1) Details of investments in subsidiaries and associates as at December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020	2019
Investments in subsidiaries	₩ 4,352,564,525	₩ 4,374,131,374
Investments in associates	8,950,639	10,306,619
	<u>₩ 4,361,515,164</u>	<u>₩ 4,384,437,993</u>

As at December 31, 2020, some of the investments in subsidiaries and associates are provided as collateral (Note 37).

(2) Changes in investments in subsidiaries and associates for the years ended December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020	2019
Beginning	₩ 4,384,437,993	₩ 4,363,062,012
Acquisitions	21,452,180	86,613,616
Disposals	(2,134,425)	(40,704,163)
Impairment ¹	(42,609,349)	(27,664,002)
Reversal ²	368,765	3,130,530
Ending	<u>₩ 4,361,515,164</u>	<u>₩ 4,384,437,993</u>

¹ The Company recognized impairment on investments in respect of Hanwha Mining Services Australia and others due to their accumulated losses for the year ended December 31, 2020. Hanwha Mining Services Australia performed the value-in-use evaluation using cash flow discount method, and the discount rate used in evaluation is 7.25%.

² The Company reversed some of the impairments recognized in investments of PT. Nantoy Bara Lestari for the year ended December 31, 2020.

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(3) Details of investments in subsidiaries as at December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	Location	Main business	Percentage of ownership (%)		2020		2019
Hanwha Engineering and Construction Corp.	Korea	Construction	96.77	₩	1,258,727,142	₩	1,258,727,142
Hanwha International (Shanghai) Co., Ltd. ^{1,2}	China	Trading	33.33		-		-
Hanwha Life Insurance Co., Ltd. ¹	Korea	Life insurance	18.15		913,982,783		913,982,783
Hanwha Eagles Professional Baseball Club ^{1,2}	Korea	Sport club	40.00		-		-
Hanwha Aerospace Co., Ltd. ¹	Korea	Manufacturing	33.95		825,203,555		825,203,555
Hanwha Solutions Co., Ltd. ¹ (Formerly, Hanwha Chemical Co., Ltd.)	Korea	Chemical	36.99		972,076,247		972,076,247
Hanwha TechM Co., Ltd.	Korea	Investment	100.00		11,176,035		11,176,035
Hanwha Hotels & Resorts Co., Ltd.	Korea	Accommodation	50.62		219,213,158		219,213,158
Hanwha Europe GmbH	Germany	Trading	100.00		17,859,217		17,859,217
Hanwha Holdings (USA) Inc. ¹	USA	Holding company	0.58		1,408,267		1,408,267
Hanwha Hong Kong Co.,Ltd.	Hongkong	Trading	100.00		2,715,944		6,409,038
Hanwha International India PVT., LT	India	Trading	99.99		169,296		169,296
Hanwha Machinery Corp.	USA	Holding company	100.00		44,141,351		44,141,351
Hanwha Mining Services Australia ²	Australia	Gunpowder services and explosives and blasting	100.00		-		33,355,442
Hanwha Mining Services Chile SPA ³	Chile	Gunpowder services and explosives and blasting	100.00		1,255,763		2,821,301
Hanwha Mining Service USA Inc. ⁴	USA	Gunpowder services and explosives and blasting	100.00		4,502,151		2,249,000
Hanwha International Peru S.A.C. ²	Peru	Trading	99.00		-		415,702
Hanwha Q CELLS Japan Co., Ltd.	Japan	Trading	100.00		43,501,824		43,501,824
Hanwha Resources (Canada) Ltd. ^{2,3}	Canada	Resource development	100.00		-		-

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Hanwha Resources(USA) Corporation ¹	USA	Resource development	20.00	396,681	396,681
Hanwha Singapore Pte. Ltd. ²	Singapore	Trading	100.00	-	-
Hanwha TechM Hungary Zrt.	Hungary	Rent, utility supply	97.21	4,708,446	4,708,446
PT. Hanwha Mining Services Indonesia	Indonesia	Gunpowder services and explosives and blasting	99.80	11,206,464	11,206,464
PT. Bara Bumi International ²	Indonesia	Coal sales	99.60	-	272,505
HANWHA INTERNATIONAL VIETNAM ⁵	Vietnam	Trading	100.00	866,880	-
S&P World Networks DMCC	UAE	Trading	100.00	4,837,920	4,837,920
GODO KAISHA SUMMIT APOLLO ELEVEN ^{1,5}	Japan	Holding company	50.00	69,996	-
H PROPERTIES TMK ^{1,5}	Japan	Real estate	24.95	14,545,405	-
				₩ 4,352,564,524	₩ 4,374,131,374

¹ Although the Company owns less than 50% of ownership of Hanwha Solutions Co., Ltd. and Hanwha Aerospace Co., Ltd. in consideration of ownership owned by the Company's subsidiaries and their participation rate in shareholders' meetings, the Company has power to govern those entities. Additionally, in consideration of ownership owned by the Company's subsidiaries, the Company owns more than 50% of ownership of Hanwha International (Shanghai) Co., Ltd., Hanwha Holdings (USA), Inc., Hanwha Resources (USA) corporation and Hanwha Eagles Professional Baseball Club, GK SUMMIT APOLLO ELEVEN and H PROPERTIES TMK. Hence, they are classified as investments in subsidiaries. Considering ownership owned by Engineering and Construction Corp., a subsidiary of the Company, and treasury share held by Hanwha Life Insurance Co., Ltd., the Company has control over Hanwha Life Insurance Co., Ltd. because it holds more than 50% of the voting rights and can exercise majority voting rights in the decision-making process.

² Impairment for the entire book amount is recognized for the year ended December 31, 2020.

³ Additional contribution and impairment losses were recognized for the years ended December 31, 2020.

⁴ Additional contribution was made for the year ended December 31, 2020.

⁵ They were newly acquired for the year ended December 31, 2020.

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(4) Details of investments in associates as at December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	Location	Main business	Percentage of ownership (%)	2020	2019
RFTRON ³	Korea	Manufacturing	29.98	₩ -	₩ -
KoreaRasLaffan LNG ¹	United Kingdom	Resource development	3.00	1,297,532	1,297,532
Ningbo Zhonghua Jian Hanwha Chemical	China	Chemical	25.00	551,857	551,857
PT. Nantoy Bara Lestari ²	Indonesia	Mining	45.00	7,101,250	6,866,910
Hulin Yuandongyuanda Biomass Cogeneration Co., Ltd. ³	China	New renewable energy	29.00	-	1,590,320
Bio Green Technology Sdn Bhd. ³	Malaysia	New renewable energy	36.00	-	-
				₩ 8,950,639	₩ 10,306,619

¹ Since the Company has the right to exercise significant influence by appointing an executive, classified as investments in associates.

² Reversal for some book amount is recognized for the years ended December 31, 2020 and 2019.

³ Impairment for the entire book amount is recognized for the year ended December 31, 2020.

(5) Fair values of major marketable investments in subsidiaries as at December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020		2019	
	Book amount	Fair value	Book amount	Fair value
Hanwha Solutions Co., Ltd. (Formerly, Hanwha Chemical Co., Ltd.)	₩ 972,076,247	₩ 2,852,252,346	₩ 972,076,247	₩ 1,122,441,685
Hanwha Life Insurance Co., Ltd.	913,982,783	384,544,000	913,982,783	364,056,000
Hanwha Aerospace Co., Ltd.	825,203,555	489,903,857	825,203,555	602,495,795

15. Investment Property

(1) Details of investment property as at December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020		
	Cost	Accumulated depreciation	Book amount
Land	₩ 7,579,871	₩ -	₩ 7,579,871
Buildings	13,652,456	(4,825,178)	8,827,278
Structures	103,197	(103,180)	17
	₩ 21,335,524	₩ (4,928,358)	₩ 16,407,166

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(in thousands of Korean won)

	2019		
	Cost	Accumulated depreciation	Book amount
Land	₩ 8,056,614	₩ -	₩ 8,056,614
Buildings	19,654,725	(4,499,726)	15,154,999
Structures	103,197	(103,180)	17
	<u>₩ 27,814,536</u>	<u>₩ (4,602,906)</u>	<u>₩ 23,211,630</u>

(2) Changes in investment property for the years ended December 31, 2020 and 2019, are as follows:

(in thousands of Korean won)

	2020					
	Beginning	Acquisitions	Disposals	Depreciation	Others ¹	Ending
Land	₩ 8,056,614	₩ -	₩ (476,743)	₩ -	₩ -	₩ 7,579,871
Buildings	15,154,999	-	-	(442,355)	(5,885,366)	8,827,278
Structures	17	-	-	-	-	17
	<u>₩ 23,211,630</u>	<u>₩ -</u>	<u>₩ (476,743)</u>	<u>₩ (442,355)</u>	<u>₩ (5,885,366)</u>	<u>₩ 16,407,165</u>

¹ Others include transfer from property, plant and equipment.

(in thousands of Korean won)

	2019					
	Beginning	Acquisitions	Disposals	Depreciation	Others ¹	Ending
Land	₩ 4,477,892	₩ -	₩ -	₩ -	₩ 3,578,722	₩ 8,056,614
Buildings	15,684,888	-	-	(529,889)	-	15,154,999
Structures	17	-	-	-	-	17
	<u>₩ 20,162,797</u>	<u>₩ -</u>	<u>₩ -</u>	<u>₩ (529,889)</u>	<u>₩ 3,578,722</u>	<u>₩ 23,211,630</u>

¹ Others include transfer from property, plant and equipment.

The entire depreciation is included in 'Selling and administrative expenses.'

(3) The Company assesses that the difference between fair value and book amount of investment property would not have any material impact.

(4) During the year ended December 31, 2020, rental income earned from investment property is ₩ 3,733 million (2019: ₩ 3,935 million).

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16. Property, Plant and Equipment

(1) Details of property, plant and equipment as at December 31, 2020 and 2019, are as follows:

(in thousands of Korean won)

	2020				
	Cost	Accumulated depreciation	Accumulated impairment	Government grants	Book amount
Land	₩ 366,473,195	₩ -	₩ -	₩ (778,275)	₩ 365,694,920
Buildings	612,456,432	(145,673,191)	(4,127,725)	(510,616)	462,144,900
Structures	196,551,262	(96,875,408)	-	(8,114)	99,667,740
Machinery	448,186,439	(321,635,871)	(6,184)	(30,981)	126,513,403
Vehicles	31,316,167	(24,887,642)	-	-	6,428,525
Tools and equipment	123,447,101	(91,183,725)	(10,799)	-	32,252,577
Construction in progress	82,751,765	-	-	-	82,751,765
Others	2,021,387	-	-	-	2,021,387
Mining properties in development	-	-	-	-	-
	<u>₩ 1,863,203,748</u>	<u>₩ (680,255,837)</u>	<u>₩ (4,144,708)</u>	<u>₩ (1,327,986)</u>	<u>₩ 1,177,475,217</u>

(in thousands of Korean won)

	2019				
	Cost	Accumulated depreciation	Accumulated impairment	Government grants	Book amount
Land	₩ 377,139,630	₩ -	₩ -	₩ (778,275)	₩ 376,361,355
Buildings	562,650,866	(132,875,991)	(3,824,603)	(525,012)	425,425,260
Structures	150,254,265	(91,675,481)	-	(8,687)	58,570,097
Machinery	407,519,435	(304,924,771)	(415,174)	(51,024)	102,128,466
Vehicles	30,785,819	(23,095,385)	-	-	7,690,434
Tools and equipment	119,973,831	(86,045,146)	(10,799)	(423)	33,917,463
Construction in progress	144,971,947	-	-	-	144,971,947
Others	2,021,387	-	-	-	2,021,387
Mining properties in development	12,682,010	-	(12,682,010)	-	-
	<u>₩ 1,807,999,190</u>	<u>₩ (638,616,774)</u>	<u>₩ (16,932,586)</u>	<u>₩ (1,363,421)</u>	<u>₩ 1,151,086,409</u>

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(2) Changes in property, plant and equipment for the years ended December 31, 2020 and 2019, are as follows:

(in thousands of Korean won)	2020							
	Beginning	Acquisitions	Disposals	Depreciation	Impairment	Others ¹	Business transfer ²	Ending
Land	₩ 376,361,355	₩ 1,881,967	₩ (13,315,884)	₩ -	₩ -	₩ 884,730	₩ (117,248)	₩ 365,694,920
Buildings	425,425,260	8,238,487	(3,513,190)	(15,346,289)	(303,122)	48,168,125	(524,371)	462,144,900
Structures	58,570,097	11,315,214	(249,027)	(5,450,376)	-	35,481,832	-	99,667,740
Machinery	102,128,466	12,436,982	(25,919)	(30,437,708)	-	45,953,654	(3,542,073)	126,513,403
Vehicles	7,690,434	1,097,996	(122,391)	(3,081,901)	-	893,754	(49,367)	6,428,525
Tools and equipment	33,917,463	6,561,512	(54,851)	(13,461,472)	-	5,359,328	(69,403)	32,252,577
Construction in progress	144,971,947	69,663,610	-	-	-	(131,883,792)	-	82,751,765
Others	2,021,387	-	-	-	-	-	-	2,021,387
	<u>₩ 1,151,086,409</u>	<u>₩ 111,195,768</u>	<u>₩ (17,281,262)</u>	<u>₩ (67,777,746)</u>	<u>₩ (303,122)</u>	<u>₩ 4,857,631</u>	<u>₩ (4,302,462)</u>	<u>₩ 1,177,475,217</u>

¹ Others include transfer of construction in progress to original account and transfer from intangible asset.

² During the year ended December 31, 2020, the Company acquired robot business segment from Hanwha Precision Machinery Co., Ltd. and established new company by split-off of cluster bomb business in defense division.

(in thousands of Korean won)	2019							
	Beginning	Acquisitions	Disposals	Depreciation	Impairment	Others ¹	Business transfer	Ending
Land	₩ 377,124,935	₩ 1,522,447	₩ (1,021,790)	₩ -	₩ -	₩ (1,264,237)	₩ -	₩ 376,361,355
Buildings	420,518,729	11,206,897	(2,449,790)	(14,378,849)	(3,824,603)	14,352,876	-	425,425,260
Structures	62,502,434	971,854	(9,833)	(4,676,136)	-	(218,222)	-	58,570,097
Machinery	98,991,159	25,701,476	(910,774)	(26,341,666)	(408,989)	5,097,260	-	102,128,466
Vehicles	8,652,700	1,656,726	(105,893)	(2,868,070)	-	354,971	-	7,690,434
Tools and equipment	33,946,475	8,763,997	(210,653)	(12,046,870)	-	3,464,514	-	33,917,463
Construction in progress	70,615,229	100,645,799	-	-	-	(26,289,081)	-	144,971,947
Others	2,021,387	-	-	-	-	-	-	2,021,387
	<u>₩ 1,074,373,048</u>	<u>₩ 150,469,196</u>	<u>₩ (4,708,733)</u>	<u>₩ (60,311,591)</u>	<u>₩ (4,233,592)</u>	<u>₩ (4,501,919)</u>	<u>₩ -</u>	<u>₩ 1,151,086,409</u>

¹ Others include transfer of construction in progress to original account and transfer from intangible asset.

Depreciation expense of ₩ 58,623 million (2019: ₩ 52,388 million) is included in 'cost of sales' and ₩ 9,154 million (2019: ₩ 7,924 million) in 'selling and administrative expenses'.

Property, plant and equipment are provided as collateral for borrowings as at December 31, 2020 (Note 37).

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17. Intangible Assets

(1) Details of intangible assets as at December 31, 2020 and 2019, are as follows:

(in thousands of Korean won)

	2020				
	Cost	Accumulated amortization	Accumulated impairment	Government grants	Book amount
Development costs	₩ 90,150,237	₩ (53,345,398)	₩ (9,337,620)	₩ -	₩ 27,467,219
Membership rights	24,647,718	-	(307,100)	-	24,340,618
Other intangible assets	85,344,342	(68,394,385)	(1,407,610)	-	15,542,347
Exploration rights and development rights	-	-	-	-	-
Exploration mining areas	-	-	-	-	-
	<u>₩ 200,142,297</u>	<u>₩ (121,739,783)</u>	<u>₩ (11,052,330)</u>	<u>₩ -</u>	<u>₩ 67,350,184</u>

(in thousands of Korean won)

	2019				
	Cost	Accumulated amortization	Accumulated impairment	Government grants	Book amount
Development costs	₩ 80,165,142	₩ (50,060,712)	₩ (8,380,110)	₩ -	₩ 21,724,320
Membership rights	24,476,001	-	(307,100)	-	24,168,901
Other intangible assets	81,351,497	(63,028,969)	(1,407,608)	-	16,914,920
Exploration rights and development rights	3,927,104	-	(3,927,104)	-	-
Exploration mining areas	9,856,870	-	(9,856,870)	-	-
	<u>₩ 199,776,614</u>	<u>₩ (113,089,681)</u>	<u>₩ (23,878,792)</u>	<u>₩ -</u>	<u>₩ 62,808,141</u>

(2) Changes in intangible assets for the years ended December 31, 2020 and 2019, are as follows:

(in thousands of Korean won)

	2020							
	Beginning	Acquisitions	Disposals	Amortization	Impairment	Others ¹	Business transfer ²	Ending
Development costs	₩ 21,724,321	₩ 10,546,058	₩ -	₩ (3,844,888)	₩ (957,511)	₩ (761)	₩ -	₩ 27,467,219
Membership rights	24,168,901	790,750	(619,033)	-	-	-	-	24,340,618
Others	16,914,918	4,295,450	(7,750)	(5,870,313)	-	(148,565)	358,607	15,542,347
	<u>₩ 62,808,140</u>	<u>₩ 15,632,258</u>	<u>₩ (626,783)</u>	<u>₩ (9,715,201)</u>	<u>₩ (957,511)</u>	<u>₩ (149,326)</u>	<u>₩ 358,607</u>	<u>₩ 67,350,184</u>

¹ Others include transfer of construction in progress to original account and transfer to property, plant and equipment.

² During the year ended December 31, 2020, the Company acquired robot business segment from Hanwha Precision Machinery Co., Ltd. and established new company by split-off of cluster bomb business in defense division.

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(in thousands of Korean won)	2019							
	Beginning	Acquisitions	Disposals	Amortization	Impairment	Others ¹	Business transfer	Ending
Development costs	₩ 25,817,161	₩ 3,670,921	₩ -	₩ (5,247,997)	₩ (844,255)	₩ (1,671,510)	₩ -	₩ 21,724,320
Membership rights	24,210,901	-	(42,000)	-	-	-	-	24,168,901
Others	19,326,597	4,106,506	(200,414)	(6,319,657)	-	1,888	-	16,914,920
	<u>₩ 69,354,659</u>	<u>₩ 7,777,427</u>	<u>₩ (242,414)</u>	<u>₩ (11,567,654)</u>	<u>₩ (844,255)</u>	<u>₩ (1,669,622)</u>	<u>₩ -</u>	<u>₩ 62,808,141</u>

¹ Others include transfer of construction in progress to original account and transfer to property, plant and equipment.

Amortization of ₩ 4,805 million (2019: ₩ 6,554 million) is included in 'cost of sales' and ₩ 4,910 million (2019: ₩ 5,014 million) in 'selling and administrative expenses'.

(3) Details of intangible assets with indefinite useful life as at December 31, 2020 and 2019, are as follows:

(in thousands of Korean won)	2020	2019
Goodwill	₩ 433,000	₩ 433,000
Membership rights	24,340,618	24,168,901
	<u>₩ 24,773,618</u>	<u>₩ 24,601,901</u>

(4) Research and development costs recognized in costs for the years ended December 31, 2020 and 2019, are as follows:

(in thousands of Korean won)	2020	2019
Cost of sales	₩ 38,508,321	₩ 24,205,144
Selling and administrative expenses	39,324,428	33,592,498
	<u>₩ 77,832,749</u>	<u>₩ 57,797,642</u>

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18.Right-of-Use Assets

The separate statement of financial position shows the following amounts relating to leases:

<i>(in thousands of Korean won)</i>	2020		2019	
Right-of-use assets				
Properties (buildings and land)	₩	26,697,401	₩	48,544,615
Vehicles		3,767,520		2,497,754
Others		-		2,000
	₩	<u>30,464,921</u>	₩	<u>51,044,369</u>

<i>(in thousands of Korean won)</i>	2020		2019	
Lease liabilities				
Current	₩	14,282,561	₩	16,402,909
Non-current		17,904,187		36,288,070
	₩	<u>32,186,748</u>	₩	<u>52,690,979</u>

The separate statement of profit or loss shows the following amounts relating to leases:

<i>(in thousands of Korean won)</i>	2020		2019	
Depreciation of right-of-use assets				
Properties (buildings and land)	₩	19,557,718	₩	19,812,030
Vehicles		1,990,715		2,015,604
Others		8,564		7,596
	₩	<u>21,556,997</u>	₩	<u>21,835,230</u>
Interest expense relating to lease liabilities (included in finance cost)	₩	1,129,520	₩	1,824,159
Expense relating to short-term leases and leases of low-value assets		3,768,072		3,699,834
Expense relating to variable lease payments not included in lease liabilities (included in administrative expenses)		1,448,780		811,863

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Changes in right-of-use assets for the years ended December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020					
	Beginning	Acquisitions	Disposals	Depreciation	Business transfer ¹	Ending
Land	₩ 5,964,963	₩ 265,421	₩ -	₩ (1,368,950)	₩ -	₩ 4,861,434
Buildings and structures	42,579,652	9,182,715	(11,737,632)	(18,188,768)	-	21,835,967
Vehicles	2,497,754	3,775,951	(512,843)	(1,990,715)	(2,628)	3,767,519
Others	2,000	8,564	(2,000)	(8,564)	-	-
	<u>₩ 51,044,369</u>	<u>₩ 13,232,651</u>	<u>₩ (12,252,475)</u>	<u>₩ (21,556,997)</u>	<u>₩ (2,628)</u>	<u>₩ 30,464,920</u>

¹ During the year ended December 31, 2020, the Company acquired robot business segment from Hanwha Precision Machinery Co., Ltd. and established new company by split-off of cluster bomb business in defense division.

<i>(in thousands of Korean won)</i>	2019						
	Beginning	Changes in accounting policy	Acquisitions	Disposals	Depreciation	Others	Ending
Land	₩ -	₩ 7,389,984	₩ -	₩ -	₩ (1,425,022)	₩ -	₩ 5,964,962
Buildings and structures	-	51,010,190	7,443,022	(131,103)	(18,387,008)	2,644,552	42,579,653
Vehicles	-	2,706,449	1,894,858	(87,949)	(2,015,604)	-	2,497,754
Others	-	7,596	2,000	-	(7,596)	-	2,000
	<u>₩ -</u>	<u>₩ 61,114,219</u>	<u>₩ 9,339,880</u>	<u>₩ (219,052)</u>	<u>₩ (21,835,230)</u>	<u>₩ 2,644,552</u>	<u>₩ 51,044,369</u>

Depreciation expense of ₩ 6,580 million (2019: ₩ 6,978 million) is included in 'cost of sales' and ₩ 14,977 million (2019: ₩ 14,857 million) in 'selling and administrative expenses'.

The total cash outflow for leases for the years ended December 31, 2020 and 2019, is as follows:

<i>(in thousands of Korean won)</i>	2020	2019
Total cash outflow	₩ 27,459,272	₩ 25,937,867

19. Trade and Other Payables

Details of trade and other payables as at December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020		2019	
	Current	Non-current	Current	Non-current
Trade payables	₩ 238,283,416	₩ 4,180	₩ 313,993,119	₩ 61,700
Other payables	115,975,824	5,078,865	133,458,301	5,255,816
	<u>₩ 354,259,240</u>	<u>₩ 5,083,045</u>	<u>₩ 447,451,420</u>	<u>₩ 5,317,516</u>

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20. Borrowings and Debentures

(1) Borrowings and debentures as at December 31, 2020 and 2019, are as follows:

(in thousands of Korean won)

	2020		2019	
	Current	Non-current	Current	Non-current
Short-term borrowings	₩ 549,014,326	₩ -	₩ 508,182,010	₩ -
Long-term borrowings	44,421,203	434,022,670	183,827,260	252,665,253
Debentures	320,000,000	729,640,000	524,734,000	770,000,000
Less: Discount on debentures	(188,595)	(1,855,606)	(446,895)	(2,006,687)
	<u>₩ 913,246,934</u>	<u>₩ 1,161,807,064</u>	<u>₩ 1,216,296,375</u>	<u>₩ 1,020,658,566</u>

(2) Details of short-term borrowings as at December 31, 2020 and 2019, are as follows:

(in thousands of Korean won)

	Creditor	Interest rate (%)	2020	2019
Collateralized borrowings ¹	Shinhan Bank and others	0.88 ~ 2.47	₩ 30,831,913	₩ 53,988,047
USANCE	Shinhan Bank and others	0.61 ~ 1.83	155,042,736	61,193,963
General borrowings	Korea Development Bank and others	1.63 ~ 2.64	363,139,676	393,000,000
			<u>₩ 549,014,325</u>	<u>₩ 508,182,010</u>

¹ The Company transferred trade receivables to banks and received cash. This transaction is accounted for as a collateralized borrowing (Note 8).

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(3) Details of long-term borrowings as at December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	Creditor	Interest rate (%)	Repayment terms	2020	2019
Loan for industrial facilities	Korea Development Bank and others	1.34 ~ 3.13	Partial repayment and repayment at due date	₩ 125,586,890	₩ 82,723,770
Defense industry loans	NH Bank	1.34	Partial repayment	67,565,863	44,034,743
Loan for facilities in foreign currency	KOOKMIN BANK, TOKYO BRANCH and others	1.08 ~ 1.64	Repayment at due date	45,291,120	34,734,000
General loan (long-term)	Korea EXIM Bank and others	-	Partial repayment	-	155,000,000
	Shinhan Bank and others	1.71 ~ 3.08	Repayment at due date	240,000,000	120,000,000
	Total			<u>478,443,873</u>	<u>436,492,513</u>
	Less: Current portion			<u>(44,421,203)</u>	<u>(183,827,260)</u>
	Net amount			<u>₩ 434,022,670</u>	<u>₩ 252,665,253</u>

The Company provides property, plant and equipment and others as collateral in respect of the above short-term and long-term borrowings (Note 37).

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(4) Details of debentures as at December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	Latest maturity date	Interest rate (%)	2020	2019
216th Public subscription bond	2020-03-09	-	₩ -	₩ 150,000,000
217th Public subscription bond	2020-06-07	-	-	100,000,000
218th Public subscription bond	2020-08-31	-	-	100,000,000
219th FRN Privately placed bond	2020-10-19	-	-	34,734,000
220th Public subscription bond	2020-11-09	-	-	140,000,000
221st Public subscription bond	2021-02-08	2.93	100,000,000	100,000,000
222nd Public subscription bond	2021-04-13	2.78	100,000,000	100,000,000
223rd Public subscription bond	2021-11-02	2.55	120,000,000	120,000,000
224th Public subscription bond	2022-02-01	2.25	150,000,000	150,000,000
225-1st Public subscription bond	2022-04-18	2.14	70,000,000	70,000,000
225-2nd Public subscription bond	2024-04-18	2.35	80,000,000	80,000,000
226-1st Public subscription bond	2022-09-17	1.93	90,000,000	90,000,000
226-2nd Public subscription bond	2024-09-13	2.19	60,000,000	60,000,000
227-1st Public subscription bond	2023-01-30	1.89	80,000,000	-
227-2nd Public subscription bond	2025-01-30	2.11	70,000,000	-
228th Public subscription bond	2023-06-09	2.39	97,000,000	-
229th FRN Privately placed bond	2023-11-30	3M LIBOR + 1.10	32,640,000	-
			<u>1,049,640,000</u>	<u>1,294,734,000</u>
	Less: Present value discounts		(2,044,200)	(2,453,582)
	Less: Current portion (including discount on bonds)		<u>(319,811,405)</u>	<u>(524,287,105)</u>
	Net amount		<u>₩ 727,784,395</u>	<u>₩ 767,993,313</u>

In addition, some borrowings and debentures are contracted to comply with credit ratings, debt ratios and others.

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21. Other Financial Liabilities

Details of other financial liabilities as at December 31, 2020 and 2019, are as follows:

(in thousands of Korean won)

	2020		2019	
	Current	Non-current	Current	Non-current
Derivative financial instruments	₩ 13,985,251	₩ 16,386,430	₩ 58,827,897	₩ 409,866
Deposits received	561,024	3,707,531	543,296	3,954,641
Accrued expenses	41,935,466	5,094,340	44,070,886	-
Financial guarantee contract liabilities ¹	617,644	-	878,381	-
Lease payable	14,282,561	17,904,187	16,402,908	36,288,069
	<u>₩ 71,381,946</u>	<u>₩ 43,092,488</u>	<u>₩ 120,723,368</u>	<u>₩ 40,652,576</u>

¹ The Company offers payment guarantees on loans of Hanwha Q CELLS Japan Co., Ltd., and this payment guarantee complies with the definition of the financial guarantee contract under Korean IFRS 1109 *Financial Instruments* (Note 36).

22. Other Current Liabilities

Details of other liabilities as at December 31, 2020 and 2019, are as follows:

(in thousands of Korean won)

	2020	2019
Advances receivable	₩ 576,782,267	₩ 899,262,524
Unearned revenues	578,630	870,492
Withholdings	25,134,293	28,149,388
Contract liabilities ¹	119,835,391	154,394,788
	<u>₩ 722,330,581</u>	<u>₩ 1,082,677,192</u>

¹ Contract liabilities include amount due to customers for contract work.

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23. Post-employment Benefits

(1) Details of net defined benefit liabilities as at December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020	2019
Present value of defined benefit obligations	₩ 334,157,890	₩ 333,738,738
Fair value of plan assets	(20,730,048)	(22,099,833)
	<u>₩ 313,427,841</u>	<u>₩ 311,638,905</u>

(2) Movements in the defined benefit obligations for the years ended December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020	2019
Beginning balance	₩ 333,738,738	₩ 301,011,889
Current service cost	41,300,772	39,241,022
Interest expense	11,588,637	11,289,276
Past service cost and gains or losses on settlements	17,311	-
Remeasurements:		
Actuarial gain from change in demographic assumptions	(1,326)	(2,244,709)
Actuarial loss (gain) from change in financial assumptions	(3,973,620)	1,065,538
Actuarial loss (gain) from experience adjustments	(2,905,066)	10,070,607
Actuarial loss arising from changes in adjustment of retirement age	52,989	146,691
Increase due to business combination	2,461,436	-
Payments from plans:		
Benefit payments	(28,715,459)	(24,076,009)
Settlements (including transfer in/out of affiliates)	(19,406,520)	(2,765,567)
Ending balance	<u>₩ 334,157,892</u>	<u>₩ 333,738,738</u>

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(3) Movements in the fair value of plan assets for the years ended December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020		2019	
Beginning balance	₩	22,099,833	₩	24,227,398
Interest income		757,451		866,464
Remeasurements:				
Return on plan assets (excluding amounts included in interest income)		(358,648)		(419,357)
Payments from plans:				
Benefit payments		(4,524,974)		(1,089,432)
Settlements		2,559,326		(1,485,240)
Increase due to business combination		197,061		-
Ending balance	₩	<u>20,730,049</u>	₩	<u>22,099,833</u>

(4) Amounts recognized in the separate statements of comprehensive income for the years ended December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020		2019	
Current service cost	₩	41,318,083	₩	39,241,022
Interest expense		11,588,637		11,289,276
Interest income of plan assets		(757,451)		(866,464)
Expense included in employee benefit	₩	<u>52,149,269</u>	₩	<u>49,663,834</u>

Amount of ₩ 38,936 million (2019: ₩ 36,342 million) is included in 'cost of manufacturing' and ₩ 13,213 million (2019: ₩ 13,322 million) in 'selling and administrative expenses'.

(5) The significant actuarial assumptions as at December 31, 2020 and 2019, are as follows:

<i>(in percentage, %)</i>	2020	2019
Discount rate	3.23% ~ 3.7%	3.09% ~ 3.59%
Salary growth rate	4.13% ~ 4.94%	4.07% ~ 5.10%

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

(in thousands of
Korean won)

	Impact on defined benefit obligation		
	Changes in assumption	Increase in assumption	Decrease in assumption
Discount rate	1%	₩ (34,106,304)	₩ 40,507,146
Salary growth rate	1%	40,567,636	(34,765,327)

Decrease in corporate bond yield, which is discount rate, causes value of debt securities to increase. Although this will be partially offset, the Company is exposed to significant risk by increase in the value of defined benefit obligations.

The above sensitivity analysis is based on a change in an assumption while holding all other assumptions constant. In practice, these changes with some of the assumptions correlated. The sensitivity of the defined benefit obligations in respect of changes in principal actuarial assumptions is calculated using the projected unit credit method; the same method applied when calculating the defined benefit obligations recognized in the separate statements of financial position. The methods and types of assumptions used in preparing the sensitivity analysis did not change compared to the previous year.

(7) Plan assets as at December 31, 2020 and 2019, consist of:

(in thousands of Korean won)

	2020		2019	
	Amount	Composition	Amount	Composition
Principal guaranteed financial instruments	₩ 20,474,995	98.77%	₩ 21,805,093	98.67%
Transferred to National Pension Fund	255,054	1.23%	294,740	1.33%
	₩ 20,730,049	100.00%	₩ 22,099,833	100.00%

(8) The expected maturity analysis of undiscounted pension benefits as at December 31, 2020, is as follows:

(in thousands of
Korean won)

	Less than 1 year	Between 1-2 years	Between 2-5 years	Between 5-10 years	Over 5 years
Pension benefits	₩ 5,154,229	₩ 47,375,234	₩ 61,865,791	₩ 111,277,422	₩ 1,278,197,063

The weighted average duration of the defined benefit obligation is 7.71 ~ 12.2 years.

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24. Provisions

(1) Details of provisions as at December 31, 2020 and 2019, are as follows:

(in thousands of Korean won)

	2020		2019	
	Current	Non-current	Current	Non-current
Provision for construction warranties	₩ 6,082,618	₩ 863,585	₩ 105,722	₩ 1,734,174
Provision for construction losses	-	20,135,309	-	21,247,119
Provision for litigations	4,481,360	-	-	-
Others ¹	18,121,482	38,276,870	19,685,205	33,283,674
	<u>₩ 28,685,460</u>	<u>₩ 59,275,764</u>	<u>₩ 19,790,927</u>	<u>₩ 56,264,967</u>

¹ The Company has some offset order's obligations when exporting, and the related-penalty costs are estimated and reflected in the separate financial statements.

(2) Changes in the provisions for the years ended December 31, 2020 and 2019, are as follows:

(in thousands of Korean won)

	2020				
	Provision for construction warranties	Provision for construction losses	Provision for litigations	Others	Total
Beginning	₩ 1,839,896	₩ 21,247,119	₩ -	₩ 52,968,878	₩ 76,055,893
Increase due to business combination	-	-	-	163,642	163,642
Increase	6,602,225	15,786,513	6,565,572	20,086,625	49,040,935
Used during year	(1,385,801)	(9,457,320)	(2,084,212)	(7,278,185)	(20,205,518)
Reversal	(110,117)	(1,136,485)	-	(4,122,669)	(5,369,271)
Split-off	-	(6,304,517)	-	(5,419,940)	(11,724,457)
Ending	<u>₩ 6,946,203</u>	<u>₩ 20,135,310</u>	<u>₩ 4,481,360</u>	<u>₩ 56,398,351</u>	<u>₩ 87,961,224</u>

(in thousands of Korean won)

	2019			
	Provision for construction warranties	Provision for construction losses	Others	Total
Beginning	₩ 552,928	₩ 17,389,433	₩ 28,485,774	₩ 46,428,135
Increase	3,626,198	12,523,975	33,599,270	49,749,443
Used during year	(2,339,229)	(8,243,452)	(8,785,187)	(19,367,868)
Reversal	-	(422,838)	(330,979)	(753,817)
Ending	<u>₩ 1,839,897</u>	<u>₩ 21,247,118</u>	<u>₩ 52,968,878</u>	<u>₩ 76,055,893</u>

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25. Construction Contract

(1) Changes in construction contract balance for the year ended December 31, 2020, are as follows:

(in thousands of Korean won)

	2020			
	Beginning	Changes ¹	Recognized construction revenue	Ending
Industrial machinery	₩ 407,816,291	₩ 346,922,963	₩ (339,297,812)	₩ 415,441,442
Domestic construction	15,380,173	10,380,292	(25,358,778)	401,687
Defense	310,164,756	319,389,592	(193,637,289)	435,917,059
	<u>₩ 733,361,220</u>	<u>₩ 676,692,847</u>	<u>₩ (558,293,879)</u>	<u>₩ 851,760,188</u>

¹ Increased amount caused by new contracts is ₩ 673,427 million and amount of effect caused by changes in the size of construction is ₩ 3,266 million for the year of 2020.

(2) Details of accumulated contract gains and losses in relation to construction contract in progress as at December 31, 2020 and 2019, are as follows:

(in thousands of Korean won)

	2020		
	Accumulated contract revenue	Accumulated contract cost of sales	Accumulated profit or loss
Industrial machinery	₩ 485,596,838	₩ 427,459,268	₩ 58,137,570
Domestic construction	31,925,039	31,199,351	725,688
Defense	402,402,475	442,644,197	(40,241,722)
	<u>₩ 919,924,352</u>	<u>₩ 901,302,816</u>	<u>₩ 18,621,536</u>

(in thousands of Korean won)

	2019		
	Accumulated contract revenue	Accumulated contract cost of sales	Accumulated profit or loss
Industrial machinery	₩ 717,707,068	₩ 621,640,380	₩ 96,066,688
Domestic construction	47,301,171	49,974,878	(2,673,707)
Defense	511,832,970	608,247,668	(96,414,698)
	<u>₩ 1,276,841,209</u>	<u>₩ 1,279,862,926</u>	<u>₩ (3,021,717)</u>

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(3) Details of contract assets and contract liabilities as at December 31, 2020 and 2019, are as follows:

(in thousands of Korean won)

	2020		2019	
	Contract assets ¹	Contract liabilities	Contract assets ¹	Contract liabilities
Industrial machinery	₩ 62,948,409	₩ 17,098,015	₩ 69,192,007	₩ 36,007,377
Domestic construction	1,453,072	215,144	3,349,089	189,115
Defense	24,824,510	101,423,525	32,837,173	117,389,102
	<u>₩ 89,225,991</u>	<u>₩ 118,736,684</u>	<u>₩ 105,378,269</u>	<u>₩ 153,585,594</u>

¹ Recognized as other current assets on the separate statements of financial position.

(4) Amount of effect on current and future profits and losses caused by changes in defense and industrial machinery in progress for the year ended December 31, 2020, is as follows:

(in thousands of Korean won)

	2020						
	Changes in estimated total contract revenue	Changes in estimated total contract cost of sales	Effect on current profit or losses	Effect on future profits and losses	Changes in contract assets	Changes in contract liabilities	Provision for construction losses
Industrial machinery	₩ 7,638,368	₩ 4,773,279	₩ 1,660,401	₩ 1,204,688	₩ 12,069,028	₩ 10,408,627	₩ 44,616
Domestic construction	4,011,972	6,081,323	(2,069,351)	-	-	2,069,351	-
Defense	8,871,596	14,661,341	(3,356,811)	(2,432,934)	4,679,261	8,036,072	18,885,320
	<u>₩ 20,521,936</u>	<u>₩ 25,515,943</u>	<u>₩ (3,765,761)</u>	<u>₩ (1,228,246)</u>	<u>₩ 16,748,289</u>	<u>₩ 20,514,050</u>	<u>₩ 18,929,936</u>

(5) There is no construction contract in progress, and the amount of contract revenue is more than 5% of total revenue as at December 31, 2020 and 2019.

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26. Share Capital and Capital Surplus

(1) Share capital as at December 31, 2020 and 2019, is as follows:

<i>(in thousands of Korean won and in number of shares)</i>	Number of authorized shares	Number of shares issued	Par value (in Korean won)	2020	2019
Ordinary shares		74,958,735	5,000 ₩	374,793,675	₩ 374,793,675
1 st preferred shares ¹	200,000,000	479,294	5,000	2,396,470	2,396,470
3 rd preferred shares ²		22,472,000	5,000	112,360,000	112,360,000
				<u>₩ 489,550,145</u>	<u>₩ 489,550,145</u>

¹ The 1st preferred share, which is non-cumulative, is eligible to receive cash dividends, if declared, equal to that declared for ordinary shares plus an additional 1%.

² In October 2016, the Company increased paid-in capital as preferred share without voting rights (22,472,000 shares).

(2) Capital surplus as at December 31, 2020 and 2019, is as follows:

<i>(in thousands of Korean won)</i>	2020	2019
Share premium	₩ 342,536,030	₩ 342,536,029
Revaluation reserve	67,357,029	67,357,029
Other capital surplus	177,438,373	173,749,633
	<u>₩ 587,331,432</u>	<u>₩ 583,642,691</u>

(3) Share-based payment

Certain employees and executives of the Company have been granted restricted stock units ("RSU") with the resolution of the Board of Directors during the year ended December 31, 2020, and the details are as follows:

Details

Type of shares issued through share option	Ordinary shares of Hanwha Corporation
Total grant amount (in Korean won)	₩ 8,280,552,000
Equity-settled share options	180,012 shares
Equity-linked cash (in Korean won)	₩ 4,140,276,000 (Grant base stock price: ₩ 23,000, equivalent to 180,012 shares in total)
Exercise price (in Korean won)	Nil (No exercise price exists under the existing share-based payment plan)
Grant date	2020-02-11
Vesting condition	If employees and executives have worked for more than nine months in the position in the fiscal year, the RSUs granted will not be adjusted.

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Details

Exercisable timing

The effect of payment on RSUs occurs in January 2027 or January 2030 depending on each employees and executives, regardless of whether the employees and executives are employed (however, the Company may execute the payment to the employees and executives in case where interim payment condition is satisfied).

Changes in the number of equity-settled share options outstanding for the year ended December 31, 2020 and 2019, are as follows:

<i>(in shares)</i>	Number of options	
	2020	2019
Beginning balance	-	-
Granted	180,012	-
Ending balance	<u>180,012</u>	-
Exercisable at the end of the reporting period	-	-

The weighted average remaining contractual maturity of share options outstanding at the end of the reporting period is 8.4 years and the exercise prices are nil per share

Book amount of liabilities and intrinsic value recognized in relation to equity-linked cash are as follows:

<i>(in thousands of Korean won)</i>	2020	2019
Book amount of liabilities	₩ 5,094,340	₩ -
Intrinsic value ¹	28,300	-

¹ The Company assessed intrinsic value based on the market price of the share which is publicly traded in securities market at the end of every reporting period.

Share-based payments recognized as expenses for the years ended December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020	2019
Equity-settled	₩ 4,140,276	₩ -
Equity-linked cash	<u>5,094,340</u>	-
	<u>₩ 9,234,616</u>	<u>₩ -</u>

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27. Capital Adjustment

Details of capital adjustment as at December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020	2019
Treasury share ¹	₩ (24,034,356)	₩ (20,751,089)

¹ As at December 31, 2020, the number of treasury shares is 6,060,012 shares (2019: 5,880,000 shares). Treasury shares do not have voting rights according to the commercial law.

28. Retained Earnings and Dividends

(1) Details of retained earnings as at December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020	2019
Legal reserves		
Earned profit reserves ¹	₩ 65,900,000	₩ 59,300,000
Discretionary reserves		
Other discretionary reserves	1,217,800,000	1,217,800,000
Retained earnings before appropriation		
Carryforward reserves and others	1,155,916,434	1,094,406,538
	<u>₩ 2,439,616,434</u>	<u>₩ 2,371,506,538</u>

¹ The Commercial Code of the Republic of Korea requires the Company to appropriate for each financial period, as a legal reserve, an amount equal to a minimum of 10% of cash dividends paid until such reserve equals 50% of its issued share capital. The reserve is not available for cash dividends payment, but may be transferred to share capital or used to reduce accumulated deficit in accordance with a resolution of the shareholders' meeting.

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(2) Appropriation of retained earnings

The appropriation of retained earnings for the year ended December 31, 2020, is expected to be appropriated at the shareholders' meeting on March 29, 2021. The appropriation date for the year ended December 31, 2019, was March 25, 2020.

<i>(in thousands of Korean won)</i>	2020	2019
Retained earnings available for appropriation		
Unappropriated retained earnings carried over from prior year	₩ 1,022,237,953	₩ 1,001,318,057
Remeasurements of net defined benefit liabilities	4,903,029	(7,181,373)
Profit for the year	128,678,023	100,269,854
Gain on valuation of financial assets at fair value through other comprehensive income	97,429	-
	<u>1,155,916,434</u>	<u>1,094,406,538</u>
Appropriation of retained earnings		
Earned profit reserves	6,600,000	6,600,000
Dividends (Cash dividend per share (%):		
Ordinary share: ₩ 700 (14%) (2019: ₩ 700 (14%))	65,442,577	65,568,585
1 st preferred share: ₩ 750 (15%) (2019: ₩ 750 (15%))		
3 rd preferred share: ₩ 750 (15%) (2019: ₩ 750 (15%))		
	<u>72,042,577</u>	<u>72,168,585</u>
Unappropriated retained earnings to be carried forward	<u>₩ 1,083,873,857</u>	<u>₩ 1,022,237,953</u>

(3) Dividends

The dividends paid in 2020 and 2019 were ₩ 65,569 million (₩ 700 per ordinary share, ₩ 750 per 1st preferred share and ₩ 750 per 3rd preferred share) and ₩ 62,085 million (₩ 700 per ordinary share, ₩ 750 per 1st preferred share and ₩ 595 per 3rd preferred share), respectively. Dividends for the year ended December 31, 2020, of ₩ 700 per ordinary share, ₩ 750 per 1st preferred share and ₩ 750 3rd preferred share, amounting to a total dividend of ₩ 65,443 million, are to be proposed at the annual general shareholders' meeting on March 29, 2021. Separate financial statements as of December 31, 2020, do not reflect these dividends payable.

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29.Revenue and Cost of Sales

(1) Details of revenue for the years ended December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020	2019
Finished goods	₩ 1,722,639,392	₩ 1,533,590,403
Merchandise	1,453,739,642	2,015,904,353
Construction and others	824,395,827	883,668,294
	<u>₩ 4,000,774,861</u>	<u>₩ 4,433,163,050</u>

<i>(in thousands of Korean won)</i>	2020	2019
Recognizing profit on certain point		
Finished goods	₩ 1,722,639,392	₩ 1,532,823,490
Merchandise	1,453,739,642	2,015,898,473
Others	73,709,137	69,580,763
	<u>3,250,088,171</u>	<u>3,618,302,726</u>
Recognizing profit over certain point		
Finished goods	-	766,913
Merchandise	-	5,880
Construction and others	740,159,845	804,934,749
	<u>740,159,845</u>	<u>805,707,542</u>
Revenue from other sources		
Rental income and others	10,526,845	9,152,781
	<u>₩ 4,000,774,861</u>	<u>₩ 4,433,163,049</u>

(2) Details of cost of sales for the years ended December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020	2019
Finished goods	₩ 1,429,715,568	₩ 1,257,934,999
Merchandise	1,394,252,338	1,909,137,650
Construction and others	687,011,815	769,319,918
	<u>₩ 3,510,979,721</u>	<u>₩ 3,936,392,567</u>

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30. Selling and Administrative Expenses

Details of selling and administrative expenses for the years ended December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020		2019	
Salaries	₩	98,701,501	₩	94,681,332
Post-employment benefits ¹		18,797,207		13,521,677
Employee benefits		15,398,658		13,564,636
Rental expenses		2,762,437		1,330,365
Depreciation of property, plant and equipment		9,154,204		7,923,331
Depreciation of investment property		442,355		529,888
Amortization		4,910,086		5,014,003
Depreciation of right-of-use assets		14,977,189		14,856,882
Taxes and dues		3,577,115		3,880,992
Advertising expenses		1,519,155		2,776,573
Outsourcing fees		6,843,397		8,336,149
Freight expenses		18,672,845		16,310,087
Sales commission expenses		8,609,416		17,566,434
Commission expenses		26,133,981		27,000,940
Others		92,335,882		80,528,411
	₩	<u>322,835,428</u>	₩	<u>307,821,700</u>

¹ Voluntary retirement benefits of ₩ 5,459,227 thousand (2019: ₩ 92,949 thousand) and expense recognized in relation to defined contribution plan of ₩ 124,534 thousand (2019: ₩ 107,074 thousand) are included in 'post-employment benefits'.

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31. Breakdown of Expenses by Nature

Details of expenses by nature for the years ended December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020	2019
Changes in inventories ¹	₩ 131,311,311	₩ 142,593,769
Raw materials used	1,431,465,269	1,265,649,001
Merchandise purchased	1,298,124,922	1,877,677,083
Salaries and wages	438,405,193	422,229,368
Employee benefits	65,742,075	63,146,805
Rental expenses	5,468,031	3,717,796
Depreciation of property, plant and equipment	67,777,744	60,311,591
Depreciation of investment property	442,355	529,888
Amortization	9,715,200	11,567,654
Depreciation of right-of-use assets	21,556,996	21,835,230
Taxes and dues	7,291,229	7,615,348
Research and development expenses	77,832,749	57,797,642
Commission expenses	56,611,521	55,713,418
Others	222,070,554	253,829,673
	<u>₩ 3,833,815,149</u>	<u>₩ 4,244,214,266</u>

¹ Changes of raw materials were excluded.

32. Other Income and Expenses

(1) Details of other income for the years ended December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020	2019
Gain on foreign currency transaction and translation	₩ 76,724,303	₩ 48,984,941
Gain on valuation of financial assets at fair value through profit or loss	494,374	137,901
Gain on disposal of financial assets at fair value through profit or loss	-	-
Gain on valuation of derivatives	34,919,497	23,242,079
Gain on transaction of derivatives	202,463,572	27,012,036
Gain on disposal of investments in subsidiaries and associates	47,078,762	1,454,796
Reversal of impairment loss on investments in subsidiaries and associates	368,765	3,130,530
Reversal of other impairment loss	463,533	647,541
Others	14,845,530	50,289,388
	<u>₩ 377,358,336</u>	<u>₩ 154,899,212</u>

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(2) Details of other expenses for the years ended December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020		2019	
Loss on foreign currency transaction and translation	₩	65,049,163	₩	54,235,207
Loss on valuation of financial assets at fair value through profit or loss		-		198,841
Loss on disposal of financial assets at fair value through profit or loss		303		502
Loss on disposal of financial assets at fair value through other comprehensive income		-		-
Loss on valuation of derivatives		16,420,441		15,876,705
Loss on transaction of derivatives		191,961,477		50,205,749
Loss on disposal of investments in subsidiaries and associates		-		-
Impairment loss on investments in subsidiaries and associates		42,609,349		27,664,002
Other impairment loss		2,854,187		554,079
Others		29,792,941		40,682,471
	₩	<u>348,687,861</u>	₩	<u>189,417,556</u>

33. Finance Income and Costs

(1) Details of finance income for the years ended December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020		2019	
Interest income according to the effective interest rate method				
Long-term trade receivables	₩	-	₩	4,494
Loans		-		-
Interest income - others				
Cash and cash equivalents, advance deposit and others		6,425,748		5,395,345
Loans		12,468		214,672
Others		38		326
Dividend income		18,585,248		30,731,080
	₩	<u>25,023,502</u>	₩	<u>36,345,917</u>

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(2) Details of finance costs for the years ended December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020	2019
Interest expense		
Borrowings and debentures ¹	₩ 59,545,052	₩ 70,316,466
Others	1,154,739	1,848,379
	<u>₩ 60,699,791</u>	<u>₩ 72,164,845</u>

¹ During the year ended December 31, 2020, the Company has capitalized borrowing costs on qualifying assets. The capitalization rate of borrowings used to determine the amount of borrowing costs to be capitalized is 2.34% (2019: 2.85%).

34. Income Tax Expense

(1) Income tax expense for the years ended December 31, 2020 and 2019, consists of the following

<i>(in thousands of Korean won)</i>	2020	2019
Current tax:		
Current tax on profits for the year	₩ 43,518,125	₩ 24,846,024
Adjustments in respect of prior years	<u>(10,172,161)</u>	<u>6,299,133</u>
Total current tax	<u>33,345,964</u>	<u>31,145,157</u>
Deferred tax:		
Increase (decrease) of temporary differences	<u>(2,070,092)</u>	<u>(12,803,500)</u>
Total deferred tax	<u>(2,070,092)</u>	<u>(12,803,500)</u>
Income tax expense	<u>₩ 31,275,872</u>	<u>₩ 18,341,657</u>

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(2) An explanation of the relationship between income tax expense and profit before tax for the years ended December 31, 2020 and 2019, is as follows:

<i>(in thousands of Korean won)</i>	2020		2019	
Profit before tax	₩	159,953,896	₩	118,611,511
Tax calculated at domestic tax rates applicable to profits in the respective countries		38,246,843		28,241,986
Tax effects:				
Income not subject to tax		(1,182,711)		(12,814,071)
Expenses not deductible for tax purposes		5,324,831		3,580,834
Tax credit and tax reduction		(3,610,335)		(4,722,845)
Unrecognized deferred tax		2,778,731		16,227,267
Adjustment in respect of prior years		(10,281,487)		(12,171,514)
Income tax expense	₩	<u>31,275,872</u>	₩	<u>18,341,657</u>
Effective tax rate		19.55%		15.46%

(3) The income taxes charged or credited directly to equity for the years ended December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020			2019		
	Before tax	Tax effect	After tax	Before tax	Tax effect	After tax
Gain (loss) on valuation of available-for-sale securities	₩ -	₩ -	₩ -	₩ -	₩ -	₩ -
Remeasurements	6,468,375	(1,565,347)	4,903,028	(9,457,483)	2,276,110	(7,181,373)
	₩ 6,468,375	₩ (1,565,347)	₩ 4,903,028	₩ (9,457,483)	₩ 2,276,110	₩ (7,181,373)

(4) The analysis of deferred tax assets and liabilities as at December 31, 2020 and 2019, is as follows:

<i>(in thousands of Korean won)</i>	2020		2019	
Deferred tax assets				
Deferred tax asset to be recovered after more than 12 months	₩	178,518,408	₩	164,893,021
Deferred tax asset to be recovered within 12 months		36,940,377		70,036,732
		<u>215,458,785</u>		<u>234,929,753</u>
Deferred tax liabilities				
Deferred tax liability to be recovered after more than 12 months		(381,710,086)		(400,520,725)
Deferred tax liability to be recovered within 12 months		(274,875)		(1,439,949)
		<u>(381,984,961)</u>		<u>(401,960,674)</u>
Deferred tax liabilities, net	₩	<u>(166,526,176)</u>	₩	<u>(167,030,921)</u>

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(5) Changes in deferred income tax for the years ended December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020	2019
Beginning	₩ (167,030,920)	₩ (177,419,002)
Deferred income tax charged to statement of comprehensive income	2,070,093	8,111,972
Tax charged or credited directly to equity	<u>(1,565,347)</u>	<u>2,276,110</u>
Ending	<u>₩ (166,526,176)</u>	<u>₩ (167,030,920)</u>

(6) The movements in deferred tax assets and liabilities for the years ended December 31, 2020 and 2019, without taking into consideration the offsetting of balances within the same tax jurisdiction, are as follows:

<i>(in thousands of Korean won)</i>	2020			
	Beginning	Comprehensive income	Equity	Ending
Deferred tax assets				
Provision for performance incentive	₩ 4,025,381	₩ 2,028,874	₩ -	₩ 6,054,255
Allowance for bad debt	6,217,620	444,125	-	6,661,745
Remeasurements	25,693,668	-	(1,565,347)	24,128,321
Government grants	1,313,311	(370,118)	-	943,193
Defined benefit obligations	55,523,683	1,676,386	-	57,200,069
Others	142,156,091	(21,684,888)	-	120,471,203
	<u>₩ 234,929,754</u>	<u>₩ (17,905,621)</u>	<u>₩ (1,565,347)</u>	<u>₩ 215,458,786</u>
Deferred tax liabilities				
Interest on construction borrowings	₩ (1,073,011)	₩ 1,067,413	₩ -	₩ (5,598)
Investment in subsidiaries and associates	(262,120,556)	16,425,634	-	(245,694,922)
Revaluation surplus	(43,375,964)	1,867,837	-	(41,508,127)
Gain on business split-off	(38,198,132)	-	-	(38,198,132)
Other capital surplus	(28,610,751)	-	-	(28,610,751)
Others	(28,582,259)	614,830	-	(27,967,429)
	<u>₩ (401,960,673)</u>	<u>₩ 19,975,714</u>	<u>₩ -</u>	<u>₩ (381,984,959)</u>

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(in thousands of Korean won)

	2019			
	Beginning	Comprehensive income	Equity	Ending
Deferred tax assets				
Provision for performance incentive	₩ 6,412,487	₩ (2,387,106)	₩ -	₩ 4,025,381
Allowance for bad debt	6,659,589	(441,969)	-	6,217,620
Remeasurements	23,417,558	-	2,276,110	25,693,668
Government grants	702,479	610,832	-	1,313,311
Defined benefit obligations	50,201,958	5,321,725	-	55,523,683
Others	85,197,076	56,959,014	-	142,156,090
	<u>₩ 172,591,147</u>	<u>₩ 60,062,496</u>	<u>₩ 2,276,110</u>	<u>₩ 234,929,753</u>
Deferred tax liabilities				
Interest on construction borrowings	₩ (1,073,839)	₩ 828	₩ -	₩ (1,073,011)
Investment in subsidiaries and associates	(212,354,801)	(49,765,755)	-	(262,120,556)
Revaluation surplus	(39,939,605)	(3,436,359)	-	(43,375,964)
Gain on business split-off	(38,198,132)	-	-	(38,198,132)
Other capital surplus	(28,610,751)	-	-	(28,610,751)
Others	(29,833,021)	1,250,760	-	(28,582,260)
	<u>₩ (350,010,149)</u>	<u>₩ (51,950,525)</u>	<u>₩ -</u>	<u>₩ (401,960,674)</u>

(7) Details of unrecognized deductible temporary differences as deferred tax liabilities as at December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020	2019
Investments in subsidiaries and associates ¹	₩ 380,909,460	₩ 392,391,820

¹ Temporary differences for investments in subsidiaries and associates that are not probable to be reversed.

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35. Earnings per Share

(1) Profits attributable to ordinary shares and 1st preferred shares for the years ended December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020		2019	
Profit for the year	₩	128,678,023	₩	100,269,854
Dividend to third preferred share		<u>(16,854,000)</u>		<u>(16,854,000)</u>
Profit attributable to ordinary shares and first preferred shares	₩	<u>111,824,023</u>	₩	<u>83,415,854</u>

(2) Basic earnings per share for the years ended December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020				2019			
	Ordinary shares		1st preferred shares ²		Ordinary shares		1st preferred shares ²	
Profit attributable to equity holders of the Company	₩	111,029,693	₩	794,330	₩	82,817,272	₩	598,582
Weighted-average number of ordinary shares in issue		69,078,735		479,294		69,078,735		479,294
Basic earnings per share ¹ (in Korean won)	₩	<u>1,607</u>	₩	<u>1,657</u>	₩	<u>1,199</u>	₩	<u>1,249</u>

¹ Basic earnings per share from continuing operations of 2020 and 2019 are identical to basic earnings per share.

² Preferred shares were issued under the former commercial law before amendments in 1997. These preferred shares hold the same priority as ordinary shares in terms of dividends payout and distribution of residual- properties, thus earnings per share were calculated accordingly. Dividends are paid by adding 1% of par value of ordinary shares to dividends per ordinary shares.

(3) For the year ended December 31, 2020, the restricted stock units (RSU) have been all vested and as a result, those effects and the effects of treasury share acquisition are offset. Accordingly, there was no adjustment for number of ordinary shares in issue. Therefore, basic earnings per share are identical to diluted earnings per share.

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36.Related Party Transactions

(1) The Company has no parent company as at December 31, 2020 and 2019.

(2) Details of subsidiaries list as at December 31, 2020 and 2019, are as follows:

	Percentage of ownership (%)		Location	Closing month	Main business
	2020	2019			
Gyeonggi Yongin Techno Valley Co., Ltd.	80.00	80.00	Korea	December	Real estate business
Kimhae Techno Valley Co., Ltd.	80.00	80.00	Korea	December	Real estate business
Agricultural Corporation Company Green Tomorrow Co.,Ltd.	90.00	90.00	Korea	December	Processing and distribution of agricultural, livestock and forest products
Data Analytics Lab Co., Ltd.	100.00	100.00	Korea	December	Management consulting
H-P&D Co., Ltd.	100.00	100.00	Korea	December	Real estate development
Seosan Techno Valley Co., Ltd.	65.00	65.00	Korea	December	Real estate development and supply
Anseong Techno Valley Co., Ltd.	80.00	80.00	Korea	December	Real estate development and supply
Asan Techno Valley Co., Ltd.	100.00	100.00	Korea	December	Real estate business
Yangju Ecotec Co., Ltd.	100.00	100.00	Korea	December	Construction and operation of sewage treatment plant
Yeosu Sea World Corporation	100.00	100.00	Korea	December	Aquarium
Gyeonggi Hwaseong Bio Valley Co., Ltd.	100.00	100.00	Korea	December	Sale and trading of real estate
ECO E&O CORPORATION	100.00	100.00	Korea	December	Sewage treatment and environmental pollution prevention facility
Ilsan Seaworld,Co., Ltd	99.11	99.11	Korea	December	Aquarium
YoungAm TechnoSolar Co., Ltd	100.00	100.00	Korea	December	Photovoltaic business
YoungAm HaeOReumSolar Co., Ltd	100.00	100.00	Korea	December	Photovoltaic business
Hi-pass Solar Co., Ltd	100.00	100.00	Korea	December	Photovoltaic business
HaeSaRang Solar Co., Ltd	100.00	100.00	Korea	December	Photovoltaic business
KAES Co., Ltd.	100.00	100.00	Korea	December	Machine manufacturing
Hanwha 63 City Co., Ltd.	100.00	100.00	Korea	December	Real estate management service and others
Hanwha Galleria Co., Ltd.	100.00	100.00	Korea	December	Department store and wholesale/retail
Hanwha Galleria Timeworld	100.00	85.45	Korea	December	Department store

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Co., Ltd.						
Hanwha Engineering and Construction Corp.	100.00	100.00	Korea	December	Civil engineering, housing construction, industrial equipment and others	
Hanwha City Development Co., Ltd	100.00	100.00	Korea	December	Sale and trading of real estate and others	
Hanwha Defense Systems Corp.	100.00	100.00	Korea	December	Military equipment	
Hanwha Life Asset Co., Ltd.	100.00	100.00	Korea	December	Insurance agency and brokerage	
Hanwha B&B Co., Ltd.	100.00	100.00	Korea	December	Food and wholesale/retail	
Hanwha Life Insurance Co., Ltd. ¹	44.99	44.99	Korea	December	Life insurance	
Hanwha General Insurance Co., Ltd.	51.36	51.36	Korea	December	Insurance and pension services	
Hanwha Life Insurance Investigation & Adjusting	100.00	100.00	Korea	December	Insurance and pension services	
Hanwha Systems Co., Ltd. ³	48.99	48.99	Korea	December	Gunpowder services	
Hanwha Estate Co., Ltd.	100.00	100.00	Korea	December	Business facilities management and business support	
Hanwha Aerospace Co., Ltd. ³	33.95	33.34	Korea	December	Manufacturing of aircraft engine and parts	
Hanwha Station Development Co., Ltd.	67.25	67.25	Korea	December	Leasing service	
Hanwha Eagles Professional Baseball Club Co., Ltd.	90.00	90.00	Korea	December	Operation of sports club	
Hanwha Asset Management Co., Ltd.	100.00	100.00	Korea	December	Asset management	
Hanwha Savings Bank Co., Ltd.	100.00	100.00	Korea	December	Deposit and savings import business / Financial loan	
Hanwha Precision Machinery Co., Ltd.	100.00	100.00	Korea	December	Manufacturing and sale of Chip Mounter and others	
Hanwha Global Asset Corporation	100.00	100.00	Korea	December	Synthetic resin processing and others	
Hanwha Compound Corporation Co., Ltd.	100.00	100.00	Korea	December	Manufacturing and sale of packaging materials	
Hanwha Solutions Co., Ltd. (Formerly, Hanwha Chemical Co., Ltd.) ³	36.99	36.62	Korea	December	Manufacturing of synthetic resin and other petrochemical products	
Hanwha Chemical Overseas Holdings, Co., Ltd.	100.00	100.00	Korea	December	Holding company	
HIS Co.,Ltd	100.00	100.00	Korea	December	Development, manufacturing and sale of solar cell (including module) and photovoltaic power generation system	

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Hanwha TechM Co., Ltd.	100.00	100.00	Korea	December	Domestic and foreign securities investment
Hanwha Techwin Co., Ltd.	100.00	100.00	Korea	December	Manufacturing of broadcasting and wireless communication equipment
Hanwha Investment & Securities Co., Ltd. ³	45.24	45.24	Korea	December	Financial investment
Hanwha Power System Co., Ltd.	100.00	100.00	Korea	December	Manufacturing and sale of compressor, generator and gas turbine
Hanwha Hotel & Resort Inc.	99.32	99.32	Korea	December	Condominium operation
Hanwha Techwin Tianjin Opto-Electronic Co., Ltd.	100.00	100.00	China	December	Manufacturing and sale of CCTV and others
Hanwha Investment Management Limited	100.00	100.00	China	December	Investment management
Hanwha Chemical Trading (Shanghai) Co., Ltd.	100.00	100.00	China	December	Trading
Hanwha International Trading (Shanghai) Co., Ltd.	100.00	100.00	China	December	Trading
Foodist Food Culture (Shanghai) Co., Ltd.	100.00	100.00	China	December	Group meal and catering services
Hanwha TechM (Suzhou) Co., Ltd.	100.00	100.00	China	December	Production of machine tools and power train
SHANGHAI HANWHA TECHWIN CO.,LTD .	100.00	100.00	China	December	Sale of compressor and industrial equipment
Acropark Golf Corp.	100.00	100.00	Japan	December	Golf course and resort business
Alkin Enerji uretim Ltd. sti.	100.00	100.00	Turkey	December	Photovoltaic power generation
Aslan Gunes Enerjisi A.s.	100.00	100.00	Turkey	December	Photovoltaic power generation
Avenir el Divisadero SpA	100.00	100.00	Chile	December	EPC Construction
Blue Albatross FZE	100.00	100.00	UAE	December	Trading
Elcin Enerji uretim Ltd. sti.	100.00	100.00	Turkey	December	Photovoltaic power generation
EMBR PTY LTD	100.00	100.00	Australia	December	Supply of gunpowder products and services
Fior Gunes Enerjisi Anonim sirketi	100.00	100.00	Turkey	December	Photovoltaic power generation
Fnt Gida Turizm Ic Ve Dis Ticaret Sanayi Ltd. sti.	100.00	100.00	Turkey	December	Photovoltaic power generation
Garnet Solar Power Generation 1, LLC	100.00	100.00	USA	December	Photovoltaic business
Hanwha Advanced Materials America LLC	100.00	100.00	USA	December	Manufacturing of automobile parts
Hanwha Advanced Materials Beijing Co., Ltd.	100.00	100.00	China	December	Manufacturing of automobile part materials
Hanwha Advanced Materials Chongqing Co.,Ltd.	100.00	100.00	China	December	Manufacturing of automobile materials

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Hanwha Advanced Materials Europe, s.r.o.	100.00	100.00	Czech Republic	December	Manufacturing of automobile part materials
Hanwha Advanced Materials Germany GmbH	100.00	100.00	Germany	December	Manufacturing of automobile parts
Hanwha Advanced Materials Holdings USA Inc.	100.00	100.00	USA	December	Holding company
Hanwha Advanced Materials Holdings USA LLC	100.00	100.00	USA	December	Holding company
Hanwha Advanced Materials Mexico S. De R.L. De C.V.	100.00	100.00	Mexico	December	Manufacturing of automobile parts
Hanwha Advanced Materials Shanghai Co., Ltd.	100.00	100.00	China	December	Manufacturing
HANWHA AERO ENGINES.,LTD	100.00	100.00	Vietnam	December	Manufacturing of aircraft parts
Hanwha America Development Inc.	100.00	100.00	USA	December	Real estate business
Hanwha Asset Management (USA) Ltd.	100.00	100.00	USA	December	Domestic and foreign securities investment
HANWHA ASSET MANAGEMENT PTE. LTD.	100.00	100.00	Singapore	December	Asset management
Hanwha AZDEL, Inc.	100.00	100.00	USA	December	Manufacturing of automobile parts
Hanwha Canada Development Inc.	100.00	100.00	Canada	December	Oil business
Hanwha Chemical (Ningbo) Co., Ltd.	100.00	100.00	China	December	Compound manufacturing
Hanwha Chemical (Thailand) Co.,Ltd.	99.99	99.99	Thailand	December	Compound manufacturing
HANWHA CHEMICAL INDIA PRIVATE LIMITED	99.99	99.99	India	December	Sale and purchase of petrochemicals and photovoltaic products
Hanwha Chemical Malaysia Sdn. Bhd.	100.00	100.00	Malaysia	December	Sale of petrochemicals
Hanwha Europe GmbH	100.00	100.00	Germany	December	Trading
Hanwha Holdings(USA), Inc.	100.00	100.00	USA	December	Holding company
Hanwha Hong Kong Co., Ltd.	100.00	100.00	Hong Kong	December	Trading
Hanwha International (S) Pte Ltd.	100.00	100.00	Singapore	December	Trading
Hanwha International Corp.	100.00	100.00	USA	December	Holding company
HANWHA INTERNATIONAL INDIA PVT., LT	99.99	99.99	India	December	Trading
Hanwha International LLC.	100.00	100.00	USA	December	Trading
Hanwha International Peru S.A.C.	100.00	100.00	Peru	December	Gunpowder services and explosives and blasting
Hanwha Life Insurance Company Limited. (Vietnam)	100.00	100.00	Vietnam	December	Life insurance
Hanwha Machinery Americas, Inc.	100.00	100.00	USA	December	Sale of machine tool

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Hanwha Machinery Corporation	100.00	100.00	USA	December	Holding company
Hanwha Mining Services Australia Pty., Ltd	100.00	100.00	Australia	December	Gunpowder services and explosives and blasting
Hanwha Mining Services Chile SpA	100.00	100.00	Chile	December	Gunpowder services and explosives and blasting
Hanwha Parcel O LLC	100.00	100.00	USA	December	Real estate development
Hanwha Power Systems Americas, Inc.	100.00	100.00	USA	December	Sale of compressor and service materials
Hanwha Power Systems (Shanghai) Co.,LTD	100.00	100.00	China	December	Sale of compressor and service materials
Hanwha Power Systems Service Middle East LLC ²	49.00	49.00	UAE	December	Sale of compressor and service materials
Hanwha Property USA LLC	100.00	100.00	USA	December	Real estate business
Hanwha PVPLUS LLC	100.00	100.00	USA	December	Photovoltaic power generation investment
Hanwha Q CELLS America Inc.	100.00	100.00	USA	December	Sale of photovoltaic products
Hanwha Q CELLS America Project Holdings	100.00	100.00	USA	December	Photovoltaic project investment
Hanwha Q CELLS Americas Holdings. Corp.	100.00	100.00	USA	December	Photovoltaic business
Hanwha Q CELLS Australia Holdings Pty Ltd	100.00	100.00	Australia	December	Photovoltaic business
Hanwha Q CELLS Australia Pty Ltd.	100.00	100.00	Australia	December	Sale of photovoltaic products
Hanwha Q CELLS Canada, Inc	100.00	100.00	Canada	December	Photovoltaic business
Hanwha Q CELLS Canada, Corp.	100.00	100.00	Canada	December	Sale of photovoltaic products
Hanwha Q CELLS Chile SpA	100.00	100.00	Chile	December	Construction and sale of photovoltaic power generation system
Hanwha Q CELLS Co., Ltd. ⁷	100.00	100.00	United Kingdom	December	Manufacturing and sale of photovoltaic products
Hanwha Q CELLS(Qidong) Co., Ltd.	100.00	100.00	China	December	Manufacturing of silicon ingot
Hanwha Q CELLS France SAS	100.00	100.00	France	December	Photovoltaic business
Hanwha Q CELLS Gmbh	100.00	100.00	Germany	December	Manufacturing of photovoltaic products
Hanwha Q CELLS Hong Kong Limited	100.00	100.00	Hong Kong	December	Investment and international supply
Hanwha Q CELLS Investment Co., Ltd.	100.00	100.00	United Kingdom	December	Holding company
Hanwha Q CELLS Japan Co., Ltd.	100.00	100.00	Japan	December	Trading
Hanwha Q CELLS Malaysia Sdn. Bhd.	100.00	100.00	Malaysia	December	Manufacturing of photovoltaic products
Hanwha Q CELLS Peru S.A.C	99.99	99.99	Peru	December	Photovoltaic power generation

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HANWHA Q CELLS SOLAR POWER SDN. BHD.	100.00	100.00	Malaysia	December	EPC business
Hanwha Q CELLS Solar Technology Australia Pty Ltd.	100.00	100.00	Australia	December	Photovoltaic business
Hanwha Q CELLS Til Uno SPA	100.00	100.00	Chile	December	Construction and sale of photovoltaic system
Hanwha Q CELLS Turkey	100.00	100.00	Turkey	December	Construction and sale of photovoltaic power generation system
Hanwha Q CELLS USA, INC.	100.00	100.00	USA	December	Photovoltaic business
Hanwha Q CELLS(Nantong) Co., Ltd.	100.00	100.00	China	December	Manufacturing and sale of photovoltaic products
Hanwha Resources (Canada) Ltd.	100.00	100.00	Canada	December	Resource development
Hanwha Resources (USA) Corporation	100.00	100.00	USA	December	Resource development
Hanwha Saudi Contracting Co., Ltd.	100.00	100.00	Saudi Arabia	December	Construction
Hanwha Singapore Pte. Ltd.	100.00	100.00	Singapore	December	Trading
Hanwha Solar Electric Power Engineering Co., Ltd.	100.00	100.00	China	December	Construction of photovoltaic power generation facilities
Hanwha Solar Power Kitsuki G.K. ²	1.00	1.00	Japan	December	Photovoltaic power generation
Hanwha SolarOne (Laiyang) Co., Ltd	100.00	100.00	China	December	Photovoltaic business
Hanwha SolarOne (Rugao) Co., Ltd	100.00	100.00	China	December	Photovoltaic business
Hanwha SolarOne GmbH	100.00	100.00	Germany	December	Sale of photovoltaic products
Hanwha SolarOne Investment Holding Ltd.	100.00	100.00	United Kingdom	December	Holding company
Hanwha SolarOne Power Generation (Wuxi) Co., Ltd.	100.00	100.00	China	December	Photovoltaic business
Hanwha Solarone(beipiao)Co.,Ltd	100.00	100.00	China	December	Sale of compressor and service materials
Hanwha Q CELLS Technology (Shanghai) Co., Ltd.	100.00	100.00	China	December	Sale of photovoltaic products
Hanwha TechM Hungary Zrt.	97.21	97.21	Hungary	December	Leasing service of real estate and supply of utilities
Hanwha TechM USA LLC	100.00	100.00	USA	December	Manufacturing of automobile parts
HANWHA TECHWIN AMERICA, INC. (Formerly, Samsung Opto-Electronics America, Inc.)	100.00	100.00	USA	December	Sale of CCTV and others
Hanwha Techwin Automation Americas, Inc.	100.00	100.00	USA	December	Sale and others

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HANWHA TECHWIN AUTOMATION VIETNAM CO.,LTD	100.00	100.00	Vietnam	December	Sale
Hanwha Techwin Europe Limited	100.00	100.00	United Kingdom	December	Sale of CCTV
Hanwha Techwin Middle East FZE	100.00	100.00	UAE	December	Sale
Hanwha Techwin Security Vietnam	100.00	100.00	Vietnam	December	Manufacturing
Hanwha Village Market, LLC	100.00	100.00	USA	December	Real estate development
Hanwha West Properties LLC	100.00	100.00	USA	December	Real estate development
Hiprom Enerji Yatirimlari A.s.	100.00	100.00	Turkey	December	Photovoltaic power generation
HMS AUSTRALIA OPERATIONS PTY LTD	100.00	100.00	Australia	December	Gunpowder services and explosives and blasting
HMS AUSTRALIA PROPERTY HOLDINGS PTY LTD	100.00	100.00	Australia	December	Land leasing service
HQC Rock River Solar Holdings LLC	100.00	100.00	USA	December	Photovoltaic business
HQC Rock River Solar Power Generation Station LLC	100.00	100.00	USA	December	Photovoltaic business
Huoqiu Hanrui New Energy Power Generation co. Ltd	100.00	100.00	China	December	Photovoltaic business
HW SOLAR POWER 3 G.K.	100.00	100.00	Japan	December	Photovoltaic power generation
HW SOLAR POWER 6 G.K.	100.00	100.00	Japan	December	Photovoltaic power generation
HW SOLAR POWER 8 G.K. 2	0.66	0.66	Japan	December	Photovoltaic power generation
Kartal Enerji uretim Ltd. sti.	100.00	100.00	Turkey	December	Photovoltaic power generation
KMPT Solarpark Verwaltung GmbH	100.00	100.00	Germany	December	Photovoltaic business
Las Coronadas Hive SL	100.00	100.00	Germany	December	Photovoltaic business
Guadajoz Hive SL	100.00	100.00	Germany	December	Photovoltaic business
Agenor Hive SL	100.00	100.00	Germany	December	Photovoltaic business
Don Rodrigo Hive SL	100.00	100.00	Germany	December	Photovoltaic business
Laheeb Al-Ezdihar	100.00	100.00	Iraq	December	Trading
LDE Corporation PTY LTD	100.00	100.00	Australia	December	Mine development
LDE HOLDINGS PTY LTD	100.00	100.00	Australia	December	Holding company
LENEX Co.,Ltd.	100.00	100.00	Japan	December	Sale of photovoltaic products
LLP Zharyk Zol Company 2007	100.00	100.00	Kazakhstan	December	Investment of real estate (SPC)
Marel Bilisim Muhendislik Enerji Insaat Iletisim Turizm Gida San. Ve Dis Tic. Ltd.	100.00	100.00	Turkey	December	Photovoltaic power generation

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sti.						
Maxxsol 01 srl	100.00	100.00	Italy	December	Photovoltaic power generation	
Meva Muhendislik Bilisim Enerji Insaat Iletisim Turizm San. Ve Dis Tic. Ltd. sti.	100.00	100.00	Turkey	December	Photovoltaic power generation	
Moravia Enerji Sanayi ve Ticaret Ltd. sti.	100.00	100.00	Turkey	December	Photovoltaic power generation	
Mutlak Enerji uretim Ltd. sti.	100.00	100.00	Turkey	December	Photovoltaic power generation	
Nantong Hanwha Import & Export Co., Ltd.	100.00	100.00	China	December	Sale of photovoltaic products	
PT. Bara Bumi International	100.00	100.00	Indonesia	December	Coal sales	
PT. Hanwha Life Insurance Indonesia	99.61	99.61	Indonesia	December	Life insurance	
PT. Hanwha Mining Services Indonesia	100.00	100.00	Indonesia	December	Gunpowder services and explosives and blasting	
PV Vallenar Uno SpA	100.00	100.00	Chile	December	Holding company (SPC)	
S&P World Networks DMCC	100.00	100.00	UAE	December	Trading	
Sema Enerji uretim Ltd. sti.	100.00	100.00	Turkey	December	Photovoltaic power generation	
Serimer Optik Medikal Kirtasiye Temizlik Insaat Ithalat Ihracat Sanayi Tic. Ltd. sti.	100.00	100.00	Turkey	December	Photovoltaic power generation	
SFH Solarpark GmbH	100.00	100.00	Germany	December	Photovoltaic business	
TAWASUL AL-EZDIHAR Co., Ltd	100.00	100.00	Iraq	December	Trading	
Techwin Engineering Center	100.00	100.00	Japan	December	Research and development of industrial equipment	
Tecsol Srl	100.00	100.00	Italy	December	Photovoltaic power generation	
Toprakkale Altyapi ve Malzeme Hizmetleri A.s.	100.00	100.00	Turkey	December	Photovoltaic power generation	
Ulu Gunes Enerjisi Anonim sirketi	100.00	100.00	Turkey	December	Photovoltaic power generation	
Universal Bearings LLC.	100.00	100.00	USA	December	Bearing manufacturing	
Uno Enerji A.s.	100.00	100.00	Turkey	December	Photovoltaic power generation	
World corporation	100.00	100.00	Saipan	December	Hotel business	
WSE Bradley Road Ltd	100.00	100.00	United Kingdom	December	Photovoltaic power generation	
Hanwha Q CELLS USA Corp.	100.00	100.00	USA	December	Photovoltaic business	
HSESM American Union LLC	100.00	100.00	USA	December	Photovoltaic business	
HSESM PlanadaES LLC	100.00	100.00	USA	December	Photovoltaic business	
HSESM LeGrandUHS LLC	100.00	100.00	USA	December	Photovoltaic business	
HQ MEX, LLC	100.00	100.00	Mexico	December	Photovoltaic business	

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HQ MEXICO HOLDINGS S DE RL DE CV	100.00	100.00	Mexico	December	Photovoltaic business
HQ MEXICO Solar I S DE RL DE CV	100.00	100.00	Mexico	December	Photovoltaic business
HQ MEXICO Solar II S DE RL DE CV	100.00	100.00	Mexico	December	Photovoltaic business
Kalaeloa Renewable Energy Park, LLC	100.00	100.00	USA	December	Photovoltaic business
HSEA HVES, LLC	100.00	100.00	USA	December	Photovoltaic business
Solar Monkey 1, LLC	100.00	100.00	USA	December	Photovoltaic business
Solar Monkey 2, LLC	100.00	100.00	USA	December	Photovoltaic business
HQC Maywood, LLC	100.00	100.00	USA	December	Photovoltaic business
Hanwha Q CELLS EPC USA, LLC	100.00	100.00	USA	December	Photovoltaic business
Hanwha Q CELLS Servicios Comerciales, S DE RL DE CV	100.00	100.00	Mexico	December	Photovoltaic business
Recon Co., Ltd. ⁵	-	-	Korea	February	Other finance business
KB Hotels&Resorts 1st LLC ⁵	-	-	Korea	November	Other finance business
HANWHA MINING SERVICE USA INC.	100.00	100.00	USA	December	Gunpowder services and explosives and blasting
HANWHA DEFENSE AUSTRALIA PTY LTD	100.00	100.00	Australia	December	Military equipment
Hanwha Systems Vietnam Co., Ltd.	100.00	100.00	Vietnam	December	Integrated advisory, construction and management of computer systems
Q CELLS DO BRASIL CONSULTORIA EMPRESARIAL LTDA	100.00	100.00	Brazil	December	Photovoltaic business
HW SOLAR POWER 14 G.K.	100.00	100.00	Japan	December	Photovoltaic business
LENEX Electric Power G.K.	100.00	100.00	Japan	December	Photovoltaic business
Carrot Co.,Ltd.	51.60	51.60	Korea	December	Insurance and pension services
PLAZA Development & Company	100.00	100.00	Korea	December	Retail of souvenirs, folk crafts and decorative products
Hanwha Estate Service Co.,Ltd.	100.00	100.00	Korea	December	Business facilities management and business support services
Hanwha Aerospace USA	100.00	100.00	USA	December	Manufacturing of aircraft engine and parts
EDAC Technologies Intermediate Company	100.00	100.00	USA	December	Manufacturing of aircraft engine and parts
Hanwha Aerospace USA LLC	100.00	100.00	USA	December	Manufacturing of aircraft engine and parts
EBTEC Corporation	100.00	100.00	USA	December	Manufacturing of aircraft engine and parts
APEX Machine Tool	100.00	100.00	USA	December	Manufacturing of aircraft

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Company, Inc.						engine and parts
Gros-Ite Industries Inc.	100.00	100.00	USA	December		Manufacturing of aircraft engine and parts
EDAC ND, Inc	100.00	100.00	USA	December		Manufacturing of aircraft engine and parts
HANWHA POWER SYSTEMS VIETNAM COMPANY LIMITED	100.00	100.00	Vietnam	December		Manufacturing and sale of compressor, generator and gas turbine
HAEMAJI SOLAR CORPORATION	100.00	100.00	Korea	December		Photovoltaic business
QSUN 23 Sp. z o.o.	100.00	100.00	Poland	December		Photovoltaic business
Elektrownia OZE 3 Sp. z o.o.	100.00	100.00	Poland	December		Photovoltaic business
Sunwolt Sp. z o.o.	100.00	100.00	Poland	December		Photovoltaic business
Silesian Sun Energy Sp. z o.o.	100.00	100.00	Poland	December		Photovoltaic business
QSUN 26 Sp. z o.o.	100.00	100.00	Poland	December		Photovoltaic business
SPP Wytwarzanie 18 sp. z o.o.	100.00	100.00	Poland	December		Photovoltaic business
SPP Wytwarzanie 31 sp. z o.o.	100.00	100.00	Poland	December		Photovoltaic business
SPP Wytwarzanie 33 sp. z o.o.	100.00	100.00	Poland	December		Photovoltaic business
PV Jagodne Sp. z.o.o.	100.00	100.00	Poland	December		Photovoltaic business
INCOGNITWORLD, LDA.	100.00	100.00	Portugal	December		Photovoltaic business
Pinetree Securities Corporation	98.38	98.38	Vietnam	December		Stock brokerage
Hanwha Development USA Inc	100.00	100.00	USA	December		Real estate development and supply
GK Summit Apollo Eleven	100.00	100.00	Japan	December		Other services
HHR Development B GK	100.00	100.00	Japan	December		Other services
Haeorum PV plant corporation	100.00	100.00	Korea	December		Photovoltaic power generation
ARBECA SOLAR SLU	100.00	100.00	Turkey	December		Photovoltaic business
REUS SOLAR SLU	100.00	100.00	Turkey	December		Photovoltaic business
CASTELLNOU SOLAR SLU	100.00	100.00	Turkey	December		Photovoltaic business
VECIANA SOLAR SLU	100.00	100.00	Turkey	December		Photovoltaic business
CASTELLDANS SOLAR SLU	100.00	100.00	Turkey	December		Photovoltaic business
Malhada Green S.A	100.00	100.00	Turkey	December		Photovoltaic business
Aceka 2 Gunes Enerjisi A.S.	100.00	100.00	Turkey	December		Photovoltaic power generation
Aceka 3 Gunes Enerjisi A.S.	100.00	100.00	Turkey	December		Photovoltaic power generation
Bilgidar 2 Gunes Enerjisi Limited Sirketi	100.00	100.00	Turkey	December		Photovoltaic power generation
Buselik 2 Gunes Enerjisi Limited Sirketi	100.00	100.00	Turkey	December		Photovoltaic power generation
Buselik 3 Gunes Enerjisi	100.00	100.00	Turkey	December		Photovoltaic power

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Limited Sirketi						generation
Dimetoka 2 Gunes Enerjisi Limited Sirketi	100.00	100.00	Turkey	December		Photovoltaic power generation
Dimetoka 3 Gunes Enerjisi Limited Sirketi	100.00	100.00	Turkey	December		Photovoltaic power generation
Isfahan 3 Gunes Enerjisi Limited Sirketi	100.00	100.00	Turkey	December		Photovoltaic power generation
Onan 2 Gunes Enerji Uretim A.S.	100.00	100.00	Turkey	December		Photovoltaic power generation
Onan 3 Gunes Enerji Uretim A.S.	100.00	100.00	Turkey	December		Photovoltaic power generation
Jeju Ocean Science Museum Corporation	89.90	89.90	Korea	December		Operation of botanical garden and zoo
The Second Yong In Techno Valley Co., Ltd	75.00	-	Korea	December		Real estate business
Cheonjangsan Pung Ryeok Corporation	100.00	-	Korea	December		Other development business
H Properties TMK	100.00	-	Japan	December		Other services
Rippey Solar Holdings, LLC	100.00	-	USA	December		Photovoltaic power development
Coniglio Solar Holdings, LLC	100.00	-	USA	December		Photovoltaic power development
Kellam Solar Holdings, LLC	100.00	-	USA	December		Photovoltaic power development
HQC Solar Holdings 1, LLC (Formerly, H-Flats Solar Holdings, LLC)	100.00	-	USA	December		Photovoltaic power development
BT Coniglio Solar, LLC	100.00	-	USA	December		Photovoltaic power development
GREEN RIC ENERGY, S.L.	100.00	-	Spain	December		EPC construction and engineering
SILVER RIC ENERGY, S.L.	100.00	-	Spain	December		EPC construction and engineering
REAL ENERGY POWER, S.L.	100.00	-	Spain	December		EPC construction and engineering
GALAXY ENERGY, S.L.	100.00	-	Spain	December		EPC construction and engineering
LASTRAFI POWER, S.L.	100.00	-	Spain	December		EPC construction and engineering
HESTIA SUN, S.L.	100.00	-	Spain	December		EPC construction and engineering
CAPRICORNIO ENERGY, S.L.	100.00	-	Spain	December		EPC construction and engineering
SPRING POWER, S.L.	100.00	-	Spain	December		EPC construction and engineering
Seoulyeokbukbuyeoksegwon Development Co.	100.00	-	Korea	December		Real estate business
HANWHA PHASOR LTD. (Formerly, HANWHA SYSTEMS EUROPE, LTD.)	100.00	-	United Kingdom	December		Manufacturing of wireless communication equipment
Pinetree Securities Pte. Ltd.	100.00	-	Singapore	December		Securities business

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GALGO POWER, S.L.	100.00	-	Spain	December	EPC construction and engineering
LEBREL POWER, S.L.	100.00	-	Spain	December	EPC construction and engineering
PODENCO POWER, S.L.	100.00	-	Spain	December	EPC construction and engineering
West Ochang Techno Valley Co., Ltd.	78.00	-	Korea	December	Real estate business
Q CELLS ASSET MANAGEMENT LIMITED	100.00	-	United Kingdom	December	Investment advisory
HQC PORTUGAL HOLDINGS, LDA (Formerly, QSUN PORTUGAL 1, UNIPessoal LDA)	100.00	-	Portugal	December	EPC construction and engineering
QSUN PORTUGAL 2, UNIPessoal LDA	100.00	-	Portugal	December	EPC construction and engineering
QSUN PORTUGAL 3, UNIPessoal LDA	100.00	-	Portugal	December	EPC construction and engineering
QSUN PORTUGAL 4, UNIPessoal LDA	100.00	-	Portugal	December	EPC construction and engineering
QSUN PORTUGAL 5, UNIPessoal LDA	100.00	-	Portugal	December	EPC construction and engineering
QSUN PORTUGAL 6, UNIPessoal LDA	100.00	-	Portugal	December	EPC construction and engineering
QSUN PORTUGAL 7, UNIPessoal LDA	100.00	-	Portugal	December	EPC construction and engineering
SACRAMETO DIRECTORSHIP, S.L.	100.00	-	Spain	December	EPC construction and engineering
HANWHA INTERNATIONAL VIETNAM	100.00	-	Vietnam	December	Trading
Hanwha Financial Technology Company Limited	100.00	-	Vietnam	December	Digital solutions
H FOUNDATION PTE. LTD.	100.00	-	Singapore	December	Holding company
DIONISIO SUN, S.L.	100.00	-	Spain	December	EPC construction and engineering
VALS ENERGY POWER, S.L.	100.00	-	Spain	December	EPC construction and engineering
BOLERO ENERGY, S.L.	100.00	-	Spain	December	EPC construction and engineering
Growing Energy Labs, Inc.	100.00	-	USA	December	Energy management system
Kellam Solar Class B, LLC	100.00	-	USA	December	Photovoltaic power development
INCOGNITWORLD 2, UNIPessoal LDA	100.00	-	Portugal	December	EPC construction and engineering
INCOGNITWORLD 3, UNIPessoal LDA	100.00	-	Portugal	December	EPC construction and engineering
INCOGNITWORLD 4, UNIPessoal LDA	100.00	-	Portugal	December	EPC construction and engineering
INCOGNITWORLD 5,	100.00	-	Portugal	December	EPC construction and

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UNIPessoal LDA						engineering
MALHADA GREEN 2, UNIPessoal LDA	100.00	-	Portugal	December		EPC construction and engineering
ALDGATE EAST INVESTMENTS, SL	70.00	-	Spain	December		EPC construction and engineering
ALFAZ DIRECTORSHIP, SL	70.00	-	Spain	December		EPC construction and engineering
ALQUIZAR INVESTMENTS, SL	70.00	-	Spain	December		EPC construction and engineering
ANNAPURNA SERVICIOS EMPRESARIALES, SL	70.00	-	Spain	December		EPC construction and engineering
BENIF INVESTMENTS, SL	70.00	-	Spain	December		EPC construction and engineering
BURETE DIRECTORSHIP, SL	70.00	-	Spain	December		EPC construction and engineering
CABUYA CORPORATE SERVICES, SL	70.00	-	Spain	December		EPC construction and engineering
CANARY WHARF INVESTMENTS, SL	70.00	-	Spain	December		EPC construction and engineering
CANNING TOWN INVESTMENTS, SL	70.00	-	Spain	December		EPC construction and engineering
COMBA DIRECTORSHIP, SL	70.00	-	Spain	December		EPC construction and engineering
CONVENT GARDEN INVESTMENTS, SL	70.00	-	Spain	December		EPC construction and engineering
DICKSON SERVICIOS EMPRESARIALES, SL	70.00	-	Spain	December		EPC construction and engineering
EMPER INVESTMENTS, SL	70.00	-	Spain	December		EPC construction and engineering
ENDINO SERVICIOS EMPRESARIALES, SL	70.00	-	Spain	December		EPC construction and engineering
GARDAYA INVESTMENTS, SL	70.00	-	Spain	December		EPC construction and engineering
KADOK CORPORATE SERVICES, SL	70.00	-	Spain	December		EPC construction and engineering
KAMPALA CORPORATE SERVICES, SL	70.00	-	Spain	December		EPC construction and engineering
MONTALBAN DIRECTORSHIP, SL	70.00	-	Spain	December		EPC construction and engineering
NEPAL SERVICIOS EMPRESARIALES, SL	70.00	-	Spain	December		EPC construction and engineering
OTERO DIRECTORSHIP, SL	70.00	-	Spain	December		EPC construction and engineering
CLAVE DE SOL ENERGY, S.L.U	100.00	-	Spain	December		EPC construction and engineering
IRON POWER ENERGY, S.L.U	100.00	-	Spain	December		EPC construction and engineering
LINE ENERGY, S.L.U	100.00	-	Spain	December		EPC construction and engineering
RIMA ENERGY, S.L.U	100.00	-	Spain	December		EPC construction and engineering

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GAVILAN POWER, S.L.U	100.00	-	Spain	December	EPC construction and engineering
GERIFALTE POWER, S.L.U	100.00	-	Spain	December	EPC construction and engineering
HARRIER POWER, S.L.U	100.00	-	Spain	December	EPC construction and engineering
CAMPANA ENERGY, S.L.	100.00	-	Spain	December	EPC construction and engineering
PALOMA POWER, S.L.	100.00	-	Spain	December	EPC construction and engineering
HAMC Holdings Corp.	100.00	-	USA	December	Holding company
Beneficiary certificates					
Hanwha Global Infrastructure Strategy Fund III	88.00	88.00	Korea	December	Special Asset Collective Investment Vehicle
Hanwha The 3rd Gyeongin highway Fund 1 ⁴	48.19	48.19	Korea	December	Special Asset Collective Investment Vehicle
YJ Asan 1 ⁵	-	-	Korea	December	Special Purpose Company
YJ Asan 2 ⁵	-	-	Korea	December	Special Purpose Company
HSF 19th Co., Ltd ⁵	-	-	Korea	December	Special Purpose Company
Purple tip 1 Co., Ltd ⁵	-	-	Korea	December	Special Purpose Company
Small Giants New Renewable Energy Innovation Fund	99.00	99.00	Korea	December	Investment Fund
ChungNam-Hanwha Small & Medium Company Growth Fund	66.67	66.67	Korea	December	Investment Fund
Hanwha Global Business Fund	100.00	100.00	Korea	December	Investment Fund
2018 Hanwha New Industry Global Plus-up Fund	60.00	60.00	Korea	December	Investment Fund
Kyobo AXA Bong-dam Song-san Highway Private Investment Trust	85.21	85.21	Korea	December	Special Asset Collective Investment Vehicle
Loyal MJ 1st Co., Ltd ⁵	-	-	Korea	December	Special Purpose Company
Loyal MJ 2nd Co., Ltd ⁵	-	-	Korea	December	Special Purpose Company
Mirae Asset UK Gas Infra Private special asset Investment Trust No.1	83.78	83.78	Korea	April, October	Special Asset Collective Investment Vehicle
Mirae Asset Global Renewable Energy Private Special Asset Investment Trust No.2	100.00	100.00	Korea	December	Special Asset Collective Investment Vehicle
Mirae Asset Maps Global New Recycling Energy Private special asset	100.00	100.00	Korea	December	Special Asset Collective Investment Vehicle

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Investment Trust No. 1						
Blackrock Global Total Solution Investment Trust No.1	100.00	100.00	Korea	April	Security Collective Investment Vehicle	
Samsung VLCC Private Investment Trust No.1	75.00	68.40	Korea	February, May, August, November	Special Asset Collective Investment Vehicle	
Simone Global Venture Private Investment Special No.1	100.00	100.00	Korea	May	Special Asset Collective Investment Vehicle	
Shinhan BNPP Global Solar Energy Private Equity Special Asset Investment Trust	100.00	100.00	Korea	The end of each quarter	Special Asset Collective Investment Vehicle	
Shinhan BNPP Seoul-Munsan Expressway Private Special Asset Investment Trust	93.33	93.33	Korea	December	Special Asset Collective Investment Vehicle	
Asia Pacific 45 Vessel Investment Co., Ltd. ⁵	-	-	Korea	December	Vessels Investment Company	
HSF 8th Co., Ltd. ⁵	-	-	Korea	September	Liquidation of Loans receivable (SPC)	
YJ Deoksookoong Co., Ltd ⁵	-	-	Korea	September	Liquidation of Loans receivable (SPC)	
Aegis KORIF Private real estate Trust 17-1	100.00	100.00	Korea	September	Security Collective Investment Vehicle	
Aegis KORIF Private real estate Trust 17-2	100.00	100.00	Korea	September	Security Collective Investment Vehicle	
Aegis KORIF Private real estate Trust 17-3	100.00	100.00	Korea	September	Security Collective Investment Vehicle	
Aegis KORIF Private real estate Trust 17-4	100.00	100.00	Korea	September	Security Collective Investment Vehicle	
Invest ST The First Co., Ltd. ⁵	-	-	Korea	December	Liquidation of Beneficiary certificates (SPC)	
Pine Tree sol Three Private equity investment Trust No.3	100.00	100.00	Korea	The end of each quarter	Real Estate Collective Investment Vehicle	
Pine Tree sol Three Private equity investment Trust No.5	97.09	97.09	Korea	The end of each quarter	Real Estate Collective Investment Vehicle	
Pine Tree sol Three Private equity investment Trust No.6-2	98.04	98.04	Korea	March, June, September, December	Real Estate Collective Investment Vehicle	
Poong Cheon 2nd ⁵	-	-	Korea	May	Liquidation of Beneficiary certificates (SPC)	
Phoenix Kyomoon 1st Co., Ltd. ⁵	-	-	Korea	October	Liquidation of Loans receivable (SPC)	
Phoenix Yeondong 3rd Co., Ltd. ⁵	-	-	Korea	May	Liquidation of Loans receivable (SPC)	
Phoenix Yulbuk 1st Co., Ltd. ⁵	-	-	Korea	April	Special Purpose Company (SPC)	

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Phoenix Tangjung 1st Co., Ltd. ⁵	-	-	Korea	March	Liquidation of Loans receivable (SPC)
Hana Daol HW Landchip Private real estate feeder investment Trust No.1	98.00	98.00	Korea	26 th of each quarter	Real Estate Collective Investment Vehicle
Hanwha ASIA OPPORTUNITY Private Investment Trust No.1	100.00	100.00	Korea	May	Special Asset Collective Investment Vehicle
Hanwha GLOBAL CORPORATE PE STRATEGY Private Investment Trust No.2	100.00	100.00	Korea	December	Special Asset Collective Investment Vehicle
Hanwha GLOBAL CORPORATE PE STRATEGY Private Investment Trust No.1	100.00	100.00	Korea	December	Special Asset Collective Investment Vehicle
Hanwha GLOBAL CREDIT STRATEGY Private Investment Trust No.1	100.00	100.00	Korea	The end of each quarter	Security Collective Investment Vehicle
Hanwha GLOBAL INFRASTRUCTURE STRATEGY No.2	100.00	100.00	Korea	December	Special Asset Collective Investment Vehicle
Hanwha GLOBAL INFRASTRUCTURE STRATEGY No.1	100.00	100.00	Korea	December	Special Asset Collective Investment Vehicle
Hanwha GLOBAL REAL ESTATE STRATEGY Private Investment Trust No.1	100.00	100.00	Korea	December	Real Estate Collective Investment Vehicle
Hanwha GLOBAL REAL ESTATE STRATEGY Private Investment Trust No.2	100.00	100.00	Korea	December	Real Estate Collective Investment Vehicle
Hanwha Prudential U.S. Real Estate Debt	100.00	100.00	Korea	September	Real Estate Collective Investment Vehicle
Hanwha Lifestyle Private Investment Trust No.1	100.00	100.00	Korea	April	Special Asset Collective Investment Vehicle
Hanwha Vietnam OPPORTUNITY Private Investment Trust No.1	100.00	100.00	Korea	The end of each quarter	Security Collective Investment Vehicle
Hanwha Solar Development Private Investment Trust No.2 ⁴	50.00	50.00	Korea	December	Special Asset Collective Investment Vehicle
Hanwha AI Global Choice Private Investment Trust No.1	100.00	100.00	Korea	April	Security Collective Investment Vehicle
Hanwha AI Global Choice Private Investment Trust No.2	99.00	99.00	Korea	December	Security Collective Investment Vehicle
Hanwha CONSUMER CREDIT Private Investment Trust No.1	100.00	100.00	Korea	March, June, September, December	Special Asset Collective Investment Vehicle

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Hanwha DEBT STRATEGY Real Estate Trust No.6	100.00	100.00	Korea	March	Special Asset Collective Investment Vehicle
Hanwha LIFEPLUSTDF2030 equity investment Trust C-F	100.00	100.00	Korea	December	Special Asset Collective Investment Vehicle
Hanwha LIFEPLUSTDF2035 equity investment Trust C-F	100.00	100.00	Korea	December	Special Asset Collective Investment Vehicle
Hanwha LIFEPLUSTDF2040 equity investment Trust C-F	100.00	100.00	Korea	December	Special Asset Collective Investment Vehicle
Hanwha LIFEPLUSTDF2045 equity investment Trust C-F	100.00	100.00	Korea	December	Special Asset Collective Investment Vehicle
Hanwha LTI Private equity investment Trust No.2[Infra]	90.57	90.57	Korea	The end of each quarter, June	Special Asset Collective Investment Vehicle
Hanwha LTI Infra Private equity investment Trust No.1	100.00	100.00	Korea	The end of each quarter, July	Special Asset Collective Investment Vehicle
Hanwha Gwangju Ringroad special asset investment trust(Infra) ⁴	50.00	50.00	Korea	The end of each quarter, June	Special Asset Collective Investment Vehicle
Hanwha Global Security Investment Trust for corporation only(Bond)C	96.91	97.76	Korea	December	Security Collective Investment Vehicle
Hanwha Vietnam Regend Security Investment trust(Stock) C-F	93.61	93.61	Korea	June	Security Collective Investment Vehicle
Hanwha Asian Regend Security Investment trust(Stock) C-F	87.13	87.13	Korea	November	Security Collective Investment Vehicle
Hanwha Korea Regend 4th Industrial Revolution Investment trust(Stock) C-F	58.20	58.20	Korea	December	Security Collective Investment Vehicle
Hanwha Korea Regend Security Investment trust(Stock) C-F (Formerly, Hanwha Korea Regend Security Investment trust(Stock) C-F)	100.00	81.52	Korea	December	Security Collective Investment Vehicle
Hanwha Photovoltaics Private Investment Trust No.1(Power Generation Facility) ⁴	50.00	50.00	Korea	December	Special Asset Collective Investment Vehicle
Hanwha Tricircle Infra Special Asset No.1	100.00	100.00	Korea	The end of each quarter, June	Special Asset Collective Investment Vehicle
Hanwha Tricircle Infra Special Asset No.3	95.00	95.00	Korea	The end of each quarter, July	Special Asset Collective Investment Vehicle
Hanwha Environment Love Private Investment Trust No.1 ⁴	50.00	50.00	Korea	The end of each quarter, June	Special Asset Collective Investment Vehicle
Hanwha Environment Love Private Investment Trust No.2 ⁴	40.30	40.30	Korea	The end of each quarter, July	Special Asset Collective Investment Vehicle
Hanwha AF ⁵	-	-	Korea	December	Liquidation of Beneficiary certificates

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					(SPC)
Hanwha AF 5 ⁵	-	-	Korea	December	Liquidation of Beneficiary certificates (SPC)
Invest H 1 ⁵	-	-	Korea	December	Liquidation of Loans receivable (SPC)
KB Sunjin Asia Real Asset Credit Professional Investment Type Private Equity Fund	93.40	93.40	Korea	April	Special Asset Collective Investment Vehicle
DB Exchangeable Bond Professional Investment Type Private Equity Fund	62.50	62.50	Korea	April	Special Asset Collective Investment Vehicle
Daishin Asia Direct Lending Professional Investment Type Private Equity Fund	88.71	88.71	Korea	May	Special Asset Collective Investment Vehicle
HSF 12th Co., Ltd ⁵	-	-	Korea	December	Liquidation of Beneficiary certificates (SPC)
Invest Industry 1 ⁵	-	-	Korea	December	Liquidation of Beneficiary certificates (SPC)
Invest Urge1 ⁵	-	-	Korea	December	Liquidation of Beneficiary certificates (SPC)
Great Banwol ⁵	-	-	Korea	December	Liquidation of Beneficiary certificates (SPC)
Shinsegye1 ⁵	-	-	Korea	December	Liquidation of Beneficiary certificates (SPC)
First M No.9 ⁵	-	-	Korea	December	Liquidation of Beneficiary certificates (SPC)
First M No.10 ⁵	-	-	Korea	December	Liquidation of Beneficiary certificates (SPC)
Hyundai invest global infra Special Asset Investment Trust 15	100.00	100.00	Korea	December	Special Asset Collective Investment Vehicle
Hanwha DEBT STRATEGY Private Special Asset Investment Trust Security 16	50.90	50.90	Korea	December	Special Asset Collective Investment Vehicle
Hanwha Solar 4 Co., Ltd ⁵	-	-	Korea	December	Liquidation of Beneficiary certificates (SPC)
Newstar central valley 1 ⁵	-	-	Korea	December	Liquidation of Beneficiary certificates (SPC)
JR Professional Investment Criminal Real Estate	63.13	63.13	Korea	December	Special Asset Collective Investment Vehicle

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Investment Trust 15						
KOTAM Aircraft Private Special Asset Investment Trust Security 2	50.10	50.10	Korea	December	Special Asset Collective Investment Vehicle	
ARIRANG US s-term A-rated corporate debts	65.22	65.22	Korea	December	Special Asset Collective Investment Vehicle	
ARIRANG US L-term A-rated corporate debts	53.85	62.50	Korea	December	Special Asset Collective Investment Vehicle	
2018 Hanwha IoT New Technology Venture Fund	73.33	73.33	Korea	December	Investment Fund	
Hanwha Dream Fund 1	100.00	-	Korea	December	Investment Fund	
2020 Hanwha Future Environment New Technology Venture Fund	40.09	-	Korea	December	Special Asset Collective Investment Vehicle	
Hanwha Co-Investments Private Fund I	50.00	-	Korea	December	Special Asset Collective Investment Vehicle	
phoenix mohyun Co., Ltd.	-	-	Korea	December	Liquidation of Beneficiary certificates (SPC)	
Invest ungcheon the first	-	-	Korea	December	Liquidation of Beneficiary certificates (SPC)	
Hanwha Korea Legend Dividend Securities Feeder Fund (Equity) C-F	51.43	-	Korea	December	Security Collective Investment Vehicle	
Hanwha Wind-Solar Private Fund I	50.00	-	Korea	December	Special Asset Collective Investment Vehicle	
Invest guro the first	-	-	Korea	December	Liquidation of Beneficiary certificates (SPC)	
RICO ORUM Investment Private Equity No. 2	-	-	Korea	December	Special Asset Collective Investment Vehicle	
Capstone Private Real Estate Fund 22	100.00	-	Korea	December	Special Asset Collective Investment Vehicle	
Hanwha Ssolssolhan Korea Bond Securities Feeder Fund (Bond) C-F	71.74	-	Korea	December	Special Asset Collective Investment Vehicle	
Hanwha Lifepius TDF2050 Balanced-Fund of Funds C- F	100.00	-	Korea	December	Special Asset Collective Investment Vehicle	
HSF 21TH CO., LTD	-	-	Korea	December	Liquidation of Beneficiary certificates (SPC)	
Hanwha Global Mega Trend EMP Securities Fund (Equity-FoFs) C-f	85.31	-	Korea	December	Special Asset Collective Investment Vehicle	
Hanwha ESG Hero Securities Feeder Fund (Bond) C-w	99.98	-	Korea	December	Special Asset Collective Investment Vehicle	
Shinhan AIM Real Estate Private Fund 10	100.00	-	Korea	December	Special Asset Collective Investment Vehicle	

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Hanwha DEBT STRATEGY Real Estate Private Fund 3	50.00	-	Korea	December	Special Asset Collective Investment Vehicle
Meritz Real Estate Private Fund 6	99.39	-	Korea	December	Special Asset Collective Investment Vehicle
Shinhan AIM Real Estate Private Fund 7	100.00	-	Korea	December	Special Asset Collective Investment Vehicle
IGIS Real Estate Private Fund 221	99.44	-	Korea	December	Special Asset Collective Investment Vehicle
MiraeAsset MAPS Aqua Private Special Asset Investment Trust 1	100.00	-	Korea	December	Special Asset Collective Investment Vehicle
Meritz Real Estate Private Fund 7	99.37	-	Korea	December	Special Asset Collective Investment Vehicle
KTB Global CREDEBT Real Estate Private Fund 6	84.75	-	Korea	December	Special Asset Collective Investment Vehicle
Hanwha Global Infrastructure Strategy Private Fund 4	73.79	-	Korea	December	Special Asset Collective Investment Vehicle
Hanwha Asia Growth Private Fund 1	100.00	-	Korea	December	Special Asset Collective Investment Vehicle
Macquarie Korea Global Infrastructure Debt Fund 5	94.12	-	Korea	December	Special Asset Collective Investment Vehicle
Logis Icheon 1ST Co., Ltd.	-	-	Korea	December	Liquidation of Beneficiary certificates (SPC)
Invest auto the first	-	-	Korea	December	Liquidation of Beneficiary certificates (SPC)
Invest star the first	-	-	Korea	December	Liquidation of Beneficiary certificates (SPC)
YDHM Eagle 1ST CO., LTD.	-	-	Korea	December	Liquidation of Beneficiary certificates (SPC)

¹ Considering the situation where the feasibility of a potential voting rights is remote, the Company is considered to have control since it is able to exercise the majority of voting rights in its decision-making process as the percentage of voting rights exceeds 50%.

² Although the percentage of ownership is less than 50%, the Company is considered to have control since it is able to exercise the majority of voting rights in its decision-making process as the percentage of voting rights exceeds 50%.

³ Although the percentage of ownership is less than 50%, the Company is considered to have control as the majority of the remaining shareholders are widely dispersed, each holding less than 1% of ownership, and the Company is able to exercise its majority voting rights in the decision-making process considering the past attendance rate at the General Meeting.

⁴ Although the percentage of ownership does not exceed 50%, it is included in the subsidiary in accordance with Korean IFRS 1110, taking into account the percentage of ownership and the de facto agent relationship.

⁵ Although the Company does not have ownership interest, it is included in the scope of consolidation, considering contractual arrangements, exposures to variable returns and others.

Hanwha Corporation
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(3) The Company's related parties as at December 31, 2020, are as follows:

Classification	Name of entity
Domestic affiliates	Yeochun NCC Co., Ltd., Hanwha General Chemical Co., Ltd. and others
Overseas affiliates	Bio Green Technology Sdn Bhd. and others
Large-scale business group affiliates ¹	H-Solution Co., Ltd., Hanwha Energy Corp., Hanwha Total Petrochemical Co., Ltd. and others

¹ Large-scale business group affiliates (other related parties) do not correspond to the related parties defined in paragraph 9 of Korean IFRS 1024. However, the large-scale business group affiliates designated by the Fair Trade Commission are classified as related parties in accordance with the resolution of the Securities and Futures Commission and in accordance with the substantive relationship stipulated in paragraph 10 of Korean IFRS 1024.

(4) Outstanding balances arising from sales/purchases of goods and services with related parties, including large-scale business group affiliates, as at December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020					
	Receivables			Payables		
	Trade receivables	Loans ¹	Other receivables	Trade payables	Other payables	
Subsidiaries, associates and joint ventures						
Hanwha Engineering and Construction Corp.	₩ 4,160,519	₩ -	₩ 3,213,072	₩ 1,443,898	₩ -	
Hanwha Estate Co., Ltd.	17,146	-	-	-	495,614	
Hanwha Techwin Co., Ltd.	59,895	-	25,808	1,096,884	-	
Hanwha Defense Systems Corp.	3,243,571	-	779,500	-	7,041,873	
Yeochun NCC Co., Ltd.	32,390	-	-	11,859,774	-	
Hanwha Life Insurance Co., Ltd.	4,752,092	-	19,561,291	-	8,704,718	
Hanwha General Insurance Co., Ltd.	53,046	-	90,648	-	137,010	
Hanwha System Co., Ltd.	703,543	-	10,943,566	1,573,055	5,829,824	
Hanwha Aerospace Co., Ltd.	87,750	-	7,464,900	15,715,519	156,957	
Hanwha Precision Machinery Co., Ltd.	156,043	-	-	140,873	1,681,509	
Hanwha Solutions Co., Ltd. ² (Formerly, Hanwha Chemical Co., Ltd.)	12,530,077	-	3,918,487	4,578,337	2,040,560	
Hanwha Hotel & Resort Inc.	164,582	-	22,530,280	-	76,507	
Hanwha TechM (Suzhou) Co., Ltd.	490,309	-	-	-	-	
Hanwha Europe GmbH	6,097,699	-	4,578,906	2,136,436	62,790	

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Hanwha International (S) Pte Ltd.	326,139	-	-	-	-
Hanwha International LLC.	1,142,152	-	11,727,007	1,737,095	834,062
Hanwha Mining Services Australia Pty., Ltd	3,460,164	-	-	-	13,039
Hanwha Q CELLS Malaysia Sdn. Bhd.	3,901,098	-	3,346,432	-	964,122
Hanwha Q CELLS Co., Ltd. (Qidong)	1,043,518	-	319,343	-	-
Hanwha Q CELLS EPC USA, LLC	172,579	-	9,020	-	-
S&P World Networks DMCC	-	-	-	-	381,485
Hanwha Hong Kong Co., Ltd.	6,987,332	-	-	-	146,304
Others	1,485,049	62,694	2,971,586	396,787	5,460,756
Large-scale business group affiliates					
Hanwha Energy Co., Ltd.	524,881	-	-	-	-
Hanwha Total Co., Ltd.	31,528	-	-	9,009,161	23,837
SIT Co., Ltd.	4,632	-	-	1,042,372	-
Others	89	-	-	-	-
	<u>₩ 51,627,823</u>	<u>₩ 62,694</u>	<u>₩ 91,479,846</u>	<u>₩ 50,730,191</u>	<u>₩ 34,050,967</u>

¹ Accrued revenue for the loan is included.

² Hanwha Chemical Co., Ltd. merged Hanwha Q CELLS & Advanced Materials Co., Ltd. and changed its name to Hanwha Solutions Co., Ltd. for the year ended December 31, 2020.

Hanwha Corporation
Notes to the Separate Financial Statements
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			2019							
			Receivables		Payables					
			Trade receivables	Loans ³	Other receivables	Trade payables	Other payables			
<i>(in thousands of Korean won)</i>										
Subsidiaries, associates and joint ventures										
Hanwha Engineering and Construction Corp.	₩	2,187,021	₩	-	₩	884,372	₩	1,447,959	₩	-
Hanwha Estate Co., Ltd		35,221		-		-		-		512,858
Yeochun NCC Co., Ltd.		148,980		-		-		19,788,798		-
Hanwha Life Insurance Co., Ltd.		134,738		-		22,902,185		-		17,044,280
Hanwha General Insurance Co., Ltd.		201,689		-		95,000		-		657,610
Hanwha System Co., Ltd.		163,164		-		638,360		1,309,296		6,792,223
Hanwha Aerospace Co., Ltd.		328,103		-		18,885,387		3,077,829		248,669
Hanwha Precision Machinery Co., Ltd.		178,527		-		511		705,410		2,140,578
Hanwha Defense Systems Corp.		2,431,573		-		2,605,311		39,558,034		6,517,908
Hanwha General Chemical Co., Ltd.		9,394		-		-		386,194		-
Hanwha Solutions Co., Ltd. ⁴ (Formerly, Hanwha Q Cells & Advanced Materials Corporation		33,879,851		-		6,459,827		-		292,565
Hanwha Solutions Co., Ltd. (Formerly, Hanwha Chemical Co., Ltd.)		278,091		-		5,909,558		2,859,465		1,328,352
Hanwha Investment & Securities Co., Ltd.		57,259		-		-		-		-
Hanwha Hotel & Resort Inc.		2,653,696		-		23,967,851		-		773,036
Hanwha International Trading (Shanghai) Co., Ltd. ¹		4,169,574		-		901		-		-
Hanwha TechM (Suzhou) Co., Ltd.		1,131,952		-		-		-		88,761
Bio Green Technology Sdn Bhd. ²		-		463,120		-		-		-
Hanwha Chemical (Ningbo) Co., Ltd.		2,306		-		-		-		-
Hanwha Europe GmbH		7,570,926		-		2,523,040		2,039,460		428,022
Hanwha International (S) Pte Ltd.		2,076,857		-		-		-		-
Hanwha International LLC.		2,433,969		-		9,769,768		743,659		897,802
Hanwha Q CELLS Co., Ltd. (Qidong)		5,944,744		-		1,128,917		-		4,745,449

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Hanwha Q CELLS EPC USA, LLC	17,274,376	-	-	-	1,260,761
Hanwha Q CELLS Japan Co., Ltd.	474,253	-	-	280,357	149,241
Hanwha Q CELLS Malaysia Sdn. Bhd.	5,299,937	-	2,714,228	-	1,389,347
S&P World Networks DMCC	1,788,484	-	-	1,709,466	1,065,048
Others	3,073,215	64,430	778,271	12,078,840	5,994,095
Large-scale business group affiliates					
Hanwha Energy Co., Ltd.	586,638	-	-	-	-
H-Solution Co., Ltd.	103	-	-	-	-
Hanwha Total Co., Ltd.	7,318,611	-	2,974,767	8,247,319	426
SIT Co., Ltd.	250	-	-	2,454,131	-
Others	908	-	-	-	-
	<u>₩ 101,834,410</u>	<u>₩ 527,550</u>	<u>₩ 102,238,254</u>	<u>₩ 96,686,217</u>	<u>₩ 52,327,031</u>

¹ As at December 31, 2019, the Company set up a full provision against the receivables.

² As at December 31, 2019, the Company set up a full provision against the loan.

³ Accrued revenue for the loan is included.

⁴ Hanwha Q CELLS & Advanced Materials Co., Ltd. changed its name to Hanwha Global Asset Corporation and spun off Hanwha Q CELLS & Advanced Materials Co., Ltd. for the year ended December 31, 2019.

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(5) Sales and purchases with related parties, including large-scale business group affiliates, for the years ended December 31, 2020 and 2019, are as follows:

(in thousands of Korean won)	2020						
	Sales and others			Purchases and others			
	Sales	Disposal of fixed assets	Other gains	Purchases	Acquisition of fixed assets	Acquisition of right-of-use assets	Other expenses
Subsidiaries, associates and joint ventures							
Hanwha Engineering and Construction Corp.	₩ 42,406,635	₩ -	₩ 240,012	₩ -	₩ -	₩ -	₩ -
Hanwha Galleria Co., Ltd.	1,121,530	-	-	2,734,218	-	-	-
Hanwha Estate Co., Ltd.	95,495	-	-	6,527,655	-	-	352
Yeocheon NCC Co., Ltd.	473,734	-	-	134,360,452	-	-	-
Hanwha Life Insurance Co., Ltd.	52,071,354	-	83,204	1,709,805	-	57,374	1,451,636
Hanwha General Insurance Co., Ltd.	26,189,425	-	26,988	4,493,903	-	94,417	20,193
Hanwha System Co., Ltd.	8,921,080	-	-	37,746,827	-	-	-
Hanwha Aerospace Co., Ltd.	4,816,840	-	-	115,679,444	-	-	1,294
Hanwha Precision Machinery Co., Ltd. ¹	4,260,196	-	-	707,009	-	-	-
Hanwha Defense Systems Corp.	23,230,707	-	-	1,906,292	-	-	1,407,079
Hanwha General Chemical Co., Ltd.	4,548,171	-	-	1,681,694	-	-	-
Hanwha Solutions Co., Ltd. ² (Formerly, Hanwha Chemical Co., Ltd.)	64,752,066	-	19,995	77,083,728	-	3,138,363	41,108
Hanwha Compound Corporation Co., Ltd.	2,737,726	-	-	-	-	-	-
Hanwha	3,958,545	-	-	-	-	-	-

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Investment & Securities Co., Ltd.								
Hanwha Hotel & Resort Inc.	5,249,650	-	-	3,873,700	-	-	-	6,050
Hanwha Q CELLS Gmbh	2,071,412	-	-	1,433,957	-	-	-	-
Hanwha Europe GmbH	5,170,141	-	170,897	30,462,891	-	-	-	-
Hanwha International (S) Pte Ltd.	4,876,828	-	-	-	-	-	-	-
Hanwha International LLC.	4,197,454	-	-	54,385,852	-	-	-	-
Hanwha Q CELLS (Qidong) Co., Ltd.	13,237,816	-	-	-	-	-	-	-
Hanwha Q CELLS EPC USA, LLC	2,585,004	-	-	-	-	-	-	-
Hanwha Q CELLS Japan Co., Ltd.	1,161,102	-	357,225	1,502,450	-	-	-	-
Hanwha Q CELLS Malaysia Sdn. Bhd.	17,141,604	-	-	-	-	-	-	-
PT. Hanwha Mining Services Indonesia	316,243	-	179,138	-	-	-	-	-
S&P World Networks DMCC	19,083,735	-	271,489	771,309	-	-	-	-
Hanwha Hong Kong Co., Ltd.	5,744,630	-	590,629	130,666,698	-	-	-	-
Recon Co., Ltd.	-	-	1,491,862	-	-	-	-	-
Hanwha Global Asset Corporation (Formerly, Hanwha Q Cells & Advanced Materials Corporation)	2,242,948	-	-	-	-	-	-	-
Others	15,060,507	-	291,434	12,883,499	-	-	-	77,150
Large-scale business group affiliates								
Hanwha Total Co., Ltd.	11,718,488	-	-	76,434,552	-	-	-	-
SIT Co., Ltd.	30,110	-	-	2,922,053	-	-	-	-
Hanwha Energy Co., Ltd.	11,155,655	-	-	-	-	-	-	-
Others	600	-	-	-	-	-	-	-
	<u>₩ 360,627,431</u>	<u>₩ -</u>	<u>₩ 3,722,873</u>	<u>₩ 699,967,988</u>	<u>₩ -</u>	<u>₩ 3,290,154</u>	<u>₩ -</u>	<u>₩ 3,004,862</u>

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¹ The Company acquired robot business segment from Hanwha Precision Machinery Co., Ltd. and paid ₩ 4,535 million for acquisition cost. The acquired assets and liabilities amount to ₩ 7,616 million and ₩ 3,533 million, respectively.

² Hanwha Chemical Co., Ltd. merged Hanwha Q CELLS & Advanced Materials Co., Ltd. and changed its name to Hanwha Solutions Co., Ltd. for the year ended December 31, 2020.

(in thousands of Korean won)

	2019						
	Sales and others			Purchases and others			
	Sales	Disposal of fixed assets	Other gains	Purchases	Acquisition of fixed assets	Acquisition of right-of-use assets	Other expenses
Subsidiaries, associates and joint ventures							
Hanwha Engineering and Construction Corp.	₩ 26,238,499	₩ -	₩ 7,601	₩ -	₩ -	₩ -	₩ -
Hanwha Estate Co., Ltd	361,115	-	-	5,428,320	-	-	-
Yeocheon NCC Co., Ltd.	460,278	-	-	178,820,401	-	-	-
Hanwha Life Insurance Co., Ltd.	42,239,709	-	383,524	314,614	-	2,567,468	1,554,106
Hanwha General Insurance Co., Ltd.	25,299,629	-	322,908	5,041,025	-	670,861	14,570
Hanwha System Co., Ltd.	9,195,689	-	-	47,190,392	-	-	-
Hanwha Aerospace Co., Ltd.	4,547,870	-	-	92,822,671	6,622	137,123	11,041
Hanwha Precision Machinery Co., Ltd.	4,305,474	-	-	2,823,052	-	-	-
Hanwha Defense Systems Corp.	21,293,957	-	-	58,229,575	-	-	45,573
Hanwha General Chemical Co., Ltd.	5,315,396	-	-	3,689,028	-	-	-
Hanwha Solutions Co., Ltd. ¹ (Formerly, Hanwha Q Cells & Advanced Materials Corporation)	14,900,395	-	-	-	-	-	-

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Hanwha Global Asset Corporation ¹ (Formerly, Hanwha Q Cells & Advanced Materials Corporation)	45,859,798	-	-	987,637	-	-	-
Hanwha Solutions Co., Ltd (Formerly, Hanwha Chemical Co., Ltd.)	26,970,877	-	-	76,114,741	-	-	46,013
Hanwha Investment & Securities Co., Ltd.	7,008,339	-	-	-	-	-	-
Hanwha Hotel & Resort Inc.	13,093,707	31,093	-	11,329,077	3,164,966	-	-
Hanwha International Trading (Shanghai) Co., Ltd.	-	-	38,836	-	-	-	-
Hanwha TechM (Suzhou) Co., Ltd.	48,789	-	-	1,139,545	-	-	-
Bio Green Technology Sdn Bhd.	-	-	51,808	-	-	-	-
Hanwha Chemical (Ningbo) Co., Ltd.	2,344	-	-	-	-	-	-
Hanwha Europe GmbH	17,613,354	-	167,351	30,394,789	-	-	-
Hanwha International (S) Pte Ltd.	15,805,040	-	-	10,189	-	-	-
Hanwha International LLC.	10,897,921	-	-	49,171,664	-	-	-
Hanwha Q CELLS Co., Ltd. (Qidong)	59,803,312	-	-	-	-	-	-
Hanwha Q CELLS EPC USA, LLC	16,972,542	-	-	-	-	-	-
Hanwha Q CELLS Japan Co., Ltd.	6,921,967	-	338,752	1,977,245	-	-	-
Hanwha Q CELLS Malaysia Sdn. Bhd.	30,467,717	-	-	-	-	-	-
HANWHA TECHM	55,501	-	-	368,727	-	-	-

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USALLC									
S&P World Networks DMCC	64,330,562	-	553,786	13,699,721	-	-	-	-	-
Others	17,812,082	-	2,647,466	127,716,949	-	-	-	-	-
Large-scale business group affiliates									
Hanwha Energy Co., Ltd.	4,716,250	-	-	-	-	-	-	-	-
H-Solution Co., Ltd.	4,590	-	-	-	-	-	-	-	-
Hanwha Total Co., Ltd.	65,898,524	-	-	87,083,401	-	-	-	-	-
SIT Co., Ltd.	5,850	-	-	2,560,228	-	-	-	-	-
Others	9,558	-	-	-	-	-	-	-	-
	<u>₩ 558,456,635</u>	<u>₩ 31,093</u>	<u>₩ 4,512,032</u>	<u>₩ 796,912,991</u>	<u>₩ 3,171,588</u>	<u>₩ 3,375,452</u>	<u>₩ 1,671,303</u>		

¹ Hanwha Q CELLS & Advanced Materials Co., Ltd. changed its name to Hanwha Global Asset Corporation and spun off Hanwha Q CELLS & Advanced Materials Co., Ltd. for the year ended December 31, 2019.

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(6) The Company paid ₩ 20,730 million (2019: ₩ 16,254 million) as plan asset to Hanwha Life Insurance Co., Ltd., Hanwha General Insurance Co., Ltd. and others, subsidiaries of the Company, and also carries commercial general liability insurance and others at the subsidiaries.

(7) The Company received dividends of ₩ 11,909 million (2019: ₩ 11,909 million) and ₩ 4,728 million (2019: ₩ 15,760 million) from Hanwha Solutions Co., Ltd and Hanwha Life Insurance Co., Ltd., subsidiaries of the Company, respectively, and ₩ 1,941 million (2019: ₩ 3,057 million) from KoreaRasLaffan LNG, an associate of the Company.

(8) Changes in loans to related parties, including large-scale business group affiliates, for the years ended December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020				
	Beginning	Increase	Decrease	Others ¹	Ending
Associates					
Bio Green Technology Sdn Bhd.	₩ 463,120	₩ -	₩ (463,120)	₩ -	₩ -
Subsidiaries					
PT. Bara Bumi International ²	64,430	-	-	(1,737)	62,693

¹ Others include accrued interest income and fluctuation of foreign exchange rate.

² As at December 31, 2020, the Company set up a full provision against the loans.

<i>(in thousands of Korean won)</i>	2019				
	Beginning	Increase	Decrease	Others ¹	Ending
Associates					
Bio Green Technology Sdn Bhd. ²	₩ 623,621	₩ -	₩ (118,728)	₩ (41,773)	₩ 463,120
Subsidiaries					
PT. Bara Bumi International	59,530	-	-	4,900	64,430

¹ Others include accrued interest income and fluctuation of foreign exchange rate.

² As at December 31, 2019, the Company set up a full provision against the loans.

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(9) Changes in lease liabilities for related parties, including large-scale business group affiliates, for the years ended December 31, 2020 and 2019, are as follows:

(in thousands of Korean won)

	2020			
	Beginning	Increase ¹	Decrease	Ending
Hanwha Life Insurance Co., Ltd.	₩ 16,979,230	₩ 418,282	₩ (8,723,760)	₩ 8,673,752
Hanwha General Insurance Co., Ltd.	619,674	109,748	(605,572)	123,850
Hanwha Defense Systems Corp.	2,368,453	59,798	(141,353)	2,286,898
Hanwha Solutions Co., Ltd.	-	3,179,471	(3,179,471)	-
Hana Daol HW Landchip Private real estate feeder investment Trust No.1	3,108,658	77,151	(436,435)	2,749,374
Hanwha Aerospace Co., Ltd.	74,306	1,294	(75,600)	-

¹ Newly acquired lease liabilities and the effect of interest expense related to lease liabilities during the year ended December 31, 2020, are included.

(in thousands of Korean won)

	2019			
	Beginning ¹	Increase ²	Decrease	Ending
Hanwha Life Insurance Co., Ltd.	₩ 30,090,326	₩ 3,347,651	₩ (16,458,747)	₩ 16,979,230
Hanwha General Insurance Co., Ltd.	56,182	690,088	(126,596)	619,674
Hanwha Defense Systems Corp.	3,381,227	87,656	(1,100,430)	2,368,453
Hanwha Chemical Co., Ltd.	3,314,575	46,013	(3,360,588)	-
Hana Daol HW Landchip Private real estate feeder investment Trust No.1	3,629,278	101,651	(622,271)	3,108,658
Hanwha Aerospace Co., Ltd.	-	143,606	(69,300)	74,306

¹ The effect of initial application of Korean IFRS 1116 is reflected.

² Newly acquired lease liabilities and the effect of interest expense related to lease liabilities during the year ended December 31, 2019, are included.

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(10) Equity contributions in cash to related parties, including large-scale business group affiliates, for the years ended December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	Equity contributions in cash			
	2020		2019	
Subsidiaries				
Hanwha Mining Services Chile SpA	₩	951,170	₩	1,733,213
Hanwha Mining Services USA Inc.		2,253,151		2,249,000
Hanwha Hong Kong Co., Ltd.		-		28,352,400
Hanwha Resources (Canada) Ltd.		35,488		15,172
PT. Hanwha Mining Services Indonesia		-		8,995,200
GODO KAISHA SUMMIT APOLLO ELEVEN		69,996		-
HANWHA INTERNATIONAL VIETNAM		866,880		-
H PROPERTIES TMK		14,545,405		-
Hanwha International Trading (Shanghai) Co., Ltd.		730,090		5,705,468

(11) Payment guarantees to related parties, including large-scale business group affiliates, as at December 31, 2020, are as follows:

<i>(in Japanese yen, Euro, Australian dollars and US dollars)</i>			
Guarantees received	Breakdown of guarantee	Amount	
Hanwha Q CELLS Japan Co., Ltd.	Payment certification of debts	JPY	3,980,000,000
	Payment certification of debts	USD	17,000,000
Hanwha Hong Kong Co., Ltd.	Payment certification of debts	USD	54,000,000
	Payment certification of debts	EUR	8,000,000
PT. Hanwha Mining Services Indonesia	Payment certification of debts	USD	30,000,000
	Payment certification of debts	AUD	61,000,000
Hanwha Mining Services Australia PTY Ltd	Payment certification of debts		

(12) The key management compensation for the years ended December 31, 2020 and 2019, consists of the following:

<i>(in thousands of Korean won)</i>	2020		2019	
Salaries and other short-term employee benefits	₩	31,249,095	₩	23,546,289
Post-employment benefits		4,633,929		4,929,214
Other long-term benefits		16,811		10,103

¹ Include equity-settled and cash-settled shared-based payments amounting to ₩ 4,140 million and ₩ 5,094 million, respectively.

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37. Commitment and Contingencies

(1) The outstanding borrowing agreements with banks as at December 31, 2020, are as follows:

(in thousands of Korean won and in US dollars, Euro)

	Financial institution	Limit	
		Currency	Amount
Bank overdraft	Woori Bank	KRW	8,000,000
	Hana bank	KRW	3,000,000
Letter of credit for import	Woori Bank	USD	92,000,000
	Korea Development Bank	USD	90,000,000
	Shinhan Bank	USD	115,000,000
	Hana bank	USD	80,000,000
	Nonghyup Bank	USD	40,000,000
	Kookmin Bank	USD	10,000,000
	Comprehensive limit in foreign currency	Suhyup Bank	USD
Industrial and Commercial Bank of China		USD	10,000,000
Purchasing bill of exchange	Shinhan Bank	USD	54,700,000
	Hana bank	USD	25,000,000
	Nonghyup Bank	USD	25,000,000
Local letter of credit	Hana bank	KRW	30,000,000
	Shinhan Bank	KRW	5,000,000
Other notes discounted	Woori Bank	KRW	250,000,000
Limit loan	Hana bank	KRW	50,000,000
	Shinhan Bank	KRW	30,000,000
	Korea Development Bank	KRW	50,000,000
	Kookmin Bank	KRW	100,000,000
	Industrial and Commercial Bank of China	KRW	40,000,000
	Nonghyup Bank	KRW	10,000,000
	Suhyup Bank	KRW	10,000,000
	Daegu Bank	KRW	10,000,000
	Hana bank	USD	30,000,000
	Suhyup Bank	USD	20,000,000
Contracted notes-discounted	Shinhan Bank	KRW	20,000,000

(2) As at December 31, 2020, five blank promissory notes and one blank check have been provided as collateral for short-term and long-term debts, agreements for discounting notes receivable and performance guarantees and others, respectively.

(3) As at December 31, 2020, there are no agreed payment guarantees for non-related parties.

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(4) Payment guarantees that are provided for the Company as at December 31, 2020, are as follows:

(in thousands of Korean won and in US dollars)

Contract content	Guarantor	Insurance limit	
Performance guarantees and others	Seoul Guarantee Insurance Co., Ltd.	KRW	333,397,642
	Korea Defense Industry association	KRW	1,649,590,824
	First Abu Dhabi Bank	USD	159,017,600
Guarantees for FRN	Shinhan Bank	USD	30,000,000
Payment guarantee in foreign currency	Woori Bank	USD	85,000,000
	Hana Bank	USD	44,522,020

(5) Assets that are provided as collateral for the Company's liabilities as at December 31, 2020, are as follows:

(in thousands of Korean won)

	Mortgagee	Mortgage amount		Classification
Boeun and Onsan Factory	Korea Development Bank	KRW	150,000,000	Collateral for borrowing limit
Daejeon Factory	Korea Development Bank	KRW	77,000,000	Collateral for borrowing limit
Gumi Factory	Korea Development Bank	KRW	20,000,000	Collateral for borrowing limit
Banghyun R&D Center	Korea Development Bank	KRW	96,000,000	Collateral for borrowing limit
Investments in associates and others ¹	Korea Development Bank and others	KRW	192,147,833	Collateral for borrowing limit and performance of contract
Fixed deposit	Korea Defense Industry association and others	KRW	1,946,301	License acquisition and others

¹ 4,000,000 ordinary shares of Hanwha Engineering & Construction Corp. owned by the Company are pledged as collateral for the borrowings. Also, 400,000 ordinary shares of ShinYoung Portu co., Ltd and 65,518 ordinary shares of Korea Defense Industry Association are provided as collateral for performance guarantees.

(6) As at December 31, 2020, the Company has pending lawsuits, 21 cases as a defendant claiming total of ₩ 64,124 million and 8 cases as a plaintiff claiming total of ₩ 7,620 million. The Company is expecting the results of the litigation will not have a material impact on its separate financial statements. As at December 31, 2020, the outcome of the above cases cannot be reasonably estimated.

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(7) The Company has entered into a contract to receive brand royalties with pricing based on the sales and advertising expenses for some affiliated companies over the use of 'Hanwha' brand.

(8) The Company entered into shareholders' agreement with Recon Co., Ltd., a preferred share investor, in relation to the issuance of redeemable convertible preferred shares of Hanwha Engineering and Construction Corp. The details of the contract are as follows:

(a) Shareholders' agreement

	Details
Settlement	With respect to the entire shares of the redeemable convertible preferred shares, the amount equal to the net sale price, less the initial issue price will be settled in cash on June 26, 2023. If the settlement amount is positive, the investors make payment to the Company, but if the settlement amount is negative, the Company makes payment to the investors.
Early settlement	The investors can claim a settlement before the settlement date in case the following circumstances arise. Calculation of the settlement amount is same as the below. - Hanwha Engineering and Construction Corp. is unable to pay the dividend determined for the redeemable convertible preferred share to Recon Co., Ltd. - Rehabilitation, bankruptcy, workout or at the commencement of other similar proceedings for Hanwha Engineering and Construction Corp. - Credit rating of Hanwha Engineering and Construction Corp. is degraded to a rating equal to or below BBB0 Early.
Appraisal rights	The Company has a right to purchase all or part of the redeemable convertible preferred shares held by the investors on 25th of each month. The price determined by sum of issue price and commission rate varies with exercise time. (It cannot be issued after commencement of the settlement procedure.)

(b) Redeemable convertible preferred shares

Details of the redeemable convertible preferred shares issued by Hanwha Engineering and Construction Corp. as at December 31, 2020, are as follows:

	Details
Purpose of the issuance	Securing liquidity and improving financial structure
Type of the issued shares	Non-cumulative non-participating preferred share
Total number of shares issued	956,938 shares (1,913,800 shares are issued and 956,862 shares were redeemed)
Issue price per share	₩ 209,000
Voting right	No voting right

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Rate of dividend	2020–2023: 3.55%, 4.70%, 4.65% and 0%, respectively, After 2024: Preferred dividend could be changed according to the method or procedure allowed by the statute.
Redemption right	i) Redemption: Hanwha Engineering and Construction Corp. has a right to request a redemption of all or part of the preferred shares, assuming that distributable income is available (Notice date: March 23, 2023/ Redemption date: June 26, 2023). ii) Redemption after maturity: Hanwha Engineering and Construction Corp. has a right to redeem all or part of the preferred shares every year, assuming that distributable income is available.
Conversion right	i) Conversion right: Preferred shareholders and publishing company have conversion right. ii) Exercise date: Until June 26, 2024, on 26th of each month. iii) Conversion rate: 5 ordinary shares per 1 preferred share

38. Cash Flow Information

(1) Details of cash generated from operations for the years ended December 31, 2020 and 2019,
are as follows:

<i>(in thousands of Korean won)</i>	2020		2019	
Profit for the year	₩	128,678,023	₩	100,269,854
Addition of expenses not involving cash outflows:				
Other long-term payroll		5,872,417		8,898,979
Post-employment benefit		52,149,269		49,913,588
Depreciation of investment property		442,355		529,888
Depreciation of property, plant and equipment		67,777,744		60,311,591
Amortization		9,715,200		11,567,654
Depreciation of right-of-use assets		21,556,996		21,835,230
Impairment loss		4,309,422		6,916,394
Other impairment loss		2,854,187		554,079
Loss on valuation of inventories		11,640,389		17,392,090
Obsolescence loss on inventory		9,347,647		10,758,429
Loss on foreign currency translation		15,947,896		5,940,186
Loss on valuation of derivatives		16,420,441		15,876,705
Loss on valuation of financial assets at fair value through profit or loss		-		198,841
Loss on disposal of financial assets at amortized cost		752,618		2,344,954
Impairment loss on investments in subsidiaries and associates		42,609,349		27,664,002
Loss on disposal of financial assets at fair value through profit or loss		303		502
Impairment loss on property, plant and equipment		303,122		4,233,592
Impairment loss on intangible assets		957,511		844,255

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Loss on disposal of property, plant and equipment	3,102,908	2,909,667
Loss on disposal of intangible assets	3,435	208,994
Interest expense	60,699,792	72,164,844
Income tax expense	31,275,872	18,341,657
Provision cost for construction warranties	6,602,225	-
Other provision cost	36,566,293	40,850,464
Others	9,714,917	135
	410,622,308	380,256,720
Deduction of revenues not involving cash inflows:		
Gain on foreign currency translation	25,882,758	5,698,651
Gain on valuation of derivatives	19,907,830	23,242,079
Gain on transaction of derivatives	15,011,667	-
Reversal of impairment loss	2,377,202	20,662,028
Reversal of other impairment loss	463,533	647,541
Reversal of loss on valuation of inventories	1,783,038	1,812,303
Gain on valuation of financial assets at fair value through profit or loss	494,374	137,901
Gain on disposal of investments in subsidiaries and associates	47,078,762	1,454,796
Reversal of investments in subsidiaries and associates	368,765	3,130,530
Gain on disposal of investment property	12,749	-
Gain on disposal of property, plant and equipment	2,267,614	1,552,489
Gain on disposal of intangible assets	317,575	-
Reversal of provisions	5,259,154	753,816
Reversal of provision for construction warranties	110,118	-
Interest income	6,438,253	5,614,837
Dividend income	18,585,248	30,731,080
Guarantee fee received	1,685,459	1,745,580
Others	1,174,420	144,213
	(149,218,519)	(97,327,844)
Changes in working capital:		
Trade and other receivables	188,492,807	121,911,530
Other financial assets	15,546,355	(8,398,087)
Other current assets	111,811,735	(209,285,541)
Inventories	169,198,320	(5,718,514)
Other non-current assets	1,885,258	1,173,158
Trade and other payables	(83,979,217)	(125,903,074)
Other financial liabilities	(25,650,909)	(6,360,026)
Other liabilities	(337,276,463)	119,713,067
Defined benefit liabilities	(34,801,933)	(22,240,547)
Provisions	(20,033,267)	(19,367,869)
	(14,807,314)	(154,475,903)
Cash generated from operations	₩ 375,274,498	₩ 228,722,827

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(2) Details of significant non-cash transaction for the years ended December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020		2019	
Change of payables by acquiring property, plant and equipment	₩	8,915,548	₩	(4,892,081)
Change of payables by acquiring intangible assets		(1,996,875)		1,479,854

(3) Changes in liabilities arising from financing activities for the years ended December 31, 2020 and 2019, are as follows:

<i>(in thousands of Korean won)</i>	2020			
	Beginning	Changes resulting from financing activities	Others ¹	Ending
Bank borrowings	₩ 944,674,523	₩ 104,918,281	₩ (22,134,605)	₩ 1,027,458,199
Debentures	1,292,280,418	(245,804,314)	1,119,696	1,047,595,800
Deposits	4,497,937	(229,382)	-	4,268,555
Government grants	1,058,554	701	-	1,059,255
Lease payable	52,690,978	(21,112,900)	608,670	32,186,748
Liabilities resulting from financing activities	₩ 2,295,202,410	₩ (162,227,615)	₩ (20,406,239)	₩ 2,112,568,557

¹ Others include changes arising from adoption of Korean IFRS 1116 *Leases*, interest expense and gain and loss on foreign currency translation.

<i>(in thousands of Korean won)</i>	2019			
	Beginning	Changes resulting from financing activities	Others ¹	Ending
Bank borrowings	₩ 1,154,221,647	₩ (209,336,074)	₩ (211,050)	₩ 944,674,523
Debentures	1,041,062,988	248,356,883	2,860,547	1,292,280,418
Deposits	2,456,489	2,042,127	(679)	4,497,937
Government grants	1,015,812	42,741	-	1,058,553
Lease payable	2,968,875	(22,238,033)	71,960,136	52,690,978
Liabilities resulting from financing activities	₩ 2,201,725,811	₩ 18,867,644	₩ 74,608,954	₩ 2,295,202,409

¹ Others include changes arising from adoption of Korean IFRS 1116 *Leases*, interest expense and gain and loss on foreign currency translation.

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39. Green House Gas Emission and Emission Liabilities

(1) Amount of free allocated gas emission (second planned period 2018-2020) as at December 31, 2020, is as follows:

<i>(Unit: KAU)</i>	Free allocated gas emission
2018	34,721
2019	34,721
2020	34,721
	<u>104,163</u>

(2) Changes in amount of emission and book amount for the year ended December 31, 2020, are as follows:

<i>(Unit: KAU, in thousands of Korean won)</i>	2020	
	Quantity	Book amount
Beginning	-	₩ -
Free allocation	34,721	-
Additional allocation	-	-
Used ¹	(48,000)	-
Others	13,279	-
Ending	<u>-</u>	<u>₩ -</u>

¹ The used amount for the year ended December 31, 2020 (48,000 KAU), is unverified externally.

Meanwhile, certain gas emissions are not provided as collateral as at December 31, 2020.

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40. Risk Management

(1) Financial risk management

The Company's activities expose it to a variety of financial risks: market risk (including currency risk and interest rate risk), credit risk and liquidity risk. The Company's overall risk management program focuses on the unpredictability of financial markets and seeks to minimize potential adverse effects on the Company's financial performance. The Company uses derivative financial instruments to hedge certain risk exposures.

1) Market risk

① Foreign exchange risk

The Company operates internationally and is exposed to foreign exchange risk arising from various currency exposures, primarily with respect to the U.S. dollar, the Euro and the Japanese yen. Foreign exchange risk arises from future commercial transactions and recognized assets and liabilities. The Company chooses a hedging policy based on the nature of each company's business and the risks of exchange rate fluctuation. In addition, the Company evaluates, manages and reports the risks of exchange rate fluctuation by the managing system of receivables and payables to the management periodically.

The impacts of weakened/strengthened Korean won by 10% against foreign currencies, with all other variables held constant, on the profit before income tax for the year ended December 31, 2020, are as follows:

<i>(in thousands of Korean won)</i>	10% increase	10% decrease
USD	₩ (11,236,208)	₩ 11,236,208
EUR	(435,463)	435,463
JPY	(1,284,212)	1,284,212

The above sensitivity analysis is performed based on monetary assets and liabilities denominated in a currency that is not the Company's functional currency.

② Interest rate risk

The Company's interest rate risk mainly arises through borrowings. Borrowings issued at variable rates expose the Company to cash flow interest rate risk. Also, fixed-rate borrowings expose the Company to fair value interest rate risk. The Company analyzes and manages its interest rate exposure through various manners, such as to share excess cash within the Company to minimize external borrowings, to avoid high-rate borrowings, to reform capital structure, to manage an appropriate ratio of fixed-rate borrowings and variable-rate borrowings and to monitor a fluctuation of domestic and foreign interest rates.

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The impact of 1% high/low interest rate (on floating-rate borrowings), with all other variables held constant, on the Company's profit before income tax for the year ended December 31, 2020, would have been ₩ 5,107 million lower/higher.

2) Credit risk

Credit risk is managed on a group basis. Credit risk arises from cash and cash equivalents, derivative financial instruments and deposits with banks and financial institutions, as well as credit exposures to wholesale and retail customers, including outstanding receivables and committed transactions. In order to manage credit risk, the Company opens and maintains its business only with customers whose credit qualities exceed a required minimum rating and periodically reevaluates credit qualities of customers to amend a credit limit, if necessary. As at December 31, 2020, management does not expect any losses from non-performance by counterparties. As at December 31, 2020, the maximum exposure to credit risk related to financial guarantees provided by the Company to related parties is ₩ 229,904 million (Note 36).

3) Liquidity risk

The Company monitors rolling forecasts of its liquidity requirements to ensure it has sufficient cash to meet operational needs while maintaining sufficient headroom on its undrawn committed borrowing facilities at all times. The Company's treasury department invests surplus cash in time deposits and interest-bearing money market deposits, choosing instruments with appropriate maturities or sufficient liquidity to provide sufficient headroom.

Details of the Company's liquidity risk analysis as at December 31, 2020 and 2019, are as follows:

(in thousands of Korean won)

	2020				
	Less than 3 months	Between 3 months and 1 year	Between 1 year and 5 years	More than 5 years	Total
Bank borrowings ¹	₩ 283,249,013	₩ 324,166,824	₩ 437,464,570	₩ 5,702,083	₩ 1,050,582,490
Debentures ¹	106,077,259	234,649,631	751,868,361	-	1,092,595,251
Trade and other payables	331,126,153	23,133,086	5,083,045	-	359,342,284
Other financial liabilities ²	42,513,906	600,228	8,801,870	-	51,916,003
Lease liabilities ³	4,501,321	9,853,139	15,150,111	4,479,475	33,984,045
Derivative financial liabilities	8,463,056	5,571,802	16,386,431	-	30,421,290

¹ Cash flows of bank borrowings and debentures included interest expenses.

² Cash flows of other financial liabilities excluded interest expenses from borrowings and derivatives.

³ Cash flows of lease liabilities included interest expenses.

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(in thousands of Korean won)

	2019				
	Less than 3 months	Between 3 months and 1 year	Between 1 year and 5 years	More than 5 years	Total
Bank borrowings ¹	₩ 212,983,498	₩ 493,868,320	₩ 254,565,684	₩ 7,700,683	₩ 969,118,185
Debentures ¹	158,549,218	394,666,321	796,173,025	-	1,349,388,564
Trade and other payables	431,014,422	16,436,999	5,317,516	-	452,768,937
Other financial liabilities ²	37,974,022	859,866	3,954,641	-	42,788,529
Lease liabilities ³	5,073,642	12,789,057	29,503,315	10,940,704	58,306,718
Derivative financial liabilities	13,620,479	45,211,709	409,866	-	59,242,054

¹ Cash flows of bank borrowings and debentures included interest expenses.

² Cash flows of other financial liabilities excluded interest expenses from borrowings and derivatives.

³ Cash flows of lease liabilities included interest expenses.

Additionally, the Company has provided payment guarantees for borrowings of subsidiaries (Note 36).

(2) Capital risk management

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

Consistent with others in the industry, the Company monitors capital on the basis of the gearing ratio. This ratio is calculated as net debt divided by total capital. Net debt is calculated as total borrowings, less cash and cash equivalents, and total capital is calculated as 'equity,' as shown in the separate statements of financial position, plus net debt.

The gearing ratios as at December 31, 2020 and 2019, are as follows:

(in thousands of Korean won)	2020	2019
Total borrowings	₩ 2,075,053,998	₩ 2,236,954,942
Less: Cash and cash equivalents	(308,886,549)	(322,520,991)
Net debt (A)	1,766,167,449	1,914,433,951
Total equity (B)	3,492,463,654	3,423,948,285
Total capital (C=A+B)	₩ 5,258,631,103	₩ 5,338,382,236
Gearing ratio (A/C) (%)	33.59%	35.86%

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(3) Fair value measurement

There are no significant changes in business and economic environments that affect financial instruments of the Company for the year ended December 31, 2020.

1) Carrying amount and fair value of financial instruments by category as at December 31, 2020 and 2019, are as follows:

(in thousands of Korean won)

	2020		2019	
	Carrying amount	Fair value	Carrying amount	Fair value
Financial assets				
Cash and cash equivalents	₩ 308,886,549	₩ 308,886,549	₩ 322,520,991	₩ 322,520,991
Financial assets at fair value through profit or loss (non-current)	17,098,223	17,098,223	16,663,391	16,663,391
Financial assets at fair value through other comprehensive income (non-current)	58,859	58,859	78,859	78,859
Derivative financial instruments (current)	18,362,164	18,362,164	23,625,546	23,625,546
Derivative financial instruments (non-current)	-	-	-	-
Trade and other receivables (current)	365,228,114	365,228,114	582,099,344	582,099,344
Trade and other receivables (non-current)	39,397,694	39,397,694	18,850,514	18,850,514
Other financial assets (current) ¹	47,422,315	47,422,315	37,246,641	37,246,641
Other financial assets (non-current) ¹	22,445,271	22,445,271	30,724,693	30,724,693
	<u>₩ 818,899,189</u>	<u>₩ 818,899,189</u>	<u>₩ 1,031,809,979</u>	<u>₩ 1,031,809,979</u>
Financial liabilities				
Trade and other payables (current)	₩ 354,259,239	₩ 354,259,239	₩ 447,451,420	₩ 447,451,420
Trade and other payables (non-current)	5,083,045	5,083,045	5,317,516	5,317,516
Borrowings and debentures (current) ²	913,246,934	913,246,934	1,216,296,376	1,216,296,376
Borrowings and debentures (current) ³	1,161,807,064	1,138,038,361	1,020,658,566	1,018,442,485
Derivative financial instruments (current)	13,985,251	13,985,251	58,827,897	58,827,897
Derivative financial instruments (non-current)	16,386,431	16,386,431	409,866	409,866
Other financial liabilities (current) ¹	57,396,694	57,396,694	61,895,471	61,895,471
Other financial liabilities (non-current) ¹	26,706,058	26,706,058	40,242,710	40,242,710
	<u>₩ 2,548,870,716</u>	<u>₩ 2,525,102,013</u>	<u>₩ 2,851,099,822</u>	<u>₩ 2,848,883,741</u>

¹ Derivative financial instruments are excluded.

² Since the effect of discount is not significant in respect of current portion of borrowings and debentures, the difference between fair value and book amount is not important.

³ Fair value is calculated by reflecting credit rating and market interest rate.

2) Assets measured at fair value are categorized within the fair value hierarchy, and the defined levels are as follows:

Significance of inputs

Level 1 Quoted prices (unadjusted) in active markets for identical assets or liabilities

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- Level 2 Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly (that is, prices) or indirectly (that is, derived from prices)
- Level 3 Inputs for the asset or liability that are not based on observable market data (that is, unobservable inputs)

Fair value hierarchy classifications of the financial assets and financial liabilities that are measured at fair value as at December 31, 2020 and 2019, are as follows:

(in thousands of Korean won)

	2020			
	Level 1	Level 2	Level 3	Total
Financial assets and liabilities that are measured at fair value				
Assets:				
Cash and cash equivalents	₩ -	₩ 240,000,000	₩ -	₩ 240,000,000
Financial assets at fair value through profit or loss (current)	-	42,307,353	-	42,307,353
Financial assets at fair value through profit or loss (non-current)	-	16,662	17,081,562	17,098,224
Financial assets at fair value through other comprehensive income (non-current)	-	-	58,859	58,859
Derivative financial assets	-	18,362,164	-	18,362,164
	<u>₩ -</u>	<u>₩ 300,686,179</u>	<u>₩ 17,140,421</u>	<u>₩ 317,826,600</u>
Liabilities:				
Derivative financial liabilities	<u>₩ -</u>	<u>₩ 16,905,683</u>	<u>₩ 13,466,000</u>	<u>₩ 30,371,683</u>
	<u>₩ -</u>	<u>₩ 16,905,683</u>	<u>₩ 13,466,000</u>	<u>₩ 30,371,683</u>

(in thousands of Korean won)

	2019			
	Level 1	Level 2	Level 3	Total
Financial assets and liabilities that are measured at fair value				
Assets:				
Cash and cash equivalents	₩ -	₩ 217,000,000	₩ -	₩ 217,000,000
Financial assets at fair value through profit or loss (current)	-	64,448,646	-	64,448,646
Financial assets at fair value through profit or loss (non-current)	-	72,770	16,590,621	16,663,391
Financial assets at fair value through other comprehensive income (non-current)	-	-	78,859	78,859
Derivative financial assets	-	23,625,546	-	23,625,546
	<u>₩ -</u>	<u>₩ 305,146,962</u>	<u>₩ 16,669,480</u>	<u>₩ 321,816,442</u>
Liabilities:				
Derivative financial liabilities	<u>₩ -</u>	<u>₩ 14,202,763</u>	<u>₩ 45,035,000</u>	<u>₩ 59,237,763</u>
	<u>₩ -</u>	<u>₩ 14,202,763</u>	<u>₩ 45,035,000</u>	<u>₩ 59,237,763</u>

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3) Valuation techniques and inputs

Valuation techniques and inputs used for the fair value instruments categorized within Level 2 and Level 3 of the fair value hierarchy as at December 31, 2020 and 2019, are as follows:

(in thousands of Korean won)

	Fair value		Level	Valuation techniques	Inputs and range	Range of inputs (weighted average)
	2020	2019				
Derivative financial liabilities:						
Shareholders' agreement (Note 11)	₩ 13,466,000	₩ 45,035,000	3	Discounted cash flow ¹ (DCF)	Fair value of redeemable convertible preferred share, Permanent growth rate used when calculating FV, Weighted Average Cost of Capital	When the basic asset price increases by ₩ 100, the contract's value decreases by ₩ 478 million

¹ The Company shall have the right to request the purchase of shares at a fixed price at fixed time in accordance with the amendment between shareholders and shall have the obligation to pay a certain price at deducted stock trading price if Reacon Co., Ltd. demands settlement at fixed time, which is similar to the position of buying a call option (C) and selling a put option (P) of derivative instruments. Call options and put options to be evaluated are exercisable only at maturity. Because the basic asset price, exercise price and expiration date are the same, put-call parity was applied to calculate contract value between shareholders.

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41.Split-off

The Company established new company by split-off of cluster bomb business in defense division with the resolution of the Board of Directors on July 30, 2020.

<i>(in thousands of Korean won)</i>		Amount
Assets	₩	36,068,661
Liabilities		34,068,661
Transferred net assets (investments in subsidiaries) ¹		2,000,000

¹ As at December 31, 2020, there are no shares held by the Company because 310,400 shares were disposed to DEFENCE K CO.,LTD. and 89,600 shares are provided as bonus to personnel subject to be transferred among 400,000 shares of investments in subsidiaries acquired by the split-off. (Gain on disposal of investments in associates: ₩ 8,000 million)

42.Events after the Reporting Period

On March 5, 2021, the Company participated in capital increase that are allocated to existing shareholders of Hanwha Solutions Corporation and the number of shares acquired is 9,914,233 shares with the acquisition cost amounting to ₩ 424,825 million.

**Report on Independent Auditor's
Audit of Internal Control over Financial Reporting**

(English Translation of a Report Originally Issued in Korean)

To the Board of Directors and Shareholders of
Hanwha Corporation

Opinion on Internal Control over Financial Reporting

We have audited Hanwha Corporation's (the Company) Internal Control over Financial Reporting as at December 31, 2020, based on *Conceptual Framework for Designing and Operating Internal Control over Financial Reporting*.

In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as at December 31, 2020, based on *Conceptual Framework for Designing and Operating Internal Control over Financial Reporting*.

We also have audited, in accordance with Korean Standards on Auditing, the separate financial statements of the Company, which comprise the separate statement of financial position as at December 31, 2020 and the separate statement of profit or loss, separate statement of comprehensive income, separate statement of changes in equity and separate statement of cash flow for the year then ended, and notes to the separate financial statements including a summary of significant accounting policies, and our report dated March 18, 2021 expressed an unqualified opinion.

Basis for Opinion on Internal Control over Financial Reporting

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

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

Management is responsible for designing, implementing and maintaining effective internal control over financial reporting, and for its assessment about the effectiveness of internal control over financial reporting, included in the accompanying Report on the Effectiveness of Internal Control over Financial Reporting.

Those charged with governance have the responsibilities for overseeing internal control over financial reporting.

Auditor's Responsibilities for the Audit of Internal Control over Financial Reporting

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

An audit of internal control over financial reporting involves performing procedures to obtain audit evidence about whether a material weakness exists. The procedures selected depend on the

auditor's judgment, including the assessment of the risks that a material weakness exists. An audit includes obtaining an understanding of internal control over financial reporting and testing and evaluating the design and operating effectiveness of internal control over financial reporting based on the assessed risk.

Definition and Inherent Limitations of Internal Control over Financial Reporting

An entity's internal control over financial reporting is a process effected by those charged with governance, management, and other personnel, designed to provide reasonable assurance regarding the preparation of reliable financial statements in accordance with International Financial Reporting Standards as adopted by the Republic of Korea. An entity's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the entity; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with International Financial Reporting Standards as adopted by the Republic of Korea, and that receipts and expenditures of the entity are being made only in accordance with authorizations of management and those charged with governance; and (3) provide reasonable assurance regarding prevention, or timely detection and correction of unauthorized acquisition, use, or disposition of the entity's assets that could have a material effect on the financial statements.

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

The engagement partner on the audit resulting in this independent auditor's report is Youngseok Bae, Certified Public Accountant.

Seoul, Korea

March 18, 2021

<p>This report is effective as at March 18, 2021, 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 Company's internal control over financial reporting thereto. Accordingly, the readers of the audit report should understand that there is a possibility that the above audit report may have to be revised to reflect the impact of such subsequent events or circumstances, if any.</p>

Report on the Effectiveness of Internal Control over Financial Reporting

(English Translation of a Report Originally Issued in Korean)

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

We, as the Chief Executive Officer ("CEO") and the Internal Control over Financial Reporting Officer of Hanwha Corporation Co., Ltd. (the "Company"), assessed the effectiveness of the design and operation of the Company's Internal Control over Financial Reporting ("ICFR") for the year ended December 31, 2020.

The Company's management, including ourselves, is responsible for designing and operating ICFR. We assessed the design and operating effectiveness of ICFR in the prevention and detection of an error or fraud which may cause material misstatements in the preparation and disclosure of reliable financial statements. We designed and operated ICFR in accordance with *Conceptual Framework for Designing and Operating Internal Control over Financial Reporting* established by the Operating Committee of Internal Control over Financial Reporting in Korea (the ICFR Committee). And, we conducted an evaluation of ICFR based on *Best Practice Guideline for Evaluating and Reporting Effectiveness of Internal Control over Financial Reporting* established by the ICFR Committee.

Based on the assessment results, we believe that the Company's ICFR, as at December 31, 2020, is designed and operating effectively, in all material respects, in accordance with *Conceptual Framework for Designing and Operating Internal Control over Financial Reporting*.

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

We will continue to strive for effective ICFR operation.

February 9, 2021

옥경석(OK, KYEONG SEAK),
Chief Executive Officer



서광명(SEO, KWANG MYUNG),
Internal Control over Financial Reporting Officer

