HYUNDAI HEAVY INDUSTRIES HOLDINGS CO., LTD.
AND SUBSIDIARIES

Consolidated Financial Statements

December 31, 2019 and 2018

(With Independent Auditors' Report Thereon)

Contents

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Independent Auditors' Report

Based on a report originally issued in Korean

To the Shareholders and Board of Directors of
HYUNDAI HEAVY INDUSTRIES HOLDINGS CO., LTD.

Opinion

We have audited the consolidated financial statements of HYUNDAI HEAVY INDUSTRIES HOLDINGS CO., LTD. and its subsidiaries ("the Group"), which comprise the consolidated statements of financial position as of December 31, 2019 and 2018, the consolidated statements of comprehensive income, changes in equity and cash flows for the years then ended, and notes, comprising significant accounting policies and other explanatory information.

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Group as of December 31, 2019 and 2018, and its consolidated financial performance and its consolidated cash flows for the years then ended in accordance with Korean International Financial Reporting Standards ("K-IFRS").

Basis for Opinion

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

Key Audit Matters

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the consolidated financial statements as of and for the year ended December 31, 2019. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

Assessment of impairment on cash-generating unit (CGU)

The management performed impairment test for the CGU by estimating the recoverable amount of CGU at the end of the reporting period. As described in Note 4(12) to the consolidated financial statements, an impairment loss is recognized for a CGU if the carrying amount of the CGU exceeds its recoverable amount.

The management conducted an impairment assessment on CGU whose indicators of impairment, such as decline in stock price for a long time and downturn in earnings, were identified and CGU that included goodwill as of December 31, 2019. For the assessment of impairment, the recoverable amount of the CGU was estimated, and the recoverable amount is determined to be the greater of the value in use or the net fair value. Considering significant degree of judgment in estimating the recoverable amount, the likelihood of management bias and potential effects of the impairment on the consolidated financial statements, we identified the assessment of impairment on goodwill and intangible assets as a key audit matter.

The primary procedures we performed to address this key audit matter included the following:

- Testing the effectiveness of the design, implementation and operation of the management review control over the Group's impairment assessment process.
- Assessing the qualification and independence of the external valuation specialist engaged by the Group for the impairment assessment
- Evaluating the key assumptions used to determine the value-in-use which included the discount rates, the valuation methodology and others, by engaging our internal valuation specialist.
- Comparing and analyzing the financial data used for impairment assessment and mid- to long-term business plans confirmed by the management
- Comparing and analyzing the future cash flows forecasts prepared in prior year with the current year's performance to assess the Group's ability to accurately forecast
- Evaluating the reliability of key assumptions used to estimate net fair value and the accuracy of calculations

Other Matter

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

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

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

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

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

Auditors' Responsibilities for the Audit of the Consolidated Financial Statements

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

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

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

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

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

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

The engagement partner on the audit resulting in this independent auditors' report is Seok-Jo Jang

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KPMG Samjong Accounting Corp.

Seoul, Korea

March 17, 2020

This report is effective as of March 17, 2020, the audit report date. Certain subsequent events or circumstances, which may occur between the audit report date and the time of reading this report, could have a material impact on the accompanying consolidated financial statements and notes thereto. Accordingly, the readers of the audit report should understand that the above audit report has not been updated to reflect the impact of such subsequent events or circumstances, if any.

HYUNDAI HEAVY INDUSTRIES HOLDINGS CO., LTD. AND SUBSIDIARIES

Consolidated Statements of Financial Position

As of December 31, 2019 and 2018

(In thousands of won)	***Note***		**2019**	**2018**
Assets				
Cash and cash equivalents	*4,5,7,40,41*	₩	2,028,484,960	1,099,823,984
Short-term financial assets	*5,6,7,40,41*		690,331,693	238,610,942
Trade and other receivables	*8,17,40,41,44*		2,775,961,832	2,798,649,715
Contract assets	*8,31,40,41*		288,715,764	170,578,905
Inventories	*4,9,17,34*		3,876,745,323	4,329,882,609
Derivative assets	*24,40,41*		24,999,676	17,540,222
Current tax assets			3,157,030	6,811,098
Other current assets	*10*		213,192,312	222,346,338
Assets held for sale	*45*		33,629,002	-
Total current assets			9,935,217,592	8,884,243,813
Investments in associates and joint ventures	*11,12,44*		4,093,599,830	4,075,972,450
Long-term financial assets	*5,6,7,40,41*		11,164,998	5,908,605
Long-term trade and other receivables	*8,17,40,41,44*		303,831,834	208,089,506
Investment property	*13,33*		9,819,838	10,634,973
Property, plant and equipment	*14,17,33*		8,408,883,562	7,885,741,406
Right-of-use assets	*3,4,15,33*		569,219,470	-
Intangible assets	*16,33*		2,151,928,719	2,091,825,706
Derivative assets	*24,40,41*		477,267	20,200
Deferred tax assets	*37*		224,194,245	155,776,533
Other non-current assets	*10,22*		7,197,834	29,606,815
Total non-current assets			15,780,317,597	14,463,576,194
Total assets		₩	25,715,535,189	23,347,820,007

See accompanying notes to the consolidated financial statements.

HYUNDAI HEAVY INDUSTRIES HOLDINGS CO., LTD. AND SUBSIDIARIES

Consolidated Statements of Financial Position, Continued

As of December 31, 2019 and 2018

(In thousands of won)	***Note***		**2019**	**2018**
Liabilities				
Short-term financial liabilities	*5,18,21,40,41*	₩	3,415,385,034	4,554,488,217
Current lease liabilities	*3,40*		121,665,490	-
Trade and other payables	*19,40,41,44*		3,529,116,882	3,592,760,195
Contract liability	*31*		450,301,655	295,689,819
Derivative liabilities	*24,40,41*		18,635,214	4,544,206
Income tax payable			275,846,611	94,454,334
Current provisions	*23*		181,157,426	107,556,182
Other current liabilities	*20*		24,237,940	10,689,980
Liabilities held for sale	*45*		5,924,631	-
Total current liabilities			8,022,270,883	8,660,182,933
Long-term financial liabilities	*5,17,18,21,40,41*		4,652,880,167	3,325,044,785
Non-current lease liabilities	*3,40*		459,685,748	-
Long-term trade and other payables	*19,40,41,44*		28,885,091	37,898,003
Non-current contract liabilities	*31*		65,680,399	-
Liabilities for defined benefit plans	*22*		47,777,038	45,103,745
Non-current provisions	*23*		42,560,436	154,646,909
Derivative liabilities	*24,40,41*		2,025,680	327,439
Deferred tax liabilities	*37*		477,672,950	537,073,529
Other non-current liabilities	*20*		31,401,944	33,382,752
Total non-current liabilities			5,808,569,453	4,133,477,162
Total liabilities			13,830,840,336	12,793,660,095
Equity				
Common stock	*25*		81,433,085	81,433,085
Capital surplus	*25*		5,171,945,404	4,783,119,008
Capital adjustments	*27*		(546,843,345)	(543,100,695)
Accumulated other comprehensive income	*28*		102,170,382	104,030,751
Retained earnings	*29*		3,183,258,255	3,302,009,313
Equity attributable to owners of the Company			7,991,963,781	7,727,491,462
Non-controlling interests	*1,26*		3,892,731,072	2,826,668,450
Total equity			11,884,694,853	10,554,159,912
Total liabilities and equity		₩	25,715,535,189	23,347,820,007

See accompanying notes to the consolidated financial statements.

HYUNDAI HEAVY INDUSTRIES HOLDINGS CO., LTD. AND SUBSIDIARIES
Consolidated Statements of Comprehensive Income
For the years ended December 31, 2019 and 2018

(In thousands of won, except share information)	*Note*		2019	2018
Revenue	*11,24,31,33,44*	₩	26,630,333,352	27,256,649,937
Cost of sales	*33,34*		24,800,633,574	25,360,420,611
Gross profit			1,829,699,778	1,896,229,326
Selling, general and administrative expenses	*32,34,40,44*		1,163,105,933	1,034,801,988
Operating profit	*5,33*		666,593,845	861,427,338
Finance income	*24,35,40*		484,829,421	407,082,350
Finance costs	*24,35,40*		756,153,973	638,796,697
Other non-operating income	*24,36,40*		65,642,195	73,753,610
Other non-operating expenses	*24,36,40*		297,715,766	365,387,865
Share of profit of equity accounted investees	*12*		39,614,956	92,985,270
Profit before income taxes	*37*		202,810,678	431,064,006
Income tax expense	*37*		87,463,298	147,078,658
Profit for the year	*33*	₩	115,347,380	283,985,348
Other comprehensive income	*24,28,40*			
Items that are or may be reclassified subsequently to profit or loss:				
Effective portion of changes in fair value of cash flow hedges			(6,870,166)	11,578,962
Exchange differences on translating foreign operations			20,004,165	(1,997,877)
Change in equity of equity method Investments			4,502,026	31,669,912
			17,636,025	41,250,997
Items that will not be reclassified to profit or loss:				
Loss on valuation financial instruments at FVOCI			(1,682)	(59,396)
Defined benefit actuarial losses			(23,959,529)	(18,796,885)
Revaluation of property, plant and equipment			-	1,246,107
Changes in retained earnings of equity method investments			(5,474,197)	(23,125,896)
			(29,435,408)	(40,736,070)
Other comprehensive income (loss) for the year, net of income tax			(11,799,383)	514,927
Total comprehensive income for the year		₩	103,547,997	284,500,275

See accompanying notes to the consolidated financial statements.

Consolidated Statements of Comprehensive Income, Continued

For the years ended December 31, 2019 and 2018

(In thousands of won, except share information)	**Note**		**2019**	**2018**
Profit attributable to:				
Owners of the Company		₩	173,230,665	268,618,674
Non-controlling interests			(57,883,285)	15,366,674
		₩	115,347,380	283,985,348
Total comprehensive income attributable to:				
Owners of the Company			152,710,608	279,666,770
Non-controlling interests			(49,162,611)	4,833,505
		₩	103,547,997	284,500,275
Earnings per share				
Basic earnings per share (in won)	*38*		11,848	18,371

See accompanying notes to the consolidated financial statements.

HYUNDAI HEAVY INDUSTRIES HOLDINGS CO., LTD. AND SUBSIDIARIES

Consolidated Statements of Changes in Equity,

For the years ended December 31, 2019 and 2018

(In thousands of won)

		Attributable to owners of the Company						
		Common stock	**Capital surplus**	**Capital adjustments**	**Accumulated other comprehensive income**	**Retained earnings**	**Non-controlling interests**	**Total equity**
Balance at January 1, 2018	₩	81,433,085	6,774,612,911	(500,444,378)	185,989,229	946,760,920	2,613,512,763	10,101,864,530
Adjustment on initial application of K-IFRS 1109 & K-IFRS 1115 (net of tax)		-	-	-	(124,385,685)	110,853,498	(3,295,411)	(16,827,598)
Adjusted balance at January 1, 2018		81,433,085	6,774,612,911	(500,444,378)	61,603,544	1,057,614,418	2,610,217,352	10,085,036,932
Total comprehensive income (loss) for the year								
Profit for the year		-	-	-	-	268,618,674	15,366,674	283,985,348
Loss on valuation of financial instruments at FVOCI		-	-	-	(59,396)	-	-	(59,396)
Effective portion of changes in fair value of cash flow hedges		-	-	-	10,570,984	-	1,007,978	11,578,962
Exchange differences on translating foreign operations		-	-	-	1,081,071	-	(3,078,948)	(1,997,877)
Change in equity of equity method investments		-	-	-	31,662,751	-	7,161	31,669,912
Actuarial losses		-	-	-	-	(9,516,157)	(9,280,728)	(18,796,885)
Revaluation of property, plant and equipment		-	-	-	434,051	-	812,056	1,246,107
Change in retained earnings of equity method investments		-	-	-	-	(23,125,208)	(688)	(23,125,896)
Transactions with owners of the Company, recognized directly in equity								
Dividends		-	-	-	-	-	(32,848,383)	(32,848,383)
Account Replacement		-	(2,000,000,000)	-	-	2,000,000,000	-	-
Changes in scope of consolidation		-	-	-	-	-	286,839,094	286,839,094
Revaluation surplus reclassification		-	-	-	(1,262,254)	1,262,254	-	-
Others		-	8,506,097	(42,656,317)	-	7,155,332	(42,373,118)	(69,368,006)
Balance at December 31, 2018	₩	81,433,085	4,783,119,008	(543,100,695)	104,030,751	3,302,009,313	2,826,668,450	10,554,159,912

See accompanying notes to the consolidated financial statements.

HYUNDAI HEAVY INDUSTRIES HOLDINGS CO., LTD. AND SUBSIDIARIES

Consolidated Statements of Changes in Equity, Continued

For the years ended December 31, 2019 and 2018

(In thousands of won)

		Attributable to owners of the Company						
		Common stock	**Capital surplus**	**Capital adjustments**	**Accumulated other comprehensive income**	**Retained earnings**	**Non-controlling interests**	**Total equity**
Balance at January 1, 2019	₩	81,433,085	4,783,119,008	(543,100,695)	104,030,751	3,302,009,313	2,826,668,450	10,554,159,912
Adjustment on initial application of K-IFRS 1116 (net of tax)		-	-	-	-	(2,470,347)	(271,859)	(2,742,206)
Adjusted balance at January 1, 2019		81,433,085	4,783,119,008	(543,100,695)	104,030,751	3,299,538,966	2,826,396,591	10,551,417,706
Total comprehensive income (loss) for the year								
Profit (loss) for the year		-	-	-	-	173,230,665	(57,883,285)	115,347,380
Loss on valuation of financial instruments at FVOCI		-	-	-	(636)	-	(1,046)	(1,682)
Effective portion of changes in fair value of cash flow hedges		-	-	-	(7,770,828)	-	900,662	(6,870,166)
Exchange differences on translating foreign operations		-	-	-	6,156,455	-	13,847,710	20,004,165
Change in equity of equity method investments		-	-	-	4,499,559	-	2,467	4,502,026
Actuarial losses		-	-	-	-	(17,934,779)	(6,024,750)	(23,959,529)
Change in retained earnings of equity method investments		-	-	-	-	(5,469,828)	(4,369)	(5,474,197)
Transactions with owners of the Company, recognized directly in equity								
Paid-in capital increase of subsidiaries		-	-	(2,131,200)	-	-	360,238,318	358,107,118
Dividends		-	-	-	-	(270,501,191)	(34,223,841)	(304,725,032)
Changes in scope of consolidation		-	-	-	-	229,897	(18,995,301)	(18,765,404)
Revaluation surplus reclassification		-	-	-	(4,744,919)	4,744,919	-	-
Capital transactions in the Group		-	388,723,101	(1,611,450)	-	-	821,273,345	1,208,384,996
Others		-	103,295	-	-	(580,394)	(12,795,429)	(13,272,528)
Balance at December 31, 2019	₩	81,433,085	5,171,945,404	(546,843,345)	102,170,382	3,183,258,255	3,892,731,072	11,884,694,853

See accompanying notes to the consolidated financial statements.

HYUNDAI HEAVY INDUSTRIES HOLDINGS CO., LTD. AND SUBSIDIARIES

Consolidated Statement of Cash Flows

For the years ended December 31, 2019 and 2018

(In thousands of won)	Note		2019	2018
Cash flows from operating activities				
Profit for the year		₩	115,347,380	283,985,348
Adjustments			1,373,327,914	920,739,318
Cash generated from operations			1,488,675,294	1,204,724,666
Interest received			59,719,860	24,456,163
Interest paid			(267,493,875)	(227,062,094)
Dividends received			81,631,255	18,023,908
Income taxes paid			(156,966,995)	(352,052,011)
Net cash provided by operating activities			1,205,565,539	668,090,632
Cash flows from investing activities				
Proceeds from sale of short-term financial assets			957,004,055	46,159,181
Proceeds from collection of short-term other receivables			38,165,516	187,680,890
Proceeds from sale of long-term financial assets			477,006,081	686,964,492
Proceeds from collection of long-term other receivables			39,444,869	15,048,868
Proceeds from sale of property, plant and equipment			173,850,767	23,077,299
Proceeds from investment property			1,253,530	-
Proceeds from intangible assets			1,237,407	-
Proceeds from collection of other non-current assets			24,188,585	-
Acquisition of short-term financial assets			(1,435,995,126)	(77,636,554)
Acquisition of short-term other receivables			(62,437,428)	(165,396,780)
Acquisition of long-term financial assets			(451,603,336)	(667,086,580)
Acquisition of investments in associates and joint ventures			(9,656,400)	(668,017,116)
Acquisition of long-term other receivables			(72,025,546)	(31,185,963)
Acquisition of property, plant and equipment			(1,245,496,773)	(890,129,656)
Acquisition of intangible assets			(101,746,185)	(41,133,419)
Acquisition of other non-current assets			(1,214,987)	-
Changes in scope of consolidation			28,182,962	(203,537,285)
Net cash used in investing activities			(1,639,842,009)	(1,785,192,623)
Cash flows from financing activities				
Proceeds from short-term financial liabilities			22,417,719,187	14,567,357,858
Proceeds from long-term financial liabilities			2,496,901,814	1,300,537,830
Refund of transaction costs related to establishment			361,432	-
Capital contribution from non-controlling interests			1,682,334,165	-
Repayment of short-term financial liabilities			(24,694,637,046)	(14,694,919,460)
Repayment of long-term financial liabilities			(57,470,503)	(15,258,717)
Dividends paid			(270,476,930)	-
Payment of current lease liabilities			(143,080,026)	-
Dividends and distribution to non-controlling interests			(67,800,526)	(64,774,320)
Net cash provided by financing activities			1,363,851,567	1,092,943,191
Net cash changes in assets held for sale			(3,234,402)	-
Effects of exchange rate changes on cash and cash equivalents			2,320,281	(2,291,419)
Net increase (decrease) in cash and cash equivalents			928,660,976	(26,450,219)
Cash and cash equivalents at January 1			1,099,823,984	1,126,274,203
Cash and cash equivalents at December 31		₩	2,028,484,960	1,099,823,984

See accompanying notes to the consolidated financial statements.

1. Reporting Entity

(1) Description of the controlling company

Hyundai Heavy Industries Holdings Co., Ltd. (the "Company") was incorporated on April 1, 2017 through the split-off KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD. (formerly, Hyundai Heavy Industries Co., Ltd) and is engaged in the manufacturing robots for industrial and LCD, investment business and others. The head office of the Company is located in Daegu, Republic of Korea.

As of December 31, 2019, the Company's major shareholders consist of Mong-Joon Chung (25.80%), etc.

(2) Consolidated subsidiaries

Subsidiaries as of December 31, 2019 and 2018 are summarized as follows:

Company	Main business	Location	Fiscal year end	Ownership (%) 2019	Ownership (%) 2018
Hyundai Oilbank Co., Ltd.	Manufacturing of petroleum products	Korea	December	74.13	91.13
Hyundai Oil Terminal Co., Ltd. (*1)	Oil storage business	Korea	December	100.00	100.00
Hyundai Chemical Co., Ltd. (*1)	Crude oil refining business	Korea	December	60.00	60.00
Hyundai Oilbank (Shanghai) Co., Ltd. (*1)	Trading in petrochemical products	China	December	100.00	100.00
Hyundai Oil Singapore Pte. Ltd. (*1)	Trading in crude oil and petrochemical products, chartering	Singapore	December	100.00	100.00
MS Dandy Ltd. (*1)	Ship rental service	Marshall Islands	December	100.00	100.00
Grande Ltd. (*1)	Ship rental service	Marshall island	December	100.00	100.00
Hyundai OCI Co., Ltd. (*1)	Other based chemicals manufacture business	Korea	December	51.00	51.00
Hyundai Global Service	Engineering service	Korea	December	100.00	100.00
Hyundai Global Service Europe B.V. (*1)	Engine warranty repairs	Netherlands	December	100.00	100.00
Hyundai Global Service Americas Co., Ltd. (*1)	Engine warranty repairs	USA	December	100.00	100.00
Hyundai Global Service Singapore Pte. Ltd.(*1)	Engine warranty repairs	Singapore	December	100.00	100.00
Hyundai Global Service Colombia S.A.S.(*1)	Other Engineering services	Colombia	December	100.00	100.00
Hyundai Electric & Energy Systems Co., Ltd (*2)	Manufacture and sale of electronic and electric products	Korea	December	37.22	36.07
Hyundai Technologies Center Hungary Kft. (*1)	Research and development of technology	Hungary	December	100.00	100.00
Hyundai Electric Switzerland AG(*1)	Research and development of technology	Switzerland	December	100.00	100.00
Hdene Power Solution India Private Ltd. (*1)	Electric construction and power equipment manufacturing	India	March	100.00	100.00
Hyundai Heavy Industries Co. Bulgaria(*1)	Transformer manufacturing and sales	Bulgaria	December	99.09	99.09

1. Reporting Entity, Continued

(2) Consolidated subsidiaries, continued

Companies	Main business	Location	Fiscal year end	Ownership (%) 2019	Ownership (%) 2018
Hyundai Heavy Industries (China) Electric Co., Ltd. (*1)	Manufacture and sale of voltage switchboard	China	December	100.00	100.00
Hyundai Heavy Industries (Shanghai) R&D Co., Ltd. (*1)	Research and development of technology	China	December	100.00	100.00
Hyundai Power Transformers USA Inc. (*1)	Manufacture and sale of electronic and electric products	USA	December	100.00	100.00
Hyundai Electric Arabia L.L.C(*1)	Customer support services	Saudi Arabia	December	100.00	100.00
Hyundai Construction Equipment Co., Ltd. (*2)	Manufacture and sale of machinery equipment for construction	Korea	December	33.12	33.12
Hyundai Core Motion Co., Ltd. (*1)	Supplement of construction equipment A/S machinery parts and manufacture of hydraulic functional items	Korea	December	100.00	-
HHI China Investment Co., Ltd. (*1)	Holding company	China	December	60.00	60.00
Hyundai Financial Leasing Co., Ltd. (*1,3)	Financing business	China	December	46.76	46.76
Hyundai (Jiangsu) Construction Machinery Co., Ltd. (*1)	Manufacture and sale of machinery equipment for construction	China	December	60.00	60.00
Beijing Hyundai Jingcheng Construction Machinery Co., Ltd. (*1)	Manufacture and sale of machinery equipment for construction	China	December	-	60.00
Changzhou Hyundai Hydraulic Machinery Co., Ltd. (*1)	Production and sale of hydraulic cylinder	China	December	100.00	100.00
Weihai Hyundai Wind Power Technology Co., Ltd. (*1)	Sale and manufacture of facilities for wind power generation	China	December	80.00	80.00
Yantai Hyundai Moon Heavy Industries Co., Ltd. (*1,4)	Production and sale of industrial boiler	China	December	-	55.00
Hyundai Construction Equipment Americas, Inc. (*1)	Sale of machinery equipment for construction	USA	December	100.00	100.00
Hyundai Construction Equipment Europe N.V. (*1)	Sale of machinery equipment for construction	Belgium	December	100.00	100.00
Hyundai Construction Equipment India Private Ltd. (*1)	Manufacture and sale of machinery equipment for construction	India	March	100.00	100.00
PT. Hyundai Construction Equipment Asia (*1)	Sale of machinery equipment for construction	Indonesia	December	69.44	69.44
Hyundai Robotics (Shanghai) Co., Ltd (*1)	Sale of robot and service	China	December	100.00	-
Hyundai Future Partners Co., Ltd.	Management consulting business	Korea	December	100.00	-

(*1) The percentage of ownership includes indirect ownership.

(*2) Even though the Group (Hyundai Heavy Industries Holdings Co., Ltd. and its subsidiaries) has under 50% shares of the investee, it is determined that the Group has a control over the investee, since the Group has substantive power to exercise a majority of voting rights considering the circumstance in the previous shareholders' meeting (e.g. voting pattern), the dispersion of the other shareholders, etc.

(*3) The Group holds under 50% shares of the investee. However, in consideration of the shares held by the related party of the Group and the business reliance of the investee on the Group, it is determined that the Group has de facto control.

(*4) All shares of Hyundai Power Systems Co., Ltd., a subsidiary of KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD. (formerly, Hyundai Heavy Industries Co., Ltd) were disposed of, thereby losing control.

1. Reporting Entity, Continued

(3) Changes in scope of consolidation

(i) Subsidiaries newly subject to consolidation for the year ended December 31, 2019 are as follows:

Companies	Reason
Hyundai Robotics (Shanghai) Co., Ltd.	Establish
Hyundai Future Partners Co., Ltd.	Establish
Hyundai Core Motion Co., Ltd.	Establish
TNA Co., Ltd.	Acquisition

(ii) Subsidiaries excluded from consolidation for the year ended December 31, 2019 are as follows:

Companies	Reason
Yantai Hyundai Moon Heavy Industries Co., Ltd.	Sale
Beijing Hyundai Jingcheng Construction Machinery Co., Ltd	Sale
TNA Co., Ltd.	Merged with Hyundai Core Motion Co., Ltd.

1. Reporting Entity, Continued

(4) Condensed financial information of consolidated subsidiaries

Condensed financial information of significant consolidated subsidiaries as of and for the years ended December 31, 2019 and 2018 are summarized as follows:

(In millions of won)

		2019					
Company		**Assets**	**Liabilities**	**Equity**	**Revenue**	**Profit (loss)**	**Total comprehensive income (loss)**
Hyundai Oilbank Co., Ltd.	₩	10,569,293	6,087,876	4,481,417	19,046,175	218,583	202,654
Hyundai Oil Terminal Co., Ltd.		161,401	40,226	121,175	42,433	9,418	9,236
Hyundai Chemical Co., Ltd.		2,806,406	1,317,749	1,488,657	3,653,909	62,365	55,445
Hyundai Oil Singapore Pte. Ltd.		606,207	527,762	78,445	7,932,333	27,193	21,600
Hyundai OCI Co., Ltd.		304,124	166,399	137,725	180,545	23,912	23,659
Hyundai Global Service		597,344	284,085	313,259	789,472	87,548	87,360
Hyundai Electric & Energy Systems Co., Ltd		2,062,662	1,358,114	704,548	1,553,567	(253,483)	(249,880)
Hyundai Heavy Industries (China) Electric Co., Ltd.		106,232	60,079	46,153	105,937	5,217	5,867
Hyundai Power Transformers USA Inc.		228,842	173,522	55,320	174,610	(14,160)	(11,686)
Hyundai Construction Equipment Co., Ltd.		1,956,109	882,505	1,073,604	1,965,845	(12,875)	(15,906)
Hyundai Core Motion Co., Ltd.		310,023	190,340	119,683	222,405	16,978	17,007
HHI China Investment Co., Ltd.		394,574	34,958	359,616	42,873	34,584	40,065
Hyundai Financial Leasing Co., Ltd.		360,858	131,032	229,826	30,600	13,506	17,277
Hyundai (Jiangsu) Construction Machinery Co., Ltd.		324,688	161,935	162,753	608,419	38,362	39,964
Hyundai Construction Equipment Americas, Inc.		198,211	160,248	37,963	438,673	(17,238)	(15,233)
Hyundai Construction Equipment Europe N.V.		173,901	98,853	75,048	362,757	347	1,397
Hyundai Construction Equipment India Private Ltd.		176,950	133,506	43,444	248,114	(8,453)	(7,563)

1. Reporting Entity, Continued

(4) Condensed financial information of consolidated subsidiaries, continued

Condensed financial information of significant consolidated subsidiaries as of and for the years ended December 31, 2019 and 2018 are summarized as follows, continued:

(In millions of won)

		2018					
Company		**Assets**	**Liabilities**	**Equity**	**Revenue**	**Profit (loss)**	**Total comprehensive income (loss)**
Hyundai Oilbank Co., Ltd.	₩	9,600,809	5,063,133	4,537,676	18,518,848	317,452	318,175
Hyundai Oil Terminal Co., Ltd.		126,412	14,473	111,939	39,267	8,314	8,211
Hyundai Chemical Co., Ltd.		1,882,677	1,185,914	696,763	4,152,627	(5,947)	(3,609)
Hyundai Oil Singapore Pte. Ltd.		528,861	472,016	56,845	6,952,332	15,669	24,886
Hyundai OCI Co., Ltd.		270,414	156,348	114,066	136,121	8,606	8,569
Hyundai Global Service		376,579	150,680	225,899	413,289	58,478	58,158
Hyundai Electric & Energy Systems Co., Ltd		2,137,884	1,289,466	848,418	1,732,614	(177,878)	(189,335)
Hyundai Heavy Industries (China) Electric Co., Ltd.		111,223	70,937	40,286	113,697	4,222	3,932
Hyundai Power Transformers USA Inc.		186,227	119,221	67,006	120,446	(13,447)	(11,028)
Hyundai Construction Equipment Co., Ltd.		2,106,951	987,447	1,119,504	2,509,206	54,538	51,808
HHI China Investment Co., Ltd.		442,929	84,893	358,036	39,219	10,282	8,154
Hyundai Financial Leasing Co., Ltd.		282,137	66,603	215,534	31,662	19,109	17,775
Hyundai (Jiangsu) Construction Machinery Co., Ltd.		471,598	348,808	122,790	598,180	58,609	56,969
Hyundai Construction Equipment Americas, Inc.		209,698	156,503	53,195	435,984	6,349	8,404
Hyundai Construction Equipment Europe N.V.		192,001	118,351	73,650	394,000	6,519	6,416
Hyundai Construction Equipment India Private Ltd.		220,769	169,761	51,008	346,021	9,330	7,355

1. Reporting Entity, Continued

(5) Non-controlling interests

The information about non-controlling interests of significant consolidated subsidiaries as of December 31, 2019 and 2018 are summarized as follows:

(In millions of won)		Hyundai Oilbank Co., Ltd (*1)		Hyundai Electric & Energy Systems Co., Ltd (*2)		Hyundai Construction Equipment Co., Ltd (*3)	
		2019	2018	2019	2018	2019	2018
Ownership for non-controlling interests		25.87%	8.87%	62.63%	63.66%	63.61%	64.99%
Net assets	₩	4,481,417	4,537,676	704,548	848,418	1,073,604	1,119,504
Book value of non-controlling interests		1,374,068	586,352	456,249	562,320	925,007	958,889
Net income (loss)		218,583	317,452	(253,483)	(177,878)	(12,875)	54,538
The profit (loss) attributable non-controlling interests		19,399	28,174	(157,572)	(115,919)	(8,467)	36,428
Cash flows from operating activities		781,592	440,855	26,691	(2,753)	261,930	(5,429)
Cash flows from investing activities		(801,430)	(694,328)	(158,955)	(185,097)	(370,885)	(296,924)
Cash flows from financing activities		31,285	221,674	(43,417)	294,120	(298)	169,365
Net increase (decrease) of cash and cash equivalents		11,447	(31,799)	(175,681)	106,270	(109,253)	(132,988)
Dividends paid to non-controlling interests		21,751	30,451	-	-	10,884	-

(*1) Non-controlling interest in Hyundai Oilbank Co., Ltd. includes hybrid bonds amounted to ₩224,273 million issued by Hyundai Oilbank Co., Ltd. as of December 31, 2019 and 2018.
(*2) Ownership for non-controlling interest adjusted for treasury stock of Hyundai Electric & Energy Systems Co., Ltd, are 62.72% and 63.88% as of December 31, 2019 and 2018, respectively.
(*3) Ownership for non-controlling interest adjusted for treasury stock of Hyundai Construction Equipment Co., Ltd, are 65.76% and 66.24% as of December 31, 2019 and 2018, respectively.

2. Basis of Preparation

The consolidated financial statements of Hyundai Heavy Industries Holdings Co., Ltd. and its subsidiaries (the "Group") have been prepared in accordance with Korean International Financial Reporting Standards ("K-IFRS"), as prescribed in the Act on External Audits of Corporations in the Republic of Korea.

The consolidated financial statements were authorized for issue by the Board of Directors on February 24, 2020 and submitted for approval to the shareholders' meeting to be held on March 25, 2020.

This is the first set of the Group's consolidated financial statements in which K-IFRS 1116 *'Lease'* has been applied. Changes to significant accounting policies are described in Note 3.

(1) Basis of measurement

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

- Derivative financial instruments measured at fair value;
- Financial assets measured at fair value through profit or loss ("FVTPL");
- Financial assets measured at fair value through other comprehensive income ("FVOCI");
- Land measured at fair value; and
- Liabilities for defined benefit plans recognized at the net of the total present value of defined benefit obligations less the fair value of plan assets

(2) Functional and presentation currency

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

(3) Use of estimates and judgments

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

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

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

- Note 1 – Scope of Consolidation: Whether the Group has de facto control over an investee;
- Note 13 – Classification of investment property

2. Basis of Preparation, Continued

(3) Use of estimates and judgments, continued

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

- Notes 11, 14, 16 – Impairment test: key assumptions underlying recoverable amounts, including the recoverability of investments in associates, property, plant and equipment and intangible assets;
- Notes 15 – lease term: whether the Group is reasonably certain to exercise extension options;
- Note 22 – Measurement of defined benefit obligations: key actual assumptions;
- Notes 23, 42 – Recognition and measurement of provisions and contingencies: key assumptions about the likelihood and magnitude of an outflow of resources;
- Note 31 – Revenue recognition in proportion to stage of completion, the estimates of total contract costs; and
- Note 37 – Measurement of deferred tax

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

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

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

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

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

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

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

- Note 24 – Derivative financial instruments; and
- Note 41 – Financial instruments

3. Changes in Accounting Policies

The Group has initially applied K-IFRS No.1116 *'Leases'* from January 1, 2019. A number of other new standards are effective from January 1, 2019 but they do not have a material effect on the Group's financial statements.

The Group applied K-IFRS No.1116 using the modified retrospective approach, under which the cumulative effect of initial application is recognized in retained earnings at January 1, 2019. Accordingly, the comparative information presented for 2019 is not restated – i.e. it is presented, as previously reported, under K-IFRS No.1017 and related interpretations. The details of the changes in accounting policies are disclosed below. Additionally, the disclosure requirements in K-IFRS No.1116 have not generally been applied to comparative information.

(1) Definition of a lease

Previously, the Group determined at contract inception whether an arrangement was or contained a lease under K-IFRS No.2104 *'Determining whether an Arrangement contains a Lease'*. The Group now assesses whether a contract is or contains a lease based on the definition of a lease, as explained in Note 4 (13).

On transition to K-IFRS No.1116, the Group elected to apply the practical expedient to grandfather the assessment of which transactions are leases. The Group applied K-IFRS No.1116 only to contracts that K-IFRS No.2104 were not reassessed for whether there is a lease under K-IFRS No.1116. Therefore, the definition of a lease under K-IFRS No.1116 was applied only to contracts entered into or changed on or after January 1, 2019.

(2) As a lessee

As a lessee, the Group leases many assets including ships, land, buildings and structures. The Group previously classified leases as operating or finance leases based on its assessment of whether the lease transferred significantly all of the risks and rewards incidental to ownership of the underlying asset to the Group. Under K-IFRS No.1116, the Group recognizes right-of-use assets and lease liabilities for most of these leases – i.e. these leases are on-balance sheet.

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

3. Changes in Accounting Policies, Continued

(2) As a lessee, continued

(i) Significant accounting policies

The Group recognizes a right-of-use asset and a lease liability at the lease commencement date. Right-of-use assets are measured at cost at initial recognition, subsequently deducting accumulated depreciation and impairment loss from costs, and reflecting adjustments resulting from remeasurement of leased liabilities. If the right-of-use asset meets the definition of investment property, it is displayed as investment property. The right-of-use asset used as an investment property is initially measured at cost, and after the initial recognition, the amount less the accumulated depreciation and accumulated impairment loss is displayed as the carrying amount.

Lease liabilities are measured at the present value of lease payments not paid as of the lease commencement date at the time of initial recognition. When measuring the present value, the lease is discounted at the lease's intrinsic interest rate, but if the intrinsic interest rate cannot be easily calculated, the lease is discounted at the consolidated borrowing rate. The Group generally uses the incremental borrowing rate as a discount rate.

The lease liability subsequently increases by the recognized interest expense on the lease liability and decreases to reflect the payment of the lease payment. Depending on changes in the index or rate (interest rate), changes in the amount expected to be paid in accordance with the residual value guarantee, and changes in the assessment as to whether it is quite certain to exercise a buy option or an extended option or not to exercise a termination option. When the lease payments in the future change, the lease liabilities are remeasured.

The Group applies its judgment when determining the lease term for some lease contracts that include an option to extend. An assessment of whether the Group is fairly certain to exercise its extended options has a significant effect on the amount of the lease liability and the right-of-use assets, as it affects the lease term.

3. Changes in Accounting Policies, Continued

(2) As a lessee, continued

(ii) Transition period

On transition, for leases classified as operating leases under K-IFRS No.1017, lease liabilities were measured at the present value of the remaining lease payments, discounted at the Group's incremental borrowing rate as at 1 January 2019. Right-of-use assets are measured at as follow:

- an amount equal to the lease liability, adjusted by the amount of any prepaid or accrued lease payments.

The Group used a number of practical expedients when applying K-IFRS No.1116 to leases previously classified as operating leases under K-IFRS No.1017. In particular, the Group:

- did not recognize right-of-use assets and liabilities for leases for which the lease term ends within 12 months of the date of initial application;
- excluded initial direct costs from the measurement of the right-of-use asset at the date of initial application; and
- used hindsight when determining the lease term

For leases classified as financial leases in accordance with K-IFRS No.1017, the carrying amount of right-of-use asset and the lease liability at January 1, 2019, were determined at the carrying amount of the lease asset and lease liability under K-IFRS No.1017 immediately before that date.

(3) As a lessor

The accounting policies applicable to the Group as a lessor are not different from K-IFRS No.1017. However, when the Group is an intermediate lessor, it assesses the lease classification of a sub-lease with reference to the right-of-use asset arising from the head lease, not with reference to the underlying asset.

The Group does not need to make any adjustments to the lease corresponding to the lessor at the time of conversion. However, the Group applied K-IFRS No.1115, *'Revenue from Contracts with Customers'*, when allocating contract costs to each leased and non-lease component.

The Group provides gas stations and buildings in sub-lease.

3. Changes in Accounting Policies, Continued

(4) Impact on consolidated financial statement

(i) Impact on transition

On transition to K-IFRS No.1116, the Group recognized additional right-of-use assets and lease liabilities. The impact on transition is summarized below.

(In millions of won)

		January 1, 2019
Right-of-use assets	₩	473,780
Financial lease receivables		12,649
Long-term prepaid expenses		(20,368)
		466,061
Lease liabilities		470,286
Deferred tax liabilities		(1,483)
		468,803
Retained earnings		(2,470)
Non-controlling interests		(272)
	₩	(2,742)

When measuring lease liabilities for leases that were classified as operating leases, the Group discounted lease payments using its incremental borrowing rate at January 1, 2019. The weighted-average rated applied is 1.40% to 12.10%.

(In millions of won)

		January 1, 2019
Operating lease commitments at December 31, 2018	₩	529,870
- Recognition exemption for leases of low-value assets		(2,472)
- Recognition exemption for leases with less than 12 months of lease term at transition		(1,147)
Operating lease commitments at December 31, 2018, excluding leases of low-value assets and short-term leases		526,251
Discounted using the incremental borrowing rate at January 1, 2019		470,286
Others		-
Lease liabilities recognized at January 1, 2019		470,286

3. Changes in Accounting Policies, Continued

(4) Impact on consolidated financial statement, continued

(ii) Impact on the transition period

As a result of the first application of K-IFRS No.1116, the Group recognized ₩569,219 million as right-of-use assets and ₩581,351 million as lease liabilities as of December 31, 2019.

In accordance with the application of K-IFRS No.1116, the Group recognized depreciation and interest expenses related to leases. The gains and losses recognized in relation to the lease for the current period are as follows:

(In millions of won)

		January 1, 2019
Depreciation	₩	
Land		3,449
Buildings		23,480
Structures		14,805
Machinery		204
Ships		85,073
Others		14,025
		141,036
Interest on lease liabilities		15,265
Expenses relating to short-term lease (*)		2,046
Expenses relating to lease of low-value assets applied with recognition exemption (*)		1,066
Variable lease payments not included in the measurement of lease liabilities (*)		32,796
		51,173
	₩	192,209

(*) Total expenses consist of cost of sales and selling, general and administrative expenses.

The total cash outflow for lease contracts for the year ended December 31, 2019 is ₩188,247 million.

Cash outflows as of December 31, 2019, are as follows:

(In millions of won)

		2019					
		Carrying amount	Contractual cash flow	Less than 6 months	6~12 months	1~3 years	More than 3 years
Lease liabilities	₩	581,351	626,060	72,711	60,803	257,016	235,530

4. Significant Accounting Policies

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

(1) Operating segments

An operating segment is a component of the Group that engages in business activities from which it may earn revenues and incur expenses, including revenues and expenses that relate to transactions with any of the Group's other components. All operating segment operating results are reviewed regularly by the Group's chief operating decision maker (CODM) to make decisions about resources to be allocated to the segment and assess its performance, and for which discrete financial information is available. As discussed in Note 33 the Group has five reportable segments which are the Group's strategic business units. The strategic business units offer different products and services and are managed separately because they require different technology and marketing strategies.

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

(2) Basis of consolidation

(i) Business combinations

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

The consideration transferred in the acquisition is generally measured at fair value, as are the identifiable net assets acquired. Any goodwill that arises is tested annually for impairment. Any gain on a bargain purchase is recognized in profit or loss immediately. Transaction costs are expensed as incurred, except if related to the issue of debt or equity securities. The costs to issue debt or equity securities are recognized in accordance with K-IFRS 1032, 'Financial Instruments: Presentation' and K-IFRS 1039, 'Financial Instruments: Recognition and Measurement'.

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

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

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

(ii) Non-controlling interests

NCI are measured at their proportionate share of the acquiree's identifiable net assets at the acquisition date.

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

4. Significant Accounting Policies, Continued

(2) Basis of consolidation, continued

(iii) Subsidiaries

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

(iv) Loss of control

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

(v) Interests in equity-accounted investees

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

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

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

(vi) Transactions eliminated on consolidation

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

(vii) Acquisitions from entities under common control

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

4. Significant Accounting Policies, Continued

(3) Cash and cash equivalents

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

Cash and cash equivalents as of December 31, 2019 and 2018 are as follows:

(In millions of won)		2019	2018
Cash	₩	455	630
Current deposit		56,880	58,614
MMDA and others		1,971,150	1,040,580
	₩	2,028,485	1,099,824

(4) Inventories

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

Inventories are measured at the lower of cost and net realizable value. Net realizable value is the estimated selling price in the ordinary course of business, less the estimated costs of completion and selling expenses. The amount of any write-down of inventories to net realizable value and all losses of inventories are recognized as an expense in cost of sales in the period in which the write-down or loss occurs. The amount of any reversal of any write-down of inventories, arising from an increase in net realizable value, are recognized as a reduction in the amounts of inventories recognized as an expense in cost of sales in the period in which the reversal occurs.

4. Significant Accounting Policies, Continued

(5) Non-derivative financial assets

1) Recognition and initial measurement

Trade receivables and debt securities issued are initially recognized when they are originated. All other financial assets and financial liabilities are initially recognized when the Group becomes a party to the contractual provisions of the instrument.

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

2) Classification and subsequent measurement

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

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

A financial asset is measured at amortized cost if it meets both of the following conditions and is not designated as at FVPL:
- It is held within a business model whose objective is to hold assets to collect contractual cash flows; and
- Its contractual terms give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

A debt investment is measured at FVOCI if it meets both of the following conditions and is not designated as at FVTPL:
- It is held within a business model whose objective is achieved by both collecting contractual cash flows and selling financial assets; and
- Its contractual terms give rise on specified dates to cash flows that are solely payment of principal and interest on the principal amount outstanding.

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

All financial assets not classified as measured at amortized cost or FVOCI as described above are measured at FVTPL. This includes all derivative financial assets. On initial recognition, the Group may irrevocably designate a financial asset that otherwise meets the requirements to be measured at amortized cost or at FVOCI as at FVTPL if doing so eliminates or significantly reduces an accounting mismatch that would otherwise arise.

4. Significant Accounting Policies, Continued

(5) Non-derivative financial assets, continued

2) Classification and subsequent measurement, continued

(ii) Financial assets – Business model assessment

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

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

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

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

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

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

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

In making this assessment, the Group considers:

- Contingent events that would change the amount or timing of cash flow;
- Terms that may adjust the contractual coupon rate, including variable-rate features;
- Prepayment and extension features; and
- Terms that limit the Group's claim to cash flows from specified assets

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

4. Significant Accounting Policies, Continued

(5) Non-derivative financial assets, continued

2) Classification and subsequent measurement, continued

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

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

(iv) Financial assets: Subsequent measurement and gains and losses

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

4. Significant Accounting Policies, Continued

(5) Non-derivative financial assets, continued

3) Derecognition

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

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

4) Offsetting

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

4. Significant Accounting Policies, Continued

(6) Derivative financial instruments and hedge accounting

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

(i) Hedge accounting
The Group holds forward exchange contracts, interest rate swaps, product forward and other derivative contracts to manage interest rate risk, foreign exchange risk and oil price risk. The Group designated derivatives as hedging instruments to hedge the risk of changes in the fair value of assets, liabilities or firm commitments (a fair value hedge) and foreign currency risk of highly probable forecasted transactions or firm commitments (a cash flow hedge).

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

- Fair value hedge
Changes in the fair value of a derivative hedging instrument designated as a fair value hedge are recognized in profit or loss. The gain or loss from remeasuring the hedging instrument at fair value for a derivative hedging instrument and the gain or loss on the hedged item attributable to the hedged risk are recognized in profit or loss in the same line item of the consolidated statement of comprehensive income.

The Group discontinues fair value hedge accounting if the hedging instrument expires or is sold, terminated or exercised, or if the hedge no longer meets the criteria for hedge accounting. Any adjustment arising from gain or loss on the hedged item attributable to the hedged risk is amortized to profit or loss from the date the hedge accounting is discontinued.

- Cash flow hedge
When a derivative is designated to hedge the variability in cash flows attributable to a particular risk associated with a recognized asset or liability or a highly probable forecasted transaction that could affect profit or loss, the effective portion of changes in the fair value of the derivative is recognized in other comprehensive income, net of tax, and presented in the hedging reserve in equity. Any ineffective portion of changes in the fair value of the derivative is recognized immediately in profit or loss.

If the hedging instrument no longer meets the criteria for hedge accounting, expires or is sold, terminated, exercised, or the designation is revoked, then hedge accounting is discontinued prospectively. The cumulative gain or loss on the hedging instrument that has been recognized in other comprehensive income is reclassified to profit or loss in the periods during which the forecasted transaction occurs. If the forecasted transaction is no longer expected to occur, then the balance in other comprehensive income is recognized immediately in profit or loss.

(ii) Other derivative financial instruments
Changes in the fair value of other derivative financial instrument not designated as a hedging instrument are recognized immediately in profit or loss.

4. Significant Accounting Policies, Continued

(7) Impairment of financial assets

(i) Financial instruments and contract assets

The Group recognized loss allowances for expected credit losses ("ECL") on;

- Financial assets measured at amortized cost;
- Contract assets defined in K-IFRS No.1115; and
- Debt investments measured at FVOCI

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

- Debt securities that are determined to have low credit risk at the reporting date; and
- Other debt securities and bank balances for which credit risk (i.e. the risk of default occurring over the expected life of the financial instrument) has not increased significantly since initial recognition

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

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

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

- The borrower is unlikely to pay its credit obligations to the Group in full, without recourse by the Group to actions such as realizing security (if an is held); or
- Past due of the financial asset is significantly increased

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

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

The longest period considered in measuring ELCs is the maximum contract period during which the group is exposed to credit risk.

4. Significant Accounting Policies, Continued

(7) Impairment of financial assets, continued

(ii) Measurement of ECLs

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

(iii) Credit-impaired financial assets

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

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

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

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

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

(v) Write-off

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

4. Significant Accounting Policies, Continued

(8) Property, plant and equipment

Property, plant and equipment are initially measured at cost and after initial recognition, are carried at cost less accumulated depreciation and accumulated impairment losses. The cost of property, plant and equipment includes expenditures arising directly from the construction or acquisition of the asset, any costs directly attributable to bringing the asset to the location and condition necessary for it to be capable of operating in the manner intended by management and the initial estimate of the costs of dismantling and removing the item and restoring the site on which it is located. Subsequent to initial recognition, an item of property, plant and equipment shall be carried at its cost less any accumulated depreciation and any accumulated impairment losses.

Property, plant and equipment, except for land, are depreciated on a straight-line basis over estimated useful lives that appropriately reflect the pattern in which the asset's future economic benefits are expected to be consumed. A component that is significant compared to the total cost of property, plant and equipment is depreciated over its separate useful life. Gains and losses on disposal of an item of property, plant and equipment are determined by comparing the proceeds from disposal with the carrying amount of property, plant and equipment and are recognized in profit or loss.

The useful lives of property, plant and equipment are as follows:

	Useful lives (years)
Buildings	25~50
Structures	20~50
Machinery	2~36
Other property, plant and equipment	2~15

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

4. Significant Accounting Policies, Continued

(9) Intangible assets

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

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

	Useful lives (years)
Capitalized development costs	5
Distribution networks	20
Customer relationships	9~20
Brands, Membership	Indefinite
Know-how	16
Technology	5~10
Order backlog	10
Other intangible assets	3~50

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

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

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

(10) Government grants

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

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

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

4. Significant Accounting Policies, Continued

(11) Investment property

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

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

(12) Impairment of non-financial assets

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

For impairment testing, assets are grouped together into the smallest group of assets that generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets ("CGUs"). The recoverable amount of an asset or CGU is the greater of its value in use and its fair value less costs to sell. The value in use is estimated by applying a pre-tax discount rate that reflect current market assessments of the time value of money and the risks specific to the asset or CGU for which estimated future cash flows have not been adjusted, to the estimated future cash flows expected to be generated by the asset or CGU.

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

Goodwill acquired in a business combination is allocated to each CGU that is expected to benefit from the synergies arising from the goodwill acquired. Any impairment identified at the CGU level will first reduce the carrying value of goodwill and then be used to reduce the carrying amount of the other assets in the CGU on a pro rata basis. Except for impairment losses in respect of goodwill which are never reversed, an impairment loss is reversed if there has been a change in the estimates used to determine the recoverable amount. An impairment loss is reversed only to the extent that the asset's carrying amount does not exceed the carrying amount that would have been determined, net of depreciation or amortization, if no impairment loss had been recognized.

4. Significant Accounting Policies, Continued

(13) Lease

The Group has applied K-IFRS No.1116 using the modified retrospective approach and therefore the comparative information has not been restated and continues to be reported under K-IFRS No.1017 and IFRIC No.2104.

Policy applicable form January 1, 2019
At inception of a contract, the Group assesses whether a contract is, or contains, a lease. A contract is, or contains, a lease if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration. To assess whether a contract conveys the right to control the use of an identified asset, the Group uses the definition of a lease in K-IFRS No.1116.

This policy is applied to contracts entered into, on or after January 1, 2019.

(i) As a lessee

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

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

4. Significant Accounting Policies, Continued

(13) Lease, continued

(i) As a lessee, continued

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

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

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

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

The lease liability is measured at amortized cost using the effective interest method. It is remeasured when there is a change in future lease payments arising from a change in an index or rate, if there is a change in the Group's estimate of the amount expected to be payable under a residual value guarantee, if the Group changes its assessment of whether it will exercise a purchase, extension or termination option or if there is a revised in-substance fixed lease payment.

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

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

4. Significant Accounting Policies, Continued

(13) Lease, continued

(ii) As a lessor
At inception or on modification of a contract that contains a lease component, the Group allocates the consideration in the contract to each lease component on the basis of their relative stand-alone prices.

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

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

When the Group is an intermediate lessor, it accounts for its interests in the head lease and the sub-lease separately. It assesses the lease classification of a sub-lease with reference to the right-of-use asset arising from the head lease, not with reference to the underlying asset. If a head lease is a short-term lease to which the Group applies the exemption described above, then it classifies the sub-lease as an operating lease.

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

The Group applies the derecognition and impairment requirements in K-IFRS No.1109 to the net investment in the lease (see Note 4(7)). The Group further regularly reviews estimated unguaranteed residual values used in calculating the gross investment in the lease.

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

The accounting policies applicable to the Group as a lessor in the comparative period were not different from K-IFRS No.1116. However, the Group classified the lease of all subsidiaries concluded during the current period as a financial lease.

Policy applicable before January 1, 2019

For contracts entered into before January 1, 2019, the Group determined whether the arrangement was or contained a lease based on the assessment of whether:
- fulfilment of the arrangement was dependent on the use of a specific asset or assets; and
- the arrangement had conveyed a right to use the asset. An arrangement conveyed the right to use the asset if one of the following was met;
  • the purchaser had the ability or right to control physical access to the asset while obtaining or controlling more than an insignificant amount of the output; or
  • facts and circumstances indicated that it was remote the other parties would take more than an insignificant amount of the output, and the price per unit was neither fixed per unit of output nor equal to the current market price per unit of output.

4. Significant Accounting Policies, Continued

(13) Lease, continued

Policy applicable before January 1, 2019, continued

The Group classifies and accounts for leases as either a finance or operating lease, depending on the terms. Leases where the Group assumes substantially all of the risks and rewards of ownership are classified as finance leases. All other leases are classified as operating leases.

(i) Finance leases
The Group recognizes assets held under a finance lease and presents them as a receivable at an amount equal to the net investment in the lease. The recognition of finance income is based on a pattern reflecting a constant periodic rate of return on the Group's net investment in the finance lease.

(ii) Operating leases
Lease income from operating leases is recognized in income on a straight-line basis over the lease term. Initial direct costs in negotiating and arranging an operating lease are added to the carrying amount of the leased asset and recognized as an expense over the lease term on the same basis as the lease income. The depreciation policy for depreciable leased assets is consistent with the Group's normal depreciation policy for similar assets.

(14) Borrowing costs

The Group capitalizes borrowing costs directly attributable to the acquisition, construction or production of a qualifying asset as part of the cost of that asset. Other borrowing costs are recognized in expense as incurred. A qualifying asset is an asset that requires a substantial period of time to get ready for its intended use or sale. Financial assets and inventories that are manufactured or otherwise produced over a short period of time are not qualifying assets. Assets that are ready for their intended use or sale when acquired are not qualifying assets. To the extent that the Group borrows funds specifically for the purpose of obtaining a qualifying asset, the Group determines the amount of borrowing costs eligible for capitalization as the actual borrowing costs incurred on that borrowing during the period less any investment income on the temporary investment of those borrowings. The Group immediately recognizes other borrowing costs as an expense. To the extent that the Group borrows funds generally and uses them for the purpose of obtaining a qualifying asset, the Group shall determine the amount of borrowing costs eligible for capitalization by applying a capitalization rate to the expenditures on that asset. The capitalization rate shall be the weighted average of the borrowing costs applicable to the borrowings of the Group that are outstanding during the period, other than borrowings made specifically for the purpose of obtaining a qualifying asset. The amount of borrowing costs that the Group capitalizes during a period shall not exceed the amount of borrowing costs incurred during that period.

4. Significant Accounting Policies, Continued

(15) Contract assets (formally, unclaimed construction) and contract liabilities (formally, excess claim construction)

Contract assets are the sum of unsolicited amount from the ongoing construction work to be received from the client and are calculated by subtracting the proceeds from the recognized amount and the recognized loss from the sum of profits recognized in accrued costs. Accrued costs include fixed and variable indirect costs allocated on the basis of normal operating costs, which are directly related to a specific contract and common costs that can be attributed to overall contract activities.

The total amount of contract assets in which the sum of the accrued costs and the recognized profits exceeds the proceeds is indicated as trade receivables and other receivables in the statement of financial position. If the proceeds of the claim exceed the sum of the accrued costs and the recognized profit, the total contract liabilities are presented as liabilities in the statement of financial position.

(16) Non-current assets held for sale

If the carrying amount of a non-current asset or disposal group is expected to be recovered primarily through a sale transaction rather than continued use, it is classified as an asset to be sold. These conditions are considered to be met only if the asset (or disposal group) must be available for sale in its current condition and is very likely to be sold. Just before the initial classification of an asset (or group of disposal assets) for sale, it is measured as the lesser of the carrying amount and the net fair value of the asset (or assets and liabilities). At the time of initial classification, impairment loss is recognized in profit or loss immediately if the net fair value of the asset for which impairment has been recognized decreases. When net fair value increases, the impairment loss recognized in the past is recognized as profit or loss.

If a non-current asset is classified as held for sale or is part of a disposal group classified as held for sale, the asset is not amortized.

4. Significant Accounting Policies, Continued

(17) Non-derivative financial liabilities

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

(i) Financial liabilities at fair value through profit or loss
Financial liabilities are classified as short-term trading items, in the case of derivatives, or when recognized as items in profit or loss at the time of initial recognition. Financial liabilities at fair value through profit or loss include financial liabilities held for trading or designated as such upon initial recognition. Subsequent to initial recognition, financial liabilities at fair value through profit or loss are measured at fair value. Changes in the fair value of financial liabilities due to changes in credit risk of financial liabilities are expressed in other comprehensive income, and changes in fair value are recognized in profit or loss. Upon initial recognition, transaction costs that are directly attributable to the acquisition are recognized in profit or loss as incurred.

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

(iii) Elimination of financial liabilities
The Group derecognizes a financial liability from the consolidated statement of financial position when it is extinguished (i.e. when the obligation specified in the contract is discharged, cancelled or expires). The Group removes existing liabilities and recognizes new financial liabilities at fair value based on the new contracts when the cash flows have substantially changed due to changes in the terms and conditions of the financial liabilities.
When removing a financial liability, the difference between the carrying amount and the consideration paid (including transferred non-cash assets or liabilities paid) is recognized in profit or loss.

(18) Employee benefits

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

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

4. Significant Accounting Policies, Continued

(18) Employee benefits, continued

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

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

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

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

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

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

4. Significant Accounting Policies, Continued

(19) Provisions

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

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

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

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

(i) Provision for construction losses
If the unavoidable costs incurred under the contractual obligation exceed the benefits expected to be consumed in the reporting year, the Group recognizes provision for construction losses at any amount of compensation and penalty when the Group fails to fulfill the contracts or costs incurred to fulfill the contracts, whichever is less. Impairment losses from assets that used to fulfill the contracts are recognized first before recognition of provision.

(ii) Provision for product warranty
The Group generally provides a warranty relating to product defects for a specified period of time after sales and accrues estimated costs as provision for product warranty, which may occur due to product liability

(iii) Provision for construction warranty
The Group generally provides a warranty within the contract on rectification of defects after the contract's completion and accrues the rectification expense on defects based on actual claims history as provision for construction warranty.

(iv) Other provision
In accordance with the Group's published environmental policy and applicable legal requirements, a provision for site restoration is recognized.

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

4. Significant Accounting Policies, Continued

(20) Emissions rights

The Group accounts for greenhouse gases emission right and the relevant liability as below pursuant to the Act on Allocation and Trading of Greenhouse Gas Emission which became effective in 2015.

(i) Greenhouse Gases Emission Right

Greenhouse Gases Emission Right consists of emission allowances which are allocated from the government free of charge or purchased from the market. The cost includes any directly attributable costs incurred during the normal course of business.

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

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

(ii) Emission liability

Emission liability is a present obligation of submitting emission rights to the government with regard to emission of greenhouse gas. Emission liability is recognized when there is a high possibility of outflows of resources in performing the obligation and the costs required to perform the obligation are reliably estimable. Emission liability is an amount of estimated obligations for emission rights to be submitted to the government for the performing period. The emission liability is measured based on the expected quantity of emission for the performing period in excess of emission allowance in possession and the unit price for such emission rights in the market at of the end of the reporting period.

The Group is involved in the allocation of emission and the trading scheme from 2015. From 2018 to 2020 is the one planning period, the quantities of emission rights which are allocated free of charge during the planning period are as follows:

(In ton)	**2018**	**2019**	**2020**	**Total**
Allocated emission right free of charge	3,666,449	3,512,811	3,512,811	10,692,071

As of December 31. 2019 and 2018, there is no emission rights provided as collateral and the Group did not recognize the emission liability because the estimated quantity of emission did not exceed allocated emission right free of charge.

4. Significant Accounting Policies, Continued

(21) Foreign currency

(i) Foreign currency transactions

Transactions in foreign currencies are translated to the respective functional currencies of Group entities at exchange rates at the dates of the transactions. Monetary assets and liabilities denominated in foreign currencies are retranslated to the functional currency using the reporting date’s exchange rate. Non-monetary assets and liabilities denominated in foreign currencies that are measured at fair value are retranslated to the functional currency at the exchange rate at the date that the fair value was determined.

Foreign currency differences arising on retranslation are recognized in profit or loss, except for differences arising on the retranslation of available-for-sale equity instruments, a financial liability designated as a hedge of the net investment in a foreign operation, or qualifying cash flow hedges, which are recognized in other comprehensive income. Non-monetary items that are measured in terms of historical cost in a foreign currency are translated using the exchange rate at the date of the transaction.

(ii) Foreign operations

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

The assets and liabilities of foreign operations, whose functional currency is not the currency of a hyperinflationary economy, are translated to the presentation currency using the exchange rates at the reporting date. The income and expenses of foreign operations are translated to the functional currency using the exchange rates at the dates of the transaction. Foreign currency differences are recognized in other comprehensive income.

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

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

Foreign exchange gains or losses arising from a monetary item receivable from or payable to a foreign operation, the settlement of which is neither planned nor likely to occur in the foreseeable future and which in substance is considered to form part of the net investment in the foreign operation, are recognized in other comprehensive income in the translation reserve.

(iii)Translation of the net investment in foreign operations

A monetary item that is receivable from or payable to a foreign operation, for which settlement is neither planned nor likely to occur in the foreseeable future, is a part of the entity's net investment in that foreign operation. Exchange differences arising on such monetary item are recognized initially in other comprehensive income and reclassified from equity to profit or loss on disposal of the net investment.

4. Significant Accounting Policies, Continued

(22) Equity capital

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

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

(ii) Hybrid bonds
The Group classified capital securities as financial liabilities or equity instruments in accordance with the substance of the contractual terms of capital securities. Hybrid bonds that have an unconditional right to avoid delivering cash or financial assets to pay a contractual obligation are classified as equity instrument and are presented in equity.

(23) Revenue from contracts with customers

(i) Characteristics of goods or services and timing of performance obligations
The Group is a robot division that manufactures and sells industrial and LCD robots, and an oil refinery division that conducts related business such as crude oil refining, transformers, high-voltage circuit breakers, switchboards, rotating machines, power electronic control systems, and wind power generators. We are engaged in the construction equipment sector that manufactures and sells electronics, construction machinery, and industrial transportation machinery.

a. The robot division is manufactured and supplied not only for the supply of goods (robot delivery), but also for the installation of the robot, and it is considered that the general contract is fulfilled at a point in time because it does not correspond to the performance obligation to be fulfilled over a period of time. Recognize revenue. The time when performance obligations are fulfilled is the time when assets held by the relevant sector are transferred to the customer and controlled by the customer. We are determining when to fulfill our performance obligations. In general, exports are mainly carried out under conditions such as CIF, FOB, and DDP, and domestic sales are considered to have fulfilled their performance obligations when they are physically transferred to customers.

b. In the oil refinery sector, oil products made by refining crude oil such as gasoline and diesel are used as main products and supplied to customers. Revenue is recognized in the case of a general contract because it does not correspond to the performance obligation to be fulfilled over a period of time. The time when performance obligations are fulfilled is the time when assets held by the relevant sector are transferred to the customer and controlled by the customer. We are determining when to fulfill our performance obligations. In general, export is mainly carried out under conditions such as CIF and FOB, and in case of domestic sales, it is judged that the performance obligation is fulfilled at the time when it is physically transferred to the customer.

4. Significant Accounting Policies, Continued

(23) Revenue from contracts with customers, continued

(i) Characteristics of goods or services and timing of performance obligations, continued
c. The electric and electronic sector manufactures and supplies various electric and electronic devices and energy solutions required for all stages of the power supply process. There are three types of sales in this sector: a standard product supply contract consisting of a single performance obligation, a complex element order contract and a turn-key order contract that include a number of distinct performance obligations to supply various products and services within one contract. Can be classified.

The order contract is custom-made according to the conditions presented to the customer, so it is judged that there is no substitute for the Company itself. In the case of termination of the contract for the reasons of the customer or other party, for the contract in which it is possible to charge the cost and the expected profit for the part that has already been completed, the assets created by the Company are If there is no alternative use in itself and the entity has an enforceable claim for payment that has been completed so far, revenue is recognized over a period in accordance with Corporate Accounting Standard No.1115, which is regarded as a performance obligation to be fulfilled over time.

General contracts do not correspond to performance obligations performed over a period of time, so revenue is recognized as performance obligations performed at one point in time. When performance obligations are fulfilled over a period of time, control of goods or services is transferred to the customer. At this time, the timing of implementation is decided according to the progress measurement method that indicates the performance of the sector. If the performance level cannot be reasonably measured, the performance level is measured within the cost range.

The time when performance obligations are fulfilled is the time when assets held by the relevant sector are transferred to the customer and controlled by the customer. We are determining when to fulfill our performance obligations. In general, exports are mainly carried out under conditions such as CIF, FOB, and DDP, and domestic sales are considered to have fulfilled their performance obligations when they are physically transferred to customers.

The order contract is a contract that provides design, raw material purchase, production, and commissioning, and the process is very diverse, making it difficult to obtain information to apply the calculation method without incurring excessive costs. Therefore, since the input method of recognizing revenue based on the input of the Company to fulfill the performance obligation compared to the total input expected to perform the performance obligation can faithfully represent the performance of the enterprise, the timing of inputting the cost is the time to implement.

d. The construction equipment sector produces and supplies construction equipment and industrial vehicles such as excavators, wheel loaders, backhoe loaders, skid steer loaders, and forklifts. Revenue is recognized in the case of a general contract because it does not correspond to the performance obligation to be fulfilled over a period of time.

When the performance obligation is fulfilled, the assets held by the relevant sector are transferred to the customer and controlled by the customer. In the case of domestic sales, sales are recognized at the time of delivery of goods and at the time of shipment for export.

Usually, the customer pays the price at the time of delivery of the goods, and there may be a difference between some delivery time and the time of payment, but in general, the difference is not long, and the relevant sector holds the right to claim by completing the obligation at the time of delivery. In some cases, there is a reservation provision for transfer of ownership in the contract, but this is a case where the customer has not paid the sales price at the product delivery point, so it does not affect the determination of transfer of control because it is a safeguard against default.

4. Significant Accounting Policies, Continued

(23) Revenue from contracts with customers, continued

(i) Characteristics of goods or services and timing of performance obligations, continued

Export contract terms are usually FOB terms, and customers pay the full amount at the time of shipment. Differences may occur between the time of shipment and the time of payment, but generally the difference is not long, and the sector retains the claim for payment by completing the obligation at the time of shipment, and ownership and control of the asset is transferred to the customer.

(ii) Significant payment conditions

a. In the case of the contract for supply of standard products in the robot sector, the payment is generally received within 60 to 180 days from the billing date. In the case of the complex element order contract and the turn-key order contract, it is generally received in the form of advance payment, intermediate payment, and balance.

b. There is no significant financial factor in the case of a standard product supply contract, and in the case of a complex element order contract and a turn-key order contract, the point at which the goods or services promised to the customer are transferred according to the payment conditions and the customer pays for it. Since the period between time points is expected to be within one year, we apply a practical convenience method that does not adjust the promised price to reflect the effect of significant financial factors.

There is no significant financial factor in the case of a standard product supply contract, and in the case of a complex element order contract and a turn-key order contract, the point at which the goods or services promised to the customer are transferred according to the payment conditions and the customer pays for it. Since the period between time points is expected to be within one year, we apply a practical convenience method that does not adjust the promised price to reflect the effect of significant financial factors.

In the refining sector, the payment conditions for revenue recognized at the time of delivery differ depending on the content of the contract with the customer, and there is almost no significant change consideration.

c. In the case of a standard product supply contract, the electric and electronics sector generally receives payment within 90 to 180 days from the billing date. I receive it. There is no significant financial factor in the case of a standard product supply contract, and in the case of a multi-element order contract and a turn-key order contract, the Group receives the payment of goods or services from the customer in accordance with the payment terms and the promise to the customer. There may be a significant financial component that adjusts the promised price to reflect the effect of the time value of money as differences occur between the time when you expect to transfer goods or services. However, if the expected period between the time when the Group transfers the goods or services promised to the customer and the time when the customer pays for it at the time of commencement of the contract, it reflects the effect of significant financial factors. Therefore, we apply a practical convenience method that does not adjust the promised price.

d. The construction equipment sector generally receives a price at the time of supply of goods. In the case of domestic sales contracts, there are provisions for the payment of the down payment in the contract, but in practice, it rarely occurs. In addition, there are terms of payment in installments in the domestic sales contract, but this is a transaction in which the buyer receives the loan from the financial institution, pays the purchase price, and repays the loan to the financial institution in installments in the future. This is not the case when selling products. Therefore, there is no significant difference between when the goods are transferred and when they are paid.

4. Significant Accounting Policies, Continued

(23) Revenue from contracts with customers, continued

(iii) Nature and duration of guarantee

Although the period varies depending on the product and contract, in general, the robot sector is 12 to 24 months after product delivery, the electrical and electronics sector is 24 to 48 months after product delivery, and the construction equipment sector is 12 months after product delivery. We offer a 24-month or 1,000 to 3,000 hours warranty. This is similar to the normal warranty period of the same company. These guarantees are converted to paid AS after the specified warranty period. The warranty provided is intended to provide confidence that the product conforms to the agreed specifications and does not constitute a separate performance obligation.

(iv) Transaction price calculation method, estimation of variable cost, input variables, information
In the case of contracts for supplying standard products in the robot and electrical and electronics sector, and contracts in the refinery and construction equipment sector, there is no need to allocate the transaction price, but it is not necessary to allocate contracts for the order of complex elements and turn-key contracts in the robot and electrical and electronics sectors. In the case, the transaction price is allocated to each of these performance obligations because it includes a number of distinct performance obligations that supply various products and services within a single contract.

In the robotics sector, there are very few returns or refunds, as they are custom designed for most customers, and estimates for expected returns are zero or very small. In the case of the construction equipment sector, there is no provision to change the contract in the contract, and there is no change in the price after the recognition of sales, so the regulation related to the variable price does not apply.

In the case of the electrical and electronics sector, due to design changes and additional work occurring due to reasons attributable to the sector or the request of the client, delayed compensation due to delay in delivery and failure to meet conditions, sales discount and sales incentives to encourage sales, etc. Due to this, the price to receive from the customer may change. In the case of sales discounts and sales incentives, the price of the change is included in the transaction price only up to a very high probability of not reversing the significant portion of the accumulated revenues already recognized, and in the case of delayed compensation, the expected price incurred by the terms of the contract is recognized by deducting from.

4. Significant Accounting Policies, Continued

(24) Finance income and finance costs

The Group’s finance income and finance costs are as follows;

- interest income;
- interest expense;
- dividend income;
- the net gain or loss on the disposal of investments in debt securities measured at FVOCI;
- the net gain or loss on financial assets at FVTPL;
- the foreign currency gain or loss on financial assets and financial liabilities;
- impairment loss (and reversals) on investments in debt securities carried at amortized cost or FVOCI; and
- hedge ineffectiveness recognized in profit or loss

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

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

4. Significant Accounting Policies, Continued

(25) Income taxes

Income tax expense comprises current and deferred tax. Current tax and deferred tax are recognized in profit or loss except to the extent that they relate to a business combination, or items recognized directly in equity or in other comprehensive income.

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

Current tax assets and liabilities are offset only if certain criteria are met;
- Have a legally enforceable right to offset the recognized amount; and
- It is intended to settle in a net amount or to settle the debt while realizing the asset.

(ii) Deferred tax
Deferred tax is recognized, using the asset-liability method, in respect of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for taxation purposes. A deferred tax liability is recognized for all taxable temporary differences. A deferred tax asset is recognized for all deductible temporary differences to the extent that it is probable that taxable profit will be available against which they can be utilized. However, deferred tax is not recognized for taxable temporary differences arising on the initial recognition of goodwill, or the initial recognition of assets or liabilities in a transaction that is not a business combination and that affects neither accounting profit or loss nor taxable income.

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

The Group recognizes a deferred tax liability for all taxable temporary differences associated with investments in subsidiaries, associates, and interests in joint ventures, except to the extent that the Group is able to control the timing of the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future. The Group recognizes a deferred tax asset for all deductible temporary differences arising from investments in subsidiaries and associates, to the extent that it is probable that the temporary difference will reverse in the foreseeable future and taxable profit will be available against which the temporary difference can be utilized.

The carrying amount of a deferred tax asset is reviewed at the end of each reporting period and reduces the carrying amount to the extent that it is no longer probable that sufficient taxable profit will be available to allow the benefit of part or all of that deferred tax asset to be utilized.

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

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

4. Significant Accounting Policies, Continued

(26) Earnings per share

The Group presents basic earnings per share (EPS) data for its ordinary shares. Basic EPS is calculated by dividing the profit or loss attributable to ordinary shareholders of the Group by the weighted average number of ordinary shares outstanding during the period, adjusted for own shares held.

(27) New standards and interpretations not yet adopted

A number of new standards are effective for annual periods beginning after 1 January 2019 and earlier application is permitted; however, the Group has not early adopted the new or amended standards in preparing these consolidated financial statements

The following amended standards and interpretation are not expected to have a significant impact on the Group's consolidated financial statements:

- Amendments to References to Conceptual Framework in K-IFRS standards;
- Definition of a Business (Amendments to K-IFRS No.1103 *'Business combination'*)
- Definition of a Materiality (Amendments to K-IFRS No.1101 *'Financial Statement Display'* and No.1008 *'Accounting policies, Changes in Accounting Estimates and Errors'); and*
- K-IFRS 1117 *'Insurance Contracts'*

5. Risk Management

The Group has exposure to the following risks from its use of financial instruments:

- Credit risk
- Liquidity risk
- Market risk

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

(1) Financial risk management

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

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

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

2) Credit risk
Credit risk is the risk of financial loss to the Group if a customer or counterparty to a financial instrument fails to meet its contractual obligations and arises principally from the Group's receivables from customers and investment securities.

(i) Trade and other receivables and contract assets
The Group's exposure to credit risk is influenced mainly by the individual characteristics of each customer.

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

The Group accounts for expected credit losses and their changes at the end of each reporting period in order to reflect changes in the credit risk since initial recognition of the financial asset in accordance with the expected credit loss model in relation to the impairment of the financial asset.

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

(iii) Guarantees
The Group provides financial guarantees to subsidiaries, associates and third parties if necessary.

5. Risk Management, Continued

(1) Financial risk management, continued

3) Liquidity risk

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

The Group has historically been able to satisfy its cash requirements from cash flow from operations and debt and equity financing. To the extent that the Group does not generate sufficient cash flow from operations to meet its capital requirements, the Group may rely on other financing activities, such as external long-term borrowings and offerings of debt securities, equity-linked and other debt securities.

4) Market risk

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

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

(i) Currency risk

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

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

(ii) Interest rate risk

The Group hedges the interest rate risk arising from loans and bonds with floating interest rates through interest rate swaps.

5. Risk Management, Continued

(2) Capital management

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

The Group's liability to equity ratio and net borrowing to equity ratio as of December 31, 2019 and 2018 are as follows:

(In millions of won, except equity ratio)		2019	2018
Total liabilities	₩	13,830,840	12,793,660
Total equity		11,884,695	10,554,160
Cash and deposits (*1)		2,352,694	1,304,555
Borrowings (*2)		8,068,265	7,874,762
Liability to equity ratio		116.38%	121.22%
Net borrowing to equity ratio (*3)		48.09%	62.25%

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

The interest coverage ratio and basis of calculation for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won, except ratio)		2019	2018
Operating profit	₩	666,594	861,427
Interest		292,438	224,878
Interest coverage ratio		2.28%	3.83%

6. Short-term and Long-term Financial Assets

Short-term and long-term financial assets as of December 31, 2019 and 2018 are summarized as follows:

(In millions of won)

		2019		2018	
		Current	Non-current	Current	Non-current
Financial instruments	₩	322,541	1,668	202,594	2,138
Financial assets measured at FVTPL		367,791	9,474	36,017	3,066
Financial assets measured at FVOCI		-	23	-	705
	₩	690,332	11,165	238,611	5,909

7. Restricted Financial Instruments

Financial instruments, which are restricted in use, as of December 31, 2019 and 2018 are summarized as follows:

(In millions of won)

Description		2019	2018	Restrictions
Cash and cash equivalents	₩	2,065	2,432	Bill deposit
Short-term financial instruments		579	579	Pledging (*1)
		31	30	Public performance deposit
		2,279	16,516	Payment bill deposit
Long-term financial instruments		1,100	1,100	Pledging (*2)
		-	81	Payment bill deposit
		-	671	Clearance of import
		6	6	Deposit pledge for license registration
		31	31	Guarantee deposits for checking accounts
	₩	6,091	21,446	

(*1) The Group has provided guarantees for other liabilities.
(*2) Separately, the Group deposit ₩5,000 million in financial institutions to provide financial support to cooperated companies as of December 31, 2019.

8. Trade and Other Receivables and Contract Assets

(1) Trade and other receivables as of December 31, 2019 and 2018 are summarized as follows:

(In millions of won)		2019		2018	
		Current	Non-current	Current	Non-current
Trade receivables:					
Trade receivables	₩	2,383,653	10,243	2,539,449	24,593
Allowance for doubtful accounts		(243,941)	(45)	(280,354)	(46)
		2,139,712	10,198	2,259,095	24,547
Other receivables:					
Account receivable		503,077	1	497,369	1
Allowance for doubtful accounts		(68,845)	(1)	(52,727)	(1)
Accrued income		3,501	-	8,755	-
Allowance for doubtful accounts		(51)	-	-	-
Loans		27,381	66,313	6,369	66,287
Allowance for doubtful accounts		(12,123)	(102)	-	(350)
Guarantee deposits		3,165	86,912	4,311	69,521
Finance lease receivables		180,357	140,641	75,812	48,298
Allowance for doubtful accounts		(212)	(130)	(334)	(213)
		636,250	293,634	539,555	183,543
	₩	2,775,962	303,832	2,798,650	208,090

(2) Contract assets as of December 31, 2019 and 2018 are summarized as follows:

(In millions of won)		2019	2018
Contract assets	₩	315,126	178,853
Allowance for doubtful accounts		(26,410)	(8,274)
	₩	288,716	170,579

(3) The movement in the allowance for impairment in respect of trade receivables, other receivables and contract assets for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019	2018
Beginning balance	₩	342,299	101,142
(Reversals of) Impairment loss recognized		42,106	(11,839)
Write-offs		(2,480)	(23,874)
Effects of changes in scope of consolidation and others (*)		(30,065)	276,870
Ending balance	₩	351,860	342,299

(*) Comprise effects of changes in scope of consolidation, effect of movements in exchange rates and others.

9. Inventories

Inventories as of December 31, 2019 and 2018 are summarized as follows:

(In millions of won)		2019			2018		
		Acquisition cost	**Provision for inventory valuation**	**Carrying amount**	**Acquisition cost**	**Provision for inventory valuation**	**Carrying amount**
Merchandise	₩	384,428	(24,660)	359,768	349,086	(16,905)	332,181
Finished goods		612,097	(7,344)	604,753	841,055	(44,542)	796,513
Work-in-progress		575,749	(44,981)	530,768	564,615	(24,679)	539,936
Raw materials		1,056,435	(6,523)	1,049,912	1,215,975	(118,421)	1,097,554
Materials-in-transit		1,331,544	-	1,331,544	1,563,699	-	1,563,699
	₩	3,960,253	(83,508)	3,876,745	4,534,430	(204,547)	4,329,883

Reversal of losses on valuation of inventory amounting to ₩121,039 million was deducted from the cost of sales for the year ended December 31, 2019 and losses on valuation of inventory amounting to ₩135,663 million was added to the cost of sales for the year ended December 31, 2018.

10. Other Assets

Other assets as of December 31, 2019 and 2018 are summarized as follows:

(In millions of won)		2019		2018	
		Current	**Non-current**	**Current**	**Non-current**
Advance payments	₩	184,773	-	159,281	-
Allowance for doubtful accounts		(9,894)	-	-	-
Prepaid expenses		32,710	6,044	25,906	19,257
Plan assets		-	965	-	10,192
Others		66,149	189	97,309	158
Accumulated impairment loss		(60,546)	-	(60,150)	-
	₩	213,192	7,198	222,346	29,607

11. Investments in Associates

(1) Investments in associates as of December 31, 2019 and 2018 are summarized as follows:

(In millions of won, except percentage of ownership)

				2019		2018	
Associates (*)	**Location**	**Fiscal year end**	**Main business**	**Ownership (%)**	**Carrying amount**	**Ownership (%)**	**Carrying amount**
KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD. (formerly, Hyundai Heavy Industries Co., Ltd) (*)	Korea	December	Non-financial holding company	30.95	₩ 3,669,040	30.95	₩ 3,618,893

(*) KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD. (formerly, Hyundai Heavy Industries Co., Ltd) split the material through the approval of the temporary shareholders' meeting on May 31, 2019, and the division subsidiaries changed its name to KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD. as of June 3, 2019.

(2) As of December 31, 2019 and 2018, the fair values of KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD. (formerly, Hyundai Heavy Industries Co., Ltd) (based on the closing price of Korea Exchange) were ₩2,771,251 million and ₩2,815,065 million, respectively.

(3) Condensed financial information of associates as of 31 December 2019 and 2018 and for the years ended December 31, 2019 and 2018 are summarized as follows:

(In millions of won)

Associates	**Current assets**	**Non-Current assets**	**Current liabilities**	**Non-Current liabilities**	**Equity**	**Revenue**	**Operating income (loss)**	**Profit (loss) (*)**	**Other comprehensive income (loss)**	**Total comprehensive income (loss) (*)**
KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD.										
2019	₩ 12,552,196	12,503,177	8,949,377	3,179,681	12,926,315	15,182,553	290,152	213,081	(33,381)	179,700
2018	12,316,693	12,413,206	9,410,253	2,208,683	13,110,963	13,119,891	(522,520)	(453,610)	(98,165)	(551,775)

(*) For the years ended December 31, 2019 and 2018, net profit (total comprehensive income or loss) attributable to owners of the Company were ₩164,079 million (₩128,753 million) and (-)₩489,060 million ((-)₩581,614 million), respectively.

11. Investments in Associates, Continued

(4) Changes in equity-method accounted investees for the years ended December 31, 2019 and 2018 are summarized as follows:

(In millions of won)

Associates		Beginning balance	Adjustment of Beginning balance (*1)	Acquisition	Equity Income (Losses) on Investments	Changes in equity of equity method investments	Others (*2)	Ending balance
KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD.								
2019	₩	3,618,893	-	-	50,927	(780)	-	3,669,040
2018		3,029,475	(10,505)	676,625	29,009	(40,146)	(65,565)	3,618,893

(*1) Adjusted beginning balance resulted from application of K-IFRS No.1115 and K-IFRS No.1109.
(*2) For the year ended December 31, 2018, the Group participated in paid-in capital increase and its stock decreased, the effect of decrease in ownership was recognized in profit or loss.

11. Investments in Associates, Continued

(5) Reconciliation from net assets of the associates to the carrying amount of investments in associates in the Group's consolidated financial statements as of December 31, 2019 and 2018 are summarized as follows:

(In millions of won, except percentage of ownership)

Associates		Ending net assets	Percentage of the Group's ownership (*1)	Net value (*2)	Elimination of inter-segment transactions and unrealized profits and losses	Ending carrying amount
KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD.						
2019	₩	12,926,315	30.95%	3,583,383	85,657	3,669,040
2018		13,110,963	30.95%	3,681,067	(62,174)	3,618,893

(*1) As of December 31, 2019 and 2018, the ownerships adjusted for the treasury shares are 30.98%.
(*2) As of December 31, 2019 and 2018, the net asset share amount of associates is the value after considering the difference between net asset amount and non-controlling interests.

(6) Impairment test

For the year ended December 31, 2019, the impairment test on KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD. was performed due to the indication of impairment found. The recoverable amount is estimated based on value in use, using discounted cash flows method 8.3% to 10.5% of discount rate and 0.0% to 3.0% of terminal growth rate were assumed. The test showed that the recoverable amount exceeded the carrying amount and therefore, no impairment loss was identified.

12. Investments in Joint Ventures

(1) Investments in joint ventures as of December 31, 2019 and 2018 are summarized as follows:

(In millions of won, except percentage of ownership)

				2019			2018		
Joint ventures	**Location**	**Fiscal year end**	**Business**	**Ownership (%)**		**Carrying amount**	**Ownership (%)**		**Carrying amount**
Hyundai Cosmo Petrochemical Co., Ltd.	Korea	December	Manufacturing of petrochemicals	50.00	₩	270,482	50.00	₩	258,352
Hyundai and Shell Base Oil Co., Ltd. (*1)	Korea	December	Manufacture and sale of base oil	60.00		145,448	60.00		198,727
AsanKakao Medical Data Co., Ltd. (*2)	Korea	December	Development and supply of application software	45.00		4,376	-		-
Haining Hagong Hyundai Robotics. Co., Ltd. (*3)	China	December	Sale of robot and service	30.00		4,254	-		-
					₩	424,560		₩	457,079

(*1) The Group owns a majority of voting rights, however, the right of decision-making in certain area to be exercised jointly by the Group and The Shell Petroleum Company Limited, a party to the joint venture is material for operating the joint venture. Accordingly, the investment has been classified into a joint venture.
(*2) The Group owns less than half of voting rights, however, the right of decision-making in certain area to be exercised jointly by the Group and Kakao Investment Co., Ltd., a party to the joint venture is material for operating the joint venture. Accordingly, the investment has been classified into a joint venture.
(*3) The Group owns less than half of voting rights, however, the right of decision-making in certain area to be exercised jointly by the Group and Hagung-zuk, a party to the joint venture is material for operating the joint venture. Accordingly, the investment has been classified into a joint venture.

12. Investments in Joint Ventures, Continued

(2) Condensed financial information of joint ventures as of December 31, 2019 and 2018 and for the years ended December 31, 2019 and 2018 are summarized as follows:

1) Summary financial information

(In millions of won)

		2019										
		Condensed financial information of joint ventures										
Joint ventures		**Current assets**	**Non-Current assets**	**Current liabilities**	**Non-Current liabilities**	**Equity**	**Revenue**	**Operating income (loss)**	**Profit (loss)**	**Other comprehensive income (loss)**	**Total comprehensive income (loss)**	**Dividends received**
Hyundai Cosmo Petrochemical Co., Ltd.	₩	442,025	815,957	370,415	171,707	715,860	2,901,858	102,070	32,075	21	32,096	30,000
Hyundai and Shell Base Oil Co., Ltd.		184,681	288,506	102,822	126,328	244,037	807,043	6,740	(2,887)	(43)	(2,930)	51,600
AsanKakao Medical Data Co., Ltd.		9,698	32	5	-	9,725	-	(380)	(275)	-	(275)	-
Haining Hagong Hyundai Robotics. Co., Ltd.		17,573	544	2,973	37	15,107	3,807	(1,542)	(1,498)	-	(1,498)	-
	₩	653,977	1,105,039	476,215	298,072	984,729	3,712,708	106,888	27,415	(22)	27,393	81,600

(In millions of won)

		2018										
		Condensed financial information of joint ventures										
Joint ventures		**Current assets**	**Non-Current assets**	**Current liabilities**	**Non-Current liabilities**	**Equity**	**Revenue**	**Operating income (loss)**	**Profit (loss)**	**Other comprehensive income (loss)**	**Total comprehensive income (loss)**	**Dividends received**
Hyundai Cosmo Petrochemical Co., Ltd.	₩	514,212	841,191	350,772	260,867	743,764	2,989,275	168,099	122,039	204	122,243	-
Hyundai and Shell Base Oil Co., Ltd.		249,690	328,497	95,975	149,246	332,966	731,997	65,804	51,240	-	51,240	18,000
	₩	763,902	1,169,688	446,747	410,113	1,076,730	3,721,272	233,903	173,279	204	173,483	18,000

12. Investments in Joint Ventures, Continued

(2) Condensed financial information of joint ventures as of December 31, 2019 and 2018 and for the years ended December 31, 2019 and 2018 are summarized as follows, continued:

2) Additional financial information

(In millions of won)

Joint ventures		2019						
		Cash and cash equivalents	Current financial liabilities	Non-current financial liabilities	Depreciation	Interest income	Interest expenses	Income tax expense (benefit)
Hyundai Cosmo Petrochemical Co., Ltd.	₩	83,918	70,823	142,181	50,178	3,579	10,153	10,384
Hyundai and Shell Base Oil Co., Ltd.		44,833	24,996	119,884	25,719	1,490	5,334	(765)
AsanKakao Medical Data Co., Ltd.		52	-	-	-	105	-	-
Haining Hagong Hyundai Robotics. Co., Ltd.		1,706	-	-	23	45	-	-
	₩	130,509	95,819	262,065	75,920	5,219	15,487	9,619

(In millions of won)

Joint ventures		2018						
		Cash and cash equivalents	Current financial liabilities	Non-current financial liabilities	Depreciation	Interest income	Interest expenses	Income tax expense
Hyundai Cosmo Petrochemical Co., Ltd.	₩	192,122	111,166	236,131	53,832	2,562	15,466	38,700
Hyundai and Shell Base Oil Co., Ltd.		6,878	24,980	144,804	18,406	2,874	6,963	11,226
	₩	199,000	136,146	380,935	72,238	5,436	22,429	49,926

12. Investments in Joint Ventures, Continued

(3) Changes in equity-method accounted joint ventures for the years ended December 31, 2019 and 2018 are summarized as follows:

(In millions of won)

		2019					
Joint ventures		Beginning balance	Acquisition	Share of profit (loss) of equity accounted investees	Changes in equity of equity accounted investees	Dividend	Ending balance
Hyundai Cosmo Petrochemical Co., Ltd.	₩	258,352	-	42,120	10	(30,000)	270,482
Hyundai and Shell Base Oil Co., Ltd.		198,727	-	(1,654)	(25)	(51,600)	145,448
AsanKakao Medical Data Co., Ltd.		-	4,500	(124)	-	-	4,376
Haining Hagong Hyundai Robotics. Co., Ltd.		-	5,156	(727)	(175)	-	4,254
	₩	457,079	9,656	39,615	(190)	(81,600)	424,560

(In millions of won)

		2018				
Joint ventures		Beginning balance	Share of profit of equity accounted investees	Changes in equity of equity accounted investees	Dividend	Ending balance
Hyundai Cosmo Petrochemical Co., Ltd.	₩	196,910	61,340	102	-	258,352
Hyundai and Shell Base Oil Co., Ltd.		185,082	31,645	-	(18,000)	198,727
	₩	381,992	92,985	102	(18,000)	457,079

12. Investments in Joint Ventures, Continued

(4) Reconciliation from net assets to the carrying amount of investments in joint ventures in the Group's consolidated financial statements as of December 31, 2019 and 2018 are summarized as follows:

(In millions of won, except percentage of ownership)

	2019				
Joint ventures	**Ending net assets**	**Group's ownership**	**Group's share of net asset**	**Elimination of inter-segment transactions and unrealized profits and losses**	**Ending carrying amount**
Hyundai Cosmo Petrochemical Co., Ltd.	₩ 715,860	50.00%	357,930	(87,448)	270,482
Hyundai and Shell Base Oil Co., Ltd.	244,037	60.00%	146,422	(974)	145,448
AsanKakao Medical Data Co., Ltd.	9,725	45.00%	4,376	-	4,376
Haining Hagong Hyundai Robotics. Co., Ltd.	15,107	30.00%	4,532	(278)	4,254
	₩ 984,729		513,260	(88,700)	424,560

(In millions of won, except percentage of ownership)

	2018				
Joint ventures	**Ending net assets**	**Group's ownership**	**Group's share of net asset**	**Elimination of inter-segment transactions and unrealized profits and losses**	**Ending carrying amount**
Hyundai Cosmo Petrochemical Co., Ltd.	₩ 743,764	50.00%	371,882	(113,530)	258,352
Hyundai and Shell Base Oil Co., Ltd.	332,966	60.00%	199,780	(1,053)	198,727
	₩ 1,076,730		571,662	(114,583)	457,079

13. Investment Property

(1) Changes in investment property for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		Land	
		2019	**2018**
Beginning balance	₩	10,635	10,635
Disposals		(815)	-
Ending balance	₩	9,820	10,635
Acquisition costs		9,820	10,635

(2) Income (expense) from investment property for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		**2019**	**2018**
Rental income	₩	11	12
Maintenance expense – income-generating property		(13)	(45)
Maintenance expense – vacant property		(174)	(82)

(3) Fair value of investment property as of December 31, 2019 and 2018 are as follows:

(In millions of won)		**2019**	**2018**
Land	₩	10,774	11,740

The fair value of investment property as of January 1, 2010, the date of transition to K-IFRS, was determined by the independent appraisers, having appropriate professional qualifications and experience in relation to the assessment of real estate in the Republic of Korea. The appraisal is measured by using comparison methods to obtain the economic value based on marketability of the property. The Group updated the fair value of investment property as of December 31, 2019, using the changes in publicly assessed land price after the transition date to K-IFRS.

14. Property, Plant and Equipment

(1) Changes in property, plant and equipment for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019						
		Land	Buildings	Structures	Machinery	Construction in-progress	Others	Total
Beginning balance	₩	1,772,910	694,025	1,180,203	3,571,284	315,944	351,375	7,885,741
Acquisitions / Classification		168,830	70,765	9,603	277,613	561,247	108,731	1,196,789
Disposals		(139,286)	(22,074)	(601)	(5,069)	(270)	(5,201)	(172,501)
Depreciation / Impairment loss		-	(26,926)	(44,922)	(287,442)	(48,435)	(116,109)	(523,834)
Effect of movements in exchange rates		242	3,492	60	537	404	1,605	6,340
Effects of changes in scope of consolidation		29,828	(15,130)	3,612	(3,435)	(4)	1,478	16,349
Ending balance	₩	1,832,524	704,152	1,147,955	3,553,488	828,886	341,879	8,408,884
Acquisition cost		1,833,964	990,506	1,749,117	5,753,881	877,321	1,273,251	12,478,040
Government grants		(1,440)	(2,764)	(3,356)	(5,749)	-	(193)	(13,502)
Accumulated depreciation/ impairment loss		-	(283,590)	(597,806)	(2,194,644)	(48,435)	(931,179)	(4,055,654)

As December 31, 2019, construction-in-progress are related to investment in petrochemical product facilities, construction of the Yong-in Reliability Center and others.

(In millions of won)		2018						
		Land	Buildings	Structures	Machinery	Construction in-progress	Others	Total
Beginning balance	₩	1,720,078	520,868	1,120,810	2,996,835	579,657	295,624	7,233,872
Acquisitions / Classification		57,641	62,397	91,838	831,158	(258,610)	164,149	948,573
Disposals		(5,881)	(2,104)	(348)	(4,510)	(6,741)	(5,042)	(24,626)
Depreciation / Impairment loss		-	(32,026)	(44,041)	(298,603)	-	(112,069)	(486,739)
Effect of movements in exchange rates		125	2,204	(32)	3	(80)	1,735	3,955
Effects of changes in scope of consolidation		947	142,686	11,976	46,401	1,718	6,978	210,706
Ending balance	₩	1,772,910	694,025	1,180,203	3,571,284	315,944	351,375	7,885,741
Acquisition cost		1,774,345	992,669	1,745,168	5,538,226	315,944	1,196,581	11,562,933
Government grants		(1,435)	(4,129)	(3,549)	(6,246)	-	-	(15,359)
Accumulated depreciation/ impairment loss		-	(294,515)	(561,416)	(1,960,696)	-	(845,206)	(3,661,833)

As December 31, 2018, construction-in-progress are related to investment in petrochemical product facilities, investment in landfill on a shared surface, establishment of the global integrated information system and others.

14. Property, Plant and Equipment, Continued

(2) Revaluation of Land

As of December 31, 2019, the Group was applying the revaluation model on land. The revaluation amount was determined by the independent appraisers, having professional qualifications. The appraisal procedures included calculating the revaluation amount based on the publicly assessed land price and studying whether the amount is reasonable comparing with prices used in the recent arm's length transaction.

Carrying amounts of land under the revaluation model and the cost model as of December 31, 2019 were as follows:

(In millions of won)		2019	
		Revaluation model	**Cost model**
Land	₩	1,720,842	1,272,248

(3) Measurement of fair value

(i) Fair value hierarchy
The fair value in measuring the land was classified as fair value based on input variables used by valuation techniques.

(ii) The valuation method and input variables which were used for measuring fair value of land are as follows:

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

15. Right-of-Use Assets

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

(In millions of won)

		2019						
		Land	Buildings	Structures	Machinery	Ships	Others	Total
Beginning balance	₩	17,117	44,923	5,156	273	327,008	79,303	473,780
Additions		124,706	21,867	38,187	179	-	46,349	231,288
Depreciation		(3,449)	(23,480)	(14,805)	(204)	(85,073)	(14,025)	(141,036)
Impairment loss		(60)	(1,424)	-	-	-	(307)	(1,791)
End/Transfer		(1,570)	8,525	672	5	14,106	(17,143)	4,595
Effect of movements in exchange rates		284	1,616	415	9	-	59	2,383
Ending balance	₩	137,028	52,027	29,625	262	256,041	94,236	569,219
Acquisition cost		140,362	76,452	44,383	465	333,916	107,540	703,118
Accumulated depreciation		(3,274)	(23,001)	(14,758)	(203)	(77,875)	(12,997)	(132,108)
Accumulated impairment loss		(60)	(1,424)	-	-	-	(307)	(1,791)

16. Intangible Assets

(1) Details of goodwill as of December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018
Hyundai Oilbank Co., Ltd.	₩	1,087,419	1,087,419
Hyundai Electric & Energy Systems Co., Ltd.		95,835	95,835
Hyundai Construction Equipment Co., Ltd.		73,120	73,120
HHI China Investment Co., Ltd.		26,615	26,615
Hyundai Construction Equipment India Private Ltd.		20,396	20,396
Others (*)		11,646	5,322
	₩	1,315,031	1,308,707

(*) Goodwill arising from the acquisition of TNA Co., Ltd. is ₩3,902 million, and goodwill arising from the acquisition of the Pyeongtaek Tank Terminal storage business is ₩2,423 million.

16. Intangible Assets, Continued

(2) Changes in intangible assets for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019						
		Goodwill	**Customer relationships**	**Brands**	**Technologies**	**Development costs**	**Others**	**Total**
Beginning balance	₩	1,308,707	231,980	192,220	172,706	54,074	132,139	2,091,826
Acquisitions / Reclassification		-	-	-	-	46,049	117,099	163,148
Amortization / Impairment loss (*)		-	(24,999)	-	(50,076)	(10,243)	(21,581)	(106,899)
Disposals		-	-	-	-	(1,993)	(166)	(2,159)
Effect of movements in exchange rates		-	-	-	-	35	183	218
Effects of changes in scope of consolidation		6,324	-	-	-	-	(529)	5,795
Ending balance	₩	1,315,031	206,981	192,220	122,630	87,922	227,145	2,151,929
Acquisition cost		1,315,031	361,047	192,220	294,000	192,512	348,782	2,703,592
Accumulated amortization/ impairment loss		-	(154,066)	-	(171,370)	(104,590)	(121,637)	(551,663)

(*) The Group recognized impairment losses of ₩ 33,755 million for development costs and others that are unlikely to generate future economic benefits for the year ended December 31, 2019.

For the year ended December 31, 2019, the Group acquired TNA Co., Ltd. and acquired the storage business of Pyeongtaek Tank Terminal from Pls Co., Ltd. and GSE & R Co., Ltd. In the case of the storage business of the Pyeongtaek Tank Terminal, we will not measure the fair value of assets acquired and liabilities acquired because they are of little importance. At the end of the reporting period, TNA Co., Ltd. completed the fair value measurement process for assets acquired and liabilities acquired, and was merged with Hyundai Core Motion Co., Ltd.

16. Intangible Assets, Continued

(2) Changes in intangible assets for the years ended December 31, 2019 and 2018 are as follows, continued:

(In millions of won)

	2018						
	Goodwill	Customer relationships	Brands	Technologies	Development costs	Others	Total
Beginning balance	₩ 1,281,995	262,119	192,220	276,625	25,436	120,979	2,159,374
Acquisitions / Reclassification	-	-	-	-	40,928	3,016	43,944
Amortization / Impairment loss (*)	-	(30,139)	-	(103,919)	(14,471)	(13,502)	(162,031)
Effect of movements in exchange rates	-	-	-	-	5	6	11
Effects of changes in scope of consolidation	26,712	-	-	-	2,176	21,640	50,528
Ending balance	₩ 1,308,707	231,980	192,220	172,706	54,074	132,139	2,091,826
Acquisition cost	1,308,707	361,048	192,220	294,000	148,343	238,015	2,542,333
Accumulated amortization/ impairment loss	-	(129,068)	-	(121,294)	(94,269)	(105,876)	(450,507)

(*) The Group recognized impairment losses of ₩80,893 million for development costs and others that are unlikely to generate future economic benefits for the year ended December 31, 2018.

The carrying amount of intangible assets with indefinite useful lives is ₩207,327 million and ₩207,532 million, respectively, as of December 31, 2019 and 2018.

16. Intangible Assets, Continued

(3) Recognition of impairment losses

The Group performs an impairment test on goodwill on an annual basis.

The recoverable amounts of the cash-generating units were measured based on the value in use. The value in use was determined by discounting the expected future cash flows from continued use of the asset.

Assumptions used in calculating the value in use of main cash-generating units for the year ended December 31, 2019 is as follows:

(In percent)

	Hyundai Oilbank Co., Ltd.	Hyundai Electric & Energy Systems Co., Ltd	Hyundai Construction Equipment Co., Ltd.
Discount rate	8.10%	10.30%	10.60%
Terminal growth rate	1.00%	1.00%	1.00%

(4) Details of major project in development costs for the year ended December 31, 2019 is as follows:

(In millions of won)

			2019	
Description	Project		Carrying amount	Residual Amortization period
Development costs	Development of a model to strengthen the competitiveness of large clean robots	₩	3,158	Development in progress
	Development of eco-friendly GIS for KEPCO		2,896	Development in progress
	Eco-friendly construction machinery and others		17,942	0.08~3.84 years
	Small construction machinery and others		41,084	Development in progress

17. Pledged Assets

Assets pledged as collateral for the Group's borrowings as of December 31, 2019 is summarized as follows:

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

Asset		Carrying amount	Collateralized amount	Type of borrowings	Borrowings amount	Lender
Land and others	₩	85,695		Long-term borrowings	715,000	Korea Development Bank and others
Machinery and others		1,109,862	858,000			
Property, plant and equipment		295,544	295,000	Long-term borrowings	170,700	Korea Development Bank and others
Inventory and trade receivables		USD 148,304	USD 61,311	Long-term borrowings	USD 56,000	Wells Fargo & Company
Land and others		INR 1,122,269	USD 15,000	Long-term borrowings	USD 14,063	Shinhan Bank
Grande Ltd. ship		USD 19,358	USD 13,547	Long-term borrowings	USD 13,547	HIHD Co., Ltd.
Construction in-progress		EUR 19,000	EUR 14,250	Long-term borrowings	EUR 13,775	BNP Paribas Fortis Bank, Belgium
Current assets		INR 8,653,123	INR 1,200,000	Short-term borrowings	USD 4,936	ICICI Bank Limited
	₩	1,491,101	1,153,000		885,700	
		USD 167,662	USD 89,858		USD 88,546	
		EUR 19,000	EUR 14,250		EUR 13,775	
		INR 9,775,392	INR 1,200,000			

18. Short-term and Long-term Financial Liabilities

Short-term and long-term financial liabilities as of December 31, 2019 and 2018 are summarized as follows:

(In millions of won)

		2019		2018	
		Current	Non-current	Current	Non-current
Borrowings	₩	2,880,772	1,724,611	3,505,732	1,386,708
Debentures		534,613	2,928,269	1,043,985	1,938,337
Financial liabilities measured at FVTPL		-	-	4,771	-
	₩	3,415,385	4,652,880	4,554,488	3,325,045

19. Trade and Other Payables

Trade and other payables as of December 31, 2019 and 2018 are summarized as follows:

(In millions of won)

		2019		2018	
		Current	Non-current	Current	Non-current
Trade payables	₩	2,069,770	-	2,329,846	-
Other accounts payable		1,205,623	17	1,104,091	-
Accrued expense		247,644	-	158,823	-
Deposits received		6,080	28,868	-	37,898
	₩	3,529,117	28,885	3,592,760	37,898

20. Other Liabilities

Other liabilities as of December 31, 2019 and 2018 are summarized as follows:

(In millions of won)

		2019		2018	
		Current	Non-current	Current	Non-current
Unearned revenues	₩	22,287	-	8,934	-
Deferred revenues		-	28,714	-	30,449
Others		1,951	2,688	1,756	2,934
	₩	24,238	31,402	10,690	33,383

21. Borrowings and Debentures

(1) Short-term borrowings as of December 31, 2019 and 2018 are summarized as follows:

(In millions of won)

Type of borrowing	Lender	Annual Interest rate (%)		2019	2018
Domestic consolidated subsidiaries:					
General loan	The Korea Development Bank and others	2.15~3.62	₩	952,550	602,500
General loan in foreign currency	Woori Bank	-		-	55,905
Commercial paper (CP)	Kyobo Securities Korea Co., Ltd, and others	1.89~2.15		450,000	1,270,000
Invoice loan	The Korea Development Bank and others	1.00~3.46		496,711	728,740
Import loan	Bank of China	-		-	16,772
Usance L/C	KEB Hana Bank and others	0.20~3.39		101,224	228,452
				2,000,485	2,902,369
Overseas consolidated subsidiaries:					
Foreign currency loan	Standard Chartered Bank and others	1.25~9.55		301,538	247,110
				2,302,023	3,149,479
Current portion of long-term borrowings				579,321	356,253
Current discount on current portion of long-term borrowings				(572)	-
			₩	2,880,772	3,505,732

(2) Long-term borrowings as of December 31, 2019 and 2018 are summarized as follows:

(In millions of won)

Type of borrowing	Lender	Annual Interest rate (%)		2019	2018
Domestic consolidated subsidiaries:					
General loan	Woori Bank and others	2.63~3.65	₩	999,375	723,125
Energy rationalization	The Korea Development Bank	-		-	577
General fund for equipment	The Korea Development Bank and others	2.48~3.69		1,028,200	859,700
Commercial paper (CP)	Shinhan Bank and others	CD 3M + 0.29		150,000	60,000
				2,177,575	1,643,402
Overseas consolidated subsidiaries:					
Foreign currency loan	Standard Chartered Bank and others	2.20~5.23		156,633	110,770
				2,334,208	1,754,172
Current discount on long-term borrowings				(30,848)	(11,211)
Current portion of long-term borrowings				(579,321)	(356,253)
Current discount on current portion of long-term borrowings				572	-
			₩	1,724,611	1,386,708

21. Borrowings and Debentures, Continued

(3) Debentures as of December 31, 2019 and 2018 are summarized as follows:

(In millions of won)

Description	Issue	Maturity	Annual interest rate (%)		2019	2018	Guarantee
Hyundai heavy industries holdings							
1st -2	2015-03-03	2022-03-03	3.05	₩	70,000	70,000	-
2nd -2	2017-02-24	2019-02-24	3.99		-	100,000	-
3rd -1	2018-12-06	2020-12-06	2.81		80,000	80,000	-
3rd -2	2018-12-06	2021-12-06	3.12		220,000	220,000	-
4th -1	2019-04-11	2021-04-09	2.51		40,000	-	-
4th -2	2019-04-11	2022-04-11	2.70		160,000	-	-
5th	2019-06-04	2024-06-04	3.25		150,000	-	-
Foreign currency bond	2016-06-07	2019-06-07	3.72		-	335,430	guaranteed
Hyundai Oilbank							
111th -2	2012-10-23	2019-10-23	3.52		-	100,000	-
112th -2	2014-01-27	2019-01-27	3.59		-	50,000	-
114th -2	2014-11-21	2019-11-21	2.59		-	160,000	-
114th -3	2014-11-21	2021-11-21	2.94		60,000	60,000	-
115th -2	2015-03-27	2020-03-27	2.20		190,000	190,000	-
115th -3	2015-03-27	2022-03-27	2.53		140,000	140,000	-
116th -1	2017-07-07	2022-07-07	2.58		180,000	180,000	-
116th -2	2017-07-07	2024-07-07	2.85		100,000	100,000	-
117th	2018-01-26	2023-01-26	2.89		150,000	150,000	-
118th -1	2018-08-28	2021-08-28	2.21		70,000	70,000	-
118th -2	2018-08-28	2023-08-28	2.44		90,000	90,000	-
118th -3	2018-08-28	2025-08-28	2.63		40,000	40,000	-
119th -1	2019-01-28	2024-01-26	2.14		120,000	-	-
119th -2	2019-01-28	2026-01-28	2.41		80,000	-	-
120th -1	2019-07-09	2024-07-09	1.66		60,000	-	-
120th -2	2019-07-09	2026-07-09	1.81		120,000	-	-
120th -3	2019-07-09	2029-07-09	2.14		120,000	-	-
121th -1	2019-10-14	2024-10-14	1.68		160,000	-	-
121th -2	2019-10-14	2026-10-14	1.88		100,000	-	-
121th -3	2019-10-14	2029-10-14	2.11		140,000	-	-
Hyundai Chemical							
1st -1	2019-08-13	2024-08-13	2.48		130,000	-	-
1st -2	2019-08-14	2024-08-13	2.48		20,000	-	-
Hyundai electric & energy system							
1st	2014-02-26	2019-02-26	3.45		-	300,000	-
2nd -1	2018-09-19	2020-09-18	3.10		75,000	75,000	-
2nd -2	2018-09-19	2021-09-17	3.35		45,000	45,000	-
2nd -3	2018-09-19	2021-09-17	CD 3M +1.50		80,000	80,000	-
3rd	2019-03-08	2021-03-08	3.50		20,000	-	-

21. Borrowings and Debentures, Continued

(3) Debentures as of December 31, 2019 and 2018 are summarized as follows, continued:

(In millions of won)

Description	Issue	Maturity	Annual interest rate (%)		2019	2018	Guarantee
Hyundai construction equipment							
1st -1	2015-03-03	2020-03-03	2.65		50,000	50,000	-
1st -4	2015-07-23	2020-07-23	3.26		90,000	90,000	-
2nd -1	2018-06-04	2020-06-04	2.93		50,000	50,000	-
2nd -2	2018-06-04	2021-06-04	3.38		100,000	100,000	-
5th	2019-03-06	2021-03-06	2.67		10,000	-	-
6th	2019-07-04	2022-07-04	2.27		100,000	-	-
Hyundai Core Motion							
3rd	2018-08-29	2023-08-29	3.97		30,000	30,000	-
4th	2018-10-16	2021-10-15	3.18		30,000	30,000	-
					3,470,000	2,985,430	
Discount on debentures					(7,118)	(3,108)	
Current portion					(535,000)	(1,045,430)	
Discount on current portion					387	1,445	
				₩	2,928,269	1,938,337	

(4) Aggregate maturities of the Group's borrowings and debentures as of December 31, 2019 and 2018 are summarized as follows:

(In millions of won)

Periods		2019 Borrowings	Debentures	Total
Less than 1 year	₩	2,881,344	535,000	3,416,344
1 ~ 5 years		1,565,427	2,335,000	3,900,427
More than 5 years		189,460	600,000	789,460
	₩	4,636,231	3,470,000	8,106,231

(In millions of won)

Periods		2018 Borrowings	Debentures	Total
Less than 1 year	₩	3,505,732	1,045,430	4,551,162
1 ~ 5 years		1,128,298	1,800,000	2,928,298
More than 5 years		269,621	140,000	409,621
	₩	4,903,651	2,985,430	7,889,081

21. Borrowings and Debentures, Continued

(5) Changes in liabilities arising from financing activities for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)			2019		
			Borrowings	**Debentures**	**Total**
Beginning balance		₩	4,892,440	2,982,322	7,874,762
Cash flows from financing activities	- Borrowing		23,389,894	1,524,727	24,914,621
	- Repayment		(23,687,208)	(1,064,900)	(24,752,108)
Non-cash flows	- The effects of changes in foreign exchange rates		2,246	19,310	21,556
	- Current value discount depreciation		3,344	-	3,344
	- Amortization of discounts on debentures		-	1,423	1,423
	- Effects of changes in scope of consolidation		4,667	-	4,667
Ending balance		₩	4,605,383	3,462,882	8,068,265

(In millions of won)			2018		
			Borrowings	**Debentures**	**Total**
Beginning balance		₩	3,634,027	2,697,191	6,331,218
Cash flows from financing activities	- Borrowing		14,811,853	1,056,043	15,867,896
	- Repayment		(13,924,090)	(786,088)	(14,710,178)
Non-cash flows	- The effects of changes in foreign exchange rates		549	14,684	15,233
	- Current value discount depreciation		1,189	-	1,189
	- Amortization of discounts on debentures		-	492	492
	- Effects of changes in scope of consolidation		368,912	-	368,912
Ending balance		₩	4,892,440	2,982,322	7,874,762

22. Employee Benefits

(1) Recognized liabilities for defined benefit obligations as of December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018
Present value of defined benefit obligations	₩	458,278	407,299
Fair value of plan assets (*)		(410,501)	(362,196)
	₩	47,777	45,103

(*) Certain subsidiaries' plan assets exceed the present value of defined benefit obligations in the amount of ₩965 million and ₩10,192 million as of December 31, 2019 and 2018, respectively. Such amounts were recognized as other non-current assets. The fair value of plan assets included such amounts of ₩411,466 million and ₩372,388 million as of December 31, 2019 and 2018, respectively.

(2) Plan assets as of December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018
Retirement pension	₩	410,858	371,735
Transfer to National Pension Fund		608	653
	₩	411,466	372,388

(3) Expenses recognized in profit or loss for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018
Current service costs	₩	53,760	48,222
Past service costs		-	361
Interest expenses on obligations		9,791	10,329
Profit and loss from reduction		(133)	(451)
Expected return on plan assets		(9,137)	(10,282)
Contribution		676	504
	₩	54,957	48,683

For the year ended December 31, 2019, the Group executed the voluntary retirement program. As a result, the retirement bonus was incurred amounting ₩14,794 million recognized in selling, general and administrative expenses.

22. Employee Benefits, Continued

(4) Changes in the defined benefit obligations for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018
Beginning balance	₩	407,299	362,488
Current service costs		53,760	48,222
Past service costs		-	361
Interest expenses on obligations		9,791	10,329
Profit and loss from reduction		(133)	(451)
Benefits paid		(49,738)	(41,890)
Transfers from related parties		5,613	7,884
Effect of movements in exchange rates		(39)	(24)
Actuarial losses in other comprehensive income		32,415	20,258
Others		(690)	122
Ending balance	₩	458,278	407,299

(5) Changes in the fair value of plan assets for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018
Beginning balance	₩	372,388	357,018
Benefits paid		(32,828)	(33,348)
Contributions paid into the plan		65,405	43,691
Expected return on plan assets		9,137	10,282
Actuarial losses in other comprehensive income		(2,636)	(5,255)
Ending balance	₩	411,466	372,388

The Group are reviewing the level of the fund each year, and taking the policy to preserve fund in the event of a loss to the fund.

(6) Expected payment date of the defined benefit obligations as of December 31, 2019 is as follows:

(In millions of won)		Within 1 year	1 ~ 2 years	2 ~ 5 years	5 ~ 10 years	More than 10 years	Total
Expected payment	₩	16,031	30,305	74,958	211,020	1,063,681	1,395,995

22. Employee Benefits, Continued

(7) Principal actuarial assumptions as of December 31, 2019 and 2018 are as follows:

	2019	2018
Discount rate at December 31	2.28%~2.56%	2.59%~2.84%
Future salary growth rate	1.10%~3.50%	1.28%~3.46%
Future mortality (Males, at age 45)	0.20%	0.22%

(8) Weighted average durations of defined benefit obligations as of December 31, 2019 and 2018 are as follows:

(In years)	2019	2018
Weighted average durations	11.25	11.09

(9) Reasonably possible changes as of December 31, 2019 and 2018 to the relevant actuarial assumption would have affected the defined benefit obligation by the amounts shown below:

(In millions of won)		2019	
		Increase	Decrease
Discount rate (1% movement)	₩	(41,508)	49,133
Future salary growth (1% movement)		46,070	(39,807)

(In millions of won)		2018	
		Increase	Decrease
Discount rate (1% movement)	₩	(35,910)	42,375
Future salary growth (1% movement)		39,880	(33,833)

23. Provisions

Changes in provisions for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019				
		Provision for construction loss	**Provision for product warranty**	**Provision for construction warranty**	**Other provision**	**Total**
Beginning balance	₩	10,575	148,439	3,134	100,055	262,203
Additions and others		26,166	133,320	2,558	46,860	208,904
Reversals		(202)	(23,216)	-	(9)	(23,427)
Utilization		-	(81,132)	-	(142,434)	(223,566)
Others(*)		(683)	(790)	-	(21)	(1,494)
Effect of movements in exchange rates		-	1,061	-	36	1,097
Ending balance	₩	35,856	177,682	5,692	4,487	223,717
Current		35,856	141,889	1,555	1,857	181,157
Non-current		-	35,793	4,137	2,630	42,560

(*) The amount is liabilities held for sale of the subsidiary, Hyundai Electric & Energy System Co., Ltd., reclassified from provision of ship control division that was sold for the year ended December 31, 2019 and Hyundai Heavy Industries Co., Ltd. Bulgaria scheduled be sold.

(In millions of won)		2018				
		Provision for construction loss	**Provision for product warranty**	**Provision for construction warranty**	**Other provision**	**Total**
Beginning balance	₩	-	198,237	2,182	7,460	207,879
Adjustment on initial application of K-IFRS 1115(*)		3,345	-	-	-	3,345
Additions and others		9,312	93,556	952	96,823	200,643
Reversals		(2,082)	(83,758)	-	(5,973)	(91,813)
Utilization		-	(74,302)	-	(1,252)	(75,554)
Effect of movements in exchange rates		-	413	-	80	493
Effects of changes in scope of consolidation		-	14,293	-	2,917	17,210
Ending balance	₩	10,575	148,439	3,134	100,055	262,203
Current		10,575	510	-	96,471	107,556
Non-current		-	147,929	3,134	3,584	154,647

(*) The amount reclassified from due from (to) customers for contract work as of December 31, 2017.

24. Derivative Financial Instruments

The Group has entered into derivative instrument contracts with various banks to hedge the risk related to changes in foreign exchange rates, interest rate risk, crude oil prices and others. Derivatives are measured at fair value by using the forward exchange rate presented by contract counterparty and others. The evaluation details as of December 31, 2019, are as follows:

(1) The description of derivative instrument and hedge accounting

Hedge accounting	Type	Description
Cash flow hedge	Foreign currency forward	Hedges the variability in cash flows attributable to foreign currency exposure in respect of forecasted sales and purchases
	Interest rate swap	Hedges cash flow risk on interest rate fluctuation
	Product forward	Hedges cash flow risk on refinery margin fluctuation

(2) Details of the derivatives entered into by the Group as of December 31, 2019 is as follows:

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

Description	Type	Currency		Contract amount	Number of contracts	Weighted average exchange rate (won)	Average maturities
		Sell	Buy				
Cash flow hedge	Foreign currency forward	EUR	KRW	₩ 26,085	10	₩ 1,317.80	2020-03-10
		KRW	EUR	95,900	39	1,344.80	2020-08-28
		KRW	JPY	14,050	3	1,080.00	2020-05-16
		KRW	USD	133,863	31	1,148.60	2021-02-05
		USD	KRW	287,757	40	1,190.10	2020-05-09
	Interest rate swap	KRW	KRW	270,000	4	-	2022-02-05
	Product forward	USD	USD	254,996	29	-	2020-03-07

※ Terms of settlement: Settlement or collecting total
※ The contract amount: Denominated in the selling currency

24. Derivative Financial Instruments, Continued

(3) Carrying amount related to derivatives as of December 31, 2019 is as follows:

(In millions of won)

			Derivatives			
			Assets		Liabilities	
Description	**Category**		**Current**	**Non-current**	**Current**	**Non-current**
Cash flow hedge	Foreign currency forward	₩	10,821	-	2,306	907
	Interest rate swap		-	477	613	1,119
	Product forward		14,179	-	15,716	-
		₩	25,000	477	18,635	2,026

(4) Gain and loss on valuation and transaction of derivatives for the year ended December 31, 2019 is as follows:

(In millions of won)

Description	**Category**		**Revenue**	**Finance income**	**Finance costs**	**Other non-operating income**	**Other non-operating expenses**	**Accumulated other comprehensive income (loss)**
Cash flow hedge	Foreign currency forward	₩	(20,329)	-	-	-	-	8,355
	Interest rate swap		-	-	-	-	-	(2,753)
	Product forward		-	-	-	-	-	(13,688)
			(20,329)	-	-	-	-	(8,086)
For trading	Foreign currency forward		-	37,297	23,680	-	-	-
	Product forward		-	4,638	5,050	-	-	-
	Warrant		-	414	-	-	-	-
			-	42,349	28,730	-	-	-
		₩	(20,329)	42,349	28,730	-	-	(8,086)

For the year ended December 31, 2019, the Group applies cash flow hedge accounting, for which the Group accounted the effective portion of the hedge amounting to (-)₩8,086 million, after netting off deferred tax effect of ₩1,216 million as gain (loss) on valuation of derivatives in accumulated other comprehensive income (loss). It consists of non-controlling interest portion of ₩901 million and controlling interest portion of (-)₩7,771 million. The expected period of exposure to cash flow risk, where cash flow hedge accounting is applied, is approximately 54 months.

25. Capital and Capital Surplus

(1) Capital
The Company is authorized to issue 160,000,000 shares of capital stock (par value ₩5,000), and as of December 31, 2019 the number of issued common shares is 16,286,617 shares.

(2) Capital surplus
Capital surplus is comprised of paid-in capital in excess of par value, capital surplus related to acquisition or disposal of interests in subsidiaries and investments in associates, and other capital surplus of the Company. Capital surplus as of December 31, 2019 and 2018 are summarized as follows:

(i) Capital surplus as of December 31, 2019 and 2018 are as follows:

(In millions of won)		**2019**	**2018**
Paid-in-capital in excess of par value	₩	3,090,454	3,090,454
Other capital surplus (*)		2,081,491	1,692,665
	₩	5,171,945	4,783,119

(*) The increase for the year ended December 31, 2019 is ₩388,826 million and others, in terms of the Group recognition, depending on the change in ownership shares caused by the disposal and acquisition of Hyundai Oilbank Co., Ltd.'s stake and Hyundai Electric & Energy Systems Co., Ltd.'s stake in Hyundai Heavy Industries Holdings Co. and the acquisition of treasury stock by Hyundai Engineering & Construction Machinery Co., Ltd.

(ii) Changes in capital surplus for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		**2019**	**2018**
Beginning balance	₩	4,783,119	6,774,613
Substitution (*)		-	(2,000,000)
Others		388,826	8,506
Ending balance	₩	5,171,945	4,783,119

(*) The Group has transferred ₩2 trillion to retained earnings in accordance with the approval in the shareholders' meeting held on December 28, 2018.

26. Hybrid Bonds

(1) Hybrid bonds classified as non-controlling interests as of December 31, 2019 and 2018 issued by Hyundai Oilbank Co., Ltd., a subsidiary, are as follows:

(In millions of won)

Description	Issue	Maturity	Annual interest rate (%)		2019	2018
1st -1 Hybrid bond	2015-12-11	2045-12-11	4.80	₩	160,000	160,000
1st -2 Hybrid bond	2015-12-11	2045-12-11	4.75		65,000	65,000
					225,000	225,000
Issuance costs					(727)	(727)
				₩	224,273	224,273

(2) Terms and conditions of the hybrid bonds issued by Hyundai Oilbank Co., Ltd. as of December 31, 2019 and 2018 are as follows:

(In millions of won)

		1st -1 Hybrid bond	1st -2 Hybrid bond
Amount issued	₩	160,000	65,000
Maturity		30 years (At maturity, it can be extended in accordance with the Group's decision)	
Interest rate		Issue date ~ 2020-12-11: Fixed rate, 4.80% Re-calculated and applied every 5 years, 5-year treasury bond yield + annual 2.87% + annual 2.00% (Step-up clauses)	Issue date ~ 2020-12-11: Fixed rate, 4.75% Re-calculated and applied every 5 years, 5-year treasury bond yield + annual 2.82% + annual 2.00% (Step-up clauses)
Interest payment condition		3 months deferred payment, selective payment postpone is possible	
Other		Depending on the Group's choice, the Group can redeem at the date of 5th anniversary after issuance and every interest payment thereafter.	

The Group has an unconditional option to extend the maturity of hybrid bonds at maturity. Also, payment of interest on the bonds can be postponed at the discretion of the Group. If the payment of interest is postponed, the Group cannot pay any dividend on common stock until the deferred interest is paid in full. The Group classifies hybrid bonds as equity because the Group holds unconditional rights to avoid the contractual obligation to deliver cash or other financial assets to the holder. In case of liquidation, the hybrid bonds are subordinated bonds which have priority over common stocks.

27. Capital Adjustment

(1) Capital adjustment as of December 31, 2019 and 2018 are summarized as follows:

(In millions of won)		2019	2018
Treasury stock (*1, 2)	₩	489,547	489,547
Change in equity of equity method investments		43,296	43,296
Others		14,000	10,258
	₩	546,843	543,101

(*1) These are the equity interests of the Company and the additional equity acquired among the Treasury stock that the parent acquired from KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD. (formerly, Hyundai Heavy Industries Co., Ltd)
(*2) As of December 31, 2019 and 2018, the fair value of the treasury stock held by the parent is ₩562,747 million and ₩576,066 million, respectively.

(2) The Group’s treasury stock as of December 31, 2019 and 2018 are summarized as follows:

(In millions of won, except share data)	2019		2018	
	Number of shares	Carrying amount	Number of shares	Carrying amount
Treasury stock(*)	1,664,931	₩ 489,547	1,664,931	₩ 489,547

(*) These are the equity interests of the Company and the additional equity acquired in 2017 among the treasury stock that the parent acquired KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD. (formerly, Hyundai Heavy Industries Co., Ltd).

28. Accumulated Other Comprehensive Income

(1) Accumulating other comprehensive income as of December 31, 2019 and 2018 are summarized as follows:

(In millions of won)		2019	2018
Changes in fair value of financial Instruments measured at FVOCI	₩	(60)	(59)
Effective portion of changes in fair value of cash flow hedges		2,607	10,378
Exchange differences on translating foreign operations		4,156	(2,000)
Changes in equity of equity method investments		(78,624)	(83,124)
Revaluation of property, plant and equipment		174,091	178,836
	₩	102,170	104,031

28. Accumulated Other Comprehensive Income, Continued

(2) Other comprehensive income (loss) for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019			2018		
		Other comprehensive income (loss)	**Owners of the Company**	**Non-controlling interests**	**Other comprehensive income (loss)**	**Owners of the Company**	**Non-controlling interests**
Changes in fair value of financial instruments measured at FVOCI	₩	(2)	(1)	(1)	(59)	(59)	-
Effective portion of changes in fair value of cash flows hedges		(6,870)	(7,771)	901	11,579	10,571	1,008
Exchange differences on translating foreign operations		20,004	6,156	13,848	(1,998)	1,081	(3,079)
Change in equity of equity method investments		4,502	4,500	2	31,670	31,663	7
Actuarial gains and losses		(23,959)	(17,934)	(6,025)	(18,797)	(9,516)	(9,281)
Retained earnings of equity method investments		(5,474)	(5,470)	(4)	(23,126)	(23,125)	(1)
Revaluation of property, plant and equipment		-	-	-	1,246	434	812
	₩	(11,799)	(20,520)	8,721	515	11,049	(10,534)

29. Retained Earnings

(1) Retained earnings as of December 31, 2019 and 2018 are summarized as follows:

(In millions of won)		2019	2018
Voluntary reserves	₩	280,025	240,531
Unappropriated retained earnings		2,903,233	3,061,478
	₩	3,183,258	3,302,009

(2) Changes in retained earnings for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019	2018
Beginning balance	₩	3,302,009	946,761
Adjustment on initial application of K-IFRS 1109, K-IFRS No.1115 & K-IFRS No.1116 (net of tax)		(2,470)	110,853
Profit for the year		115,347	283,985
Less: non-controlling interests		57,883	(15,367)
Retained earnings of equity method investments		(5,470)	(23,125)
Actuarial gains and losses		(17,934)	(9,516)
Reclassification revaluation surplus		4,745	1,262
Substitution (*)		-	2,000,000
Tax effect of changes in fair value of financial instruments measured at FVOCI		-	7,156
Dividend		(270,501)	-
Others		(351)	-
Ending balance	₩	3,183,258	3,302,009

(*) Transferred from capital surplus for the year ended December 31, 2018 (See Note 25).

30. Acquisition and Disposal of Subsidiary and Business

(1) Business combinations

1) General information
The Group acquired 100% of TNA Co., Ltd. shares and incorporated them into subsidiaries, and merged them with Hyundai Core Motion Co., Ltd. which was established as a spin-off for the year ended December 31,2019.

2) Transfer consideration
As of the acquisition date, cash consideration transferred for acquisition was ₩2,511 million.

3) The identifiable assets and liabilities
As of the acquisition date, the fair values of the identifiable assets and liabilities are as follows:

(In millions of won)

		Carrying amount
Assets		
Cash and cash equivalents	₩	151
Short-term and long-term financial assets		4
Trade and other receivables		162
Inventories		1,275
Property, plant and equipment		3,163
Intangible assets		46
Other assets		2,703
		7,504
Liabilities		
Short-term and long-term financial liabilities		7,709
Trade and other payables		885
Other liabilities		301
		8,895
	₩	(1,391)

4) The goodwill from business combinations is as follows:

(In millions of won)

		Carrying amount
Acquisition costs	₩	2,511
Fair values of net assets		(1,391)
Goodwill		3,902

Subsidiary TNA Co., Ltd. was merged with Hyundai Core Motion Co., Ltd., another subsidiary in the Group (subsidiary of Hyundai Construction Machinery Co., Ltd.) for the year ended December 31, 2019.

30. Acquisition and Disposal of Subsidiary and Business, Continued

(2) Changes in ownership interests in subsidiaries

1) Increase or decrease in ownership interest

The effects of changes in the ownership interest of a parent in a subsidiary for the year ended December 31, 2019 on equity, etc. attributable to the owner of the parent are as follows:

a. In case the ownership interest has increased.

(In millions of won)

	Effective interest rate before transaction	Effective interest rate after transaction	Reasons for equity fluctuation	Acquisition value, etc.	Increase (decrease) in non-controlling interests	Increase (decrease) in controlling shareholders
Hyundai Electric & Energy System Co., Ltd	36.17%	37.84%	Acquisition of Hyundai Electric & Energy Systems Co., Ltd. stake in Hyundai Heavy Industries Holding Co., Ltd.	9,046	(14,557)	14,557
Hyundai Construction Equipment Co., Ltd	33.76%	34.24%	Acquisition of treasury stock in Hyundai Construction Equipment Co., Ltd	13,764	(16,193)	16,193

b. In case ownership interest has decreased.

(In millions of won)

	Effective interest rate before transaction	Effective interest rate after transaction	Reasons for equity fluctuation	Acquisition value, etc.	Increase (decrease) in non-controlling interests	Increase (decrease) in controlling shareholders
Hyundai Electric & Energy System Co., Ltd	37.84%	37.28%	Hyundai Heavy Industries Holding Co., Ltd. Acquires shares in paid-in capital increase of Hyundai Electric & Energy Systems Co., Ltd. By participating in capital increase	40,188	69,730	36,117
Hyundai Oilbank Co., Ltd.	91.13%	74.13%	Hyundai Heavy Industries Holding Co. to sell its stake in Hyundai Oilbank Co., Ltd (*)	1,374,912	845,740	385,456

(*) As of the end of December 31, 2019, the Company has entered into an inter-shareholder agreement with Aramco Overseas Company B.V., which gives the parent a call option for a 2.9% stake in Hyundai Oilbank Co., Ltd. and includes the value of the option in the value of sale.

2) Disposal of subsidiary

During the year, the Group lost control by disposing of all of its stakes in its subsidiaries, Yantai Hyundai Moon Heavy Industries Co., Ltd. Beijing Hyundai Jingcheng Construction Machinery Co., Ltd. respectively, and the profits recognized as disposals are ₩1,350 million and ₩1,103 million, respectively.

30. Acquisition and Disposal of Subsidiary and Business, Continued

(3) Acquisition of a business segment

1) General information
The Group acquired the storage business division of Pyeongtaek Tank Terminal from PLS Co., Ltd. and GS E&R Co., Ltd for the year ended December 31, 2019.

2) Consideration transferred
Consideration transferred for acquisition was ₩39,400 million.

(In millions of won)

		Business transferee	Acquisition of non-current assets
Date		2019-02-16	2019-07-31
Counter party		PLS Co., Ltd.	GS E&R Co., Ltd
Acquisition object		Assets, contracts, liabilities, workers, facts, and others related to the Pyeongtaek Tank Terminal storage project operated by PLS Co., Ltd.	Land, buildings, storage tanks, and others
Amount	₩	4,400	35,000

3) As of the acquisition date, the fair values of the identifiable assets and liabilities are as follows:

(In millions of won)

		Amount
Assets		
Cash and cash equivalents	₩	42
Property, plant and equipment		36,977
		37,019
Liabilities		
Other liabilities		(42)
Net Assets	₩	36,977

30. Acquisition and Disposal of Subsidiary and Business, Continued

(3) Acquisition of a business segment, continued

4) The goodwill from business combinations is as follows:

(In millions of won)		Amount
Acquisition costs	₩	39,400
Net assets fair- values		36,977
Goodwill	₩	2,423

(4) Disposition of business segment
Hyundai Electric & Energy Systems Co., Ltd., a subsidiary company, transferred the ship control business to Hyundai Heavy Industries Co., Ltd., which is a related party, and the loss recognized as disposal was ₩1,243 million.

(5) Valuation techniques used to measure fair value of acquired significant assets are as follows:

Acquisition assets	Valuation technique
Inventories	Market approach method: The fair value is determined based on the estimated selling amount in the normal course of business less the additional costs of completion and sale, and a reasonable profit margin
Property, plant and equipment	Market approach or cost approach: The fair value considers the market prices of similar assets or depreciated replacement cost
Intangible assets	Multi-period excess earning method: The fair value considers the present value of the net cash flows expected to be generated by customer relationships

31. Revenue

(1) Revenue streams

Details of source of revenue for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019	2018
Revenue from contracts with customers	₩	26,599,735	27,227,469
Equity Income on Investments		50,927	29,009
Gain (loss) on valuation of hedging accounting		(20,329)	172
	₩	26,630,333	27,256,650

(2) Disaggregation of revenue

The disaggregated revenue for the years ended December 31, 2019 and 2018 is as follows:

(In millions of won)		2019	2018
Main products:			
Robot	₩	288,499	266,674
Oil refining		31,094,118	29,953,742
Electrical electronics		1,882,708	2,026,398
Construction machinery		3,969,616	4,462,222
Others		902,127	481,628
Consolidation adjustments (*)		(11,537,333)	(9,963,195)
		26,599,735	27,227,469
Region:			
Republic of Korea		18,924,574	18,988,677
North America		618,441	551,605
Asia		6,594,582	7,197,231
Europe		456,874	486,412
Others		5,264	3,544
		26,599,735	27,227,469
Revenue recognition period:			
Recognized when the goods are delivered		26,195,866	27,119,759
Recognized over time as services are provided.		403,869	107,710
		26,599,735	27,227,469
Contract period:			
Short-term contract (within one year)		25,408,688	26,466,487
Long-term contract (more than one year)		1,191,047	760,982
	₩	26,599,735	27,227,469

(*) The consolidation adjustments are the amount of intra-group transactions and others.

There is no single external customer whose revenue amounts more than 10% of the Group for the years ended December 31, 2019 and 2018

31. Revenue, Continued

(3) Contract balances
Receivables, contract assets and contract liabilities from contracts with customers as of December 31, 2019 and 2018 are as follows:

(In millions of won)		2019		2018	
		Current	Non-current	Current	Non-current
Trade receivables	₩	2,139,712	10,198	2,259,095	24,547
Contract assets		288,716	-	170,579	-
Contract liabilities		450,302	65,680	295,690	-

(4) Performance obligations and revenue recognition policies

The Group's performance obligations and revenue recognition policies are the same for the year end December 31, 2018 (see Note 4(22)).

(5) Construction contracts

1) Changes in outstanding contracts for the year ended December 31, 2019 is as follows:

(In millions of won)		2019			
		Robot	Electrical electronics	Others	Total
Beginning balance(*)	₩	-	37,587	473,495	511,082
New contracts		18,078	-	315,738	333,816
Recognized as revenue		(2,128)	(10,931)	(314,346)	(327,405)
Ending balance	₩	15,950	26,656	474,887	517,493

(*) The beginning balance includes the impact from translation of the contract balance denominated in foreign currency to Korean Won using on the appropriate exchange rate.

In connection with the construction contract, the Group has provided certain amount of deposits or letters from financial institutions for various guarantees (e.g. bid bond, performance bond, refund guarantee, maintenance bond, etc.).

31. Revenue, Continued

(5) Construction contracts, continued

2) Accumulated profit and loss of construction in progress as of December 31, 2019 is as follows:

(In millions of won)

		2019						
					Receivables on construction contracts			
		Accumulated revenue of construction	Accumulated cost of construction	Accumulated profit (loss) of construction	Billed receivables (*)	Contracts assets (*)	Contract liabilities	Provisions for construction loss
Robot	₩	2,128	1,992	136	-	1,295	4,591	135
Electrical electronics		250,173	273,665	(23,492)	10,295	2,854	9,087	13,290
Others		196,964	175,922	21,042	-	29,293	126,899	-
	₩	449,265	451,579	(2,314)	10,295	33,442	140,577	13,425

(*) As of December 31, 2019, the allowance for receivables on construction contracts amounts to ₩697 million.

There is no amount of retentions according to the contract terms among the receivables on construction contracts.

The Group mainly collect the consideration based on the milestone payment method. Therefore, receivables, contract assets and contract liabilities might be changed according to the progress of construction.

3) The effect of changes in estimated total contract costs

(i) Effect of changes in estimated total contract costs
For the year ended December 31, 2019, due to the factors causing the change in estimated total contract costs, the estimated total contract costs for contracts in progress have changed. Details of change in profits or loss for the current year and the future period and the impact on contract assets and contract liabilities are as follows:

(In millions of won)

				Effect on profit (loss) of contract (*)				
		Changes in total contract revenue (*)	Changes in total estimated contract costs (*)	Current year	Future period	Total	Changes in contract assets	Changes in contract liabilities
Electrical electronics	₩	4	21,686	(21,768)	86	(21,682)	(119)	698
Others		(1,065)	(2,806)	2,268	(527)	1,741	(1,162)	(1,804)
	₩	(1,061)	18,880	(19,500)	(441)	(19,941)	(1,281)	(1,106)

(*) Changes in entire contract revenue (including foreign currency fluctuation) were included.

31. Revenue, Continued

(5) Construction contracts, continued

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

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

Effect on profit or loss for the current period and future period is calculated based on the total contract costs and total contract revenue estimated on the basis of situations generated in the current period. These estimations could be changed by variation of actual situations in the future.

(ii) Sensitivity analysis based on changes in the estimated total contract costs

The amount of contract assets and contract liabilities affected by the rate of progress which is determined by accumulated cost incurred divided by estimated total contract costs. Estimated total contract costs are calculated based on estimation on the materials cost, labour cost and construction period, and has a variance risk related to the fluctuation of exchange rate, changes in field installation cost, etc.

The Group has entered into foreign currency forward contracts to hedge the risk related to exchange rate fluctuation for reducing the short-term price risk.

The impacts on profit or loss of current period and future periods, contract assets and contract liabilities in case field installation cost changes 10% are as follows:

(In millions of won)

		Effect on profit or loss this year		**Effect on profit or loss in the future**		**Changes in contract assets**		**Changes in contract liabilities**	
		10% increase	**10% decrease**	**10% increase**	**10% decrease**	**10% increase**	**10% decrease**	**10% increase**	**10% decrease**
Electrical electronics	₩	(2,594)	2,625	(150)	119	(455)	465	661	(455)

32. Selling, General and Administrative Expenses

Selling, general and administrative expenses for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019	2018
Salaries	₩	191,050	175,460
Bonus		51,019	60,071
Post-employment benefit costs		29,295	50,675
Employee welfare		50,729	52,416
Depreciation		35,377	35,404
Right-of-use assets depreciation		33,879	-
Bad debt expenses		52,637	6,676
Ordinary development costs		74,960	69,990
Advertising		51,168	44,500
Printing		1,092	1,134
Power cost		2,839	2,166
Warranty expenses		114,605	42,296
Insurance		6,542	6,460
Office supplies expenses		2,231	3,282
Supply expenses		769	1,810
Utility expenses		2,100	2,461
Repairs		5,467	6,850
Travel		19,456	18,234
Research		11,091	13,633
Training		3,562	3,128
Service charges		82,459	88,271
Transportation		156,833	154,342
Cost of ceremony		1,515	2,064
Rent		5,312	40,833
IT service fee		5,028	2,643
Entertainment		5,697	5,753
Taxes and dues		19,533	18,592
Service contract expenses		94,813	73,884
Automobile maintenance		4,418	4,552
Sales commissions		29,796	34,371
Others		17,834	12,851
	₩	1,163,106	1,034,802

33. Operating Segments

The Group has five reportable segments, as described below, which are its strategic business units and reporting classification and measurement criterion are identical with it reported in the consolidated financial statement as of December 31, 2018.

(i) Robot: Manufacturing and investment of industrial and LCD robots
(ii) Oil refining: Oil refining business
(iii) Electrical electronics: Manufacturing and sale of transformers, low and medium voltage circuit breakers, switchgears, power electronics and control systems and wind turbine systems
(iv) Construction equipment: Manufacturing and sale of construction equipment and wheel loaders
(v) Others: Engineering service, engine A/S and others

Information about these reportable segments are as follows:

(1) The financial performance of each segment

(In millions of won)	2019				
	Revenue	**Inter-segment revenue**	**Operating profit (loss)**	**Profit (loss)**	**Depreciation**
Robot	₩ 517,376	(204,195)	246,593	589,876	4,596
Oil refining	31,094,118	(10,187,819)	523,766	345,098	528,280
Electrical electronics	1,876,256	(119,798)	(153,414)	(266,979)	30,200
Construction equipment	3,955,740	(1,106,621)	157,664	77,724	45,851
Others	902,127	(96,851)	107,870	88,429	3,792
Consolidation adjustments (*)	(11,715,284)	11,715,284	(215,885)	(718,801)	(5,940)
	₩ 26,630,333	-	666,594	115,347	606,779

(*) Consolidation adjustments are made by eliminating intra-group transactions and unrealized profits and losses, and valuations of joint venture and investments in associates using the equity method.

(In millions of won)	2018				
	Revenue	**Inter-segment revenue**	**Operating profit (loss)**	**Profit (loss)**	**Depreciation**
Robot	₩ 579,339	(289,776)	337,848	130,596	2,337
Oil refining	29,953,742	(8,558,691)	659,552	342,669	330,522
Electrical electronics	2,026,253	(92,258)	(97,806)	(188,259)	38,344
Construction equipment	4,462,539	(1,232,482)	239,165	170,789	38,161
Others	481,628	(73,644)	76,281	57,889	696
Consolidation adjustments (*)	(10,246,851)	10,246,851	(353,613)	(229,699)	10,748
	₩ 27,256,650	-	861,427	283,985	420,808

(*) Consolidation adjustments are made by eliminating intra-group transactions and unrealized profits and losses, and valuations of joint venture and investments in associates using the equity method.

33. Operating Segments, Continued

(2) The assets (liabilities) of each segment

(In millions of won)		2019	
		Assets	**Liabilities**
Robot	₩	8,608,018	2,756,829
Oil refining		14,513,688	8,178,067
Electrical electronics		2,447,965	1,599,993
Construction equipment		3,952,165	1,825,872
Others		657,050	320,839
Consolidation adjustments (*)		(4,463,351)	(850,760)
	₩	25,715,535	13,830,840

(*) Consolidation adjustments are made by eliminating intra-group transactions and unrealized profits and losses, and valuations of joint venture and investments in associates using the equity method.

(In millions of won)		2018	
		Assets	**Liabilities**
Robot	₩	8,150,736	2,625,447
Oil refining		12,475,997	6,933,070
Electrical electronics		2,490,207	1,488,475
Construction equipment		4,032,825	1,990,495
Others		426,099	185,649
Consolidation adjustments (*)		(4,228,044)	(429,476)
	₩	23,347,820	12,793,660

(*) Consolidation adjustments are made by eliminating intra-group transactions and unrealized profits and losses, and valuations of joint venture and investments in associates using the equity method.

(3) Geographical information

(In millions of won)		2019	
		Revenue	**Inter-segment revenue**
Korea	₩	27,947,852	(8,992,680)
North America		626,049	(7,608)
Asia		9,294,103	(2,699,521)
Europe		472,349	(15,475)
Others		5,264	-
Consolidation adjustments (*)		(11,715,284)	11,715,284
	₩	26,630,333	-

(*) Consolidation adjustments are made by eliminating intra-group transactions and unrealized profits and losses, and valuations of joint venture and investments in associates using the equity method.

33. Operating Segments, Continued

(3) Geographical information, continued

(In millions of won)		2018	
		Revenue	**Inter-segment revenue**
Korea	₩	28,081,310	(9,063,452)
North America		560,519	(8,914)
Asia		8,353,405	(1,156,174)
Europe		504,723	(18,311)
Others		3,544	-
Consolidation adjustments (*)		(10,246,851)	10,246,851
	₩	27,256,650	-

(*) Consolidation adjustments are made by eliminating intra-group transactions and unrealized profits and losses, and valuations of joint venture and investments in associates using the equity method.

(4) Non-current assets

(In millions of won)		**2019**	**2018**
Korea	₩	8,991,360	7,800,933
North America		133,550	94,613
Asia		131,842	117,399
Europe		54,355	54,824
Others		35,381	36,442
		9,346,488	8,104,211
Consolidation adjustments (*1,2)		1,793,364	1,883,991
	₩	11,139,852	9,988,202

(*1) Consolidation adjustments are made by eliminating intra-group transactions and unrealized profits and losses.
(*2) It represents the sum of investment property, property, plant and equipment, intangible assets and right-of-use assets.

34. Nature of Expenses

The classification of expenses by nature for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		**2019**	**2018**
Changes in inventories	₩	441,647	(842,714)
Purchase of inventories		22,368,403	24,515,828
Depreciation		465,743	420,808
Right-of-use depreciation		141,036	-
Amortization		73,144	81,139
Labor cost		786,045	804,909
Other expenses		1,687,722	1,415,253
	₩	25,963,740	26,395,223

Total expenses consist of cost of sales and selling, general and administrative expenses.

35. Finance Income and Finance Costs

Finance income and finance costs for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019	2018
Finance income:			
Interest income	₩	41,028	24,721
Dividend income		59	24
Gain on valuation of financial instruments measured at FVTPL		291	14,571
Gain on disposal of financial instruments assets measured at FVTPL		21,038	12,841
Gain on foreign currency translation		38,245	28,492
Gain on foreign currency transactions		362,457	325,745
Gain on valuation of derivatives		21,312	-
Others		399	688
	₩	484,829	407,082
Finance costs:			
Interest expense	₩	292,438	224,878
Loss on valuation of financial instruments measured at FVTPL		166	159
Loss on disposal of financial instruments measured at FVTPL		28,730	8,977
Loss on foreign currency translation		39,685	32,311
Loss on foreign currency transactions		395,135	372,096
Loss on valuation of derivatives		-	106
Loss on derivatives transactions		-	255
Others		-	15
	₩	756,154	638,797

36. Other Non-operating Income and Other Non-operating Expenses

Other non-operating income and other non-operating expenses for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019	2018
Other non-operating income:			
Gain on disposal of investment property	₩	438	-
Gain on disposal of property, plant and equipment		6,291	3,772
Gain on disposal of right-of-use assets		3,357	-
Gain on disposal of intangible assets		603	-
Gain on disposal of other investment assets		389	-
Reversal of other allowance doubtful accounts		590	355
Reversal of impairment loss on property, plant and equipment		1,608	-
Reversal of impairment loss on intangible assets		106	-
Others		52,260	69,627
	₩	65,642	73,754
Other non-operating expenses:			
Service charges	₩	5,023	7,049
Loss on disposal of investments in associates		-	65,565
Loss on disposal of property, plant and equipment		15,050	4,733
Loss on disposal of right-of-use assets		4,738	-
Impairment loss on right-of-use assets		1,791	-
Impairment loss on property, plant and equipment		58,091	65,931
Loss on disposal of intangible assets		1,525	-
Impairment loss on intangible assets		33,861	80,893
Loss on disposal of other investment assets		2,841	-
Other bad debt expenses		15,604	-
Donation		13,758	11,390
Others		145,434	129,827
	₩	297,716	365,388

37. Income Tax Expense

(1) The components of income tax expense for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019	2018
Current tax expense	₩	317,907	218,469
Adjustment for prior periods		14,928	-
Origination and reversal of temporary differences		(119,002)	(89,633)
Income tax recognized in other comprehensive income		(126,383)	18,367
Others		13	(124)
	₩	87,463	147,079

(2) Income tax recognized directly in other comprehensive income for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019	2018
Gains (loss) on valuation of derivatives	₩	(832)	(3,362)
Exchange differences on translating foreign operations		196	(170)
Change in equity of equity method investments		(9)	(30)
Defined benefit plan actuarial gain		7,238	6,861
Revaluation of property, plant and equipment		4,386	2,541
Retained earnings of equity method investments		11	5,322
Gains (loss) on valuation of financial instruments measured at FVOCI		-	7,205
Capital surplus		(136,842)	-
Others		(531)	-
Income tax recognized directly in other comprehensive income	₩	(126,383)	18,367

37. Income Tax Expense, Continued

(3) Reconciliation of effective tax rate for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019	2018
Profit before income tax	₩	202,811	431,064
Income tax using each component's statutory tax rate		64,455	81,445
Adjustment for:			
- Tax effect of non-deductible expenses		14,385	27,522
- Tax effect of non-taxable income		(77,567)	(15,052)
- Tax credits		(5,801)	(3,486)
- Current adjustments for prior periods		14,928	-
- Temporary differences of deferred tax not recognized		38,431	32,364
- Tax effect of tax rate change		9,628	12,930
- Others		29,004	11,356
Income tax expense	₩	87,463	147,079
Effective tax rate		43.13%	34.12%

(4) Deferred tax expenses by origination and reversal of deferred tax assets and liabilities and temporary differences for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019	2018
Deferred tax assets (liabilities) at the end of the period	₩	(253,479)	(381,298)
Deferred tax assets (liabilities) at the beginning of the period		(381,298)	(483,093)
Others		8,817	12,162
Deferred tax effects by origination and reversal of temporary differences	₩	(119,002)	(89,633)

(5) As of December 31, 2019, the tax effects of temporary difference were calculated using the enacted statutory tax rate for the fiscal period when the temporary differences are expected to be reversed.

(6) The Group sets off a deferred tax asset against a deferred tax liability only if it relates to income taxes levied by the same taxation authority and has a legally enforceable right to set off current tax assets against current tax liabilities.

37. Income Tax Expense, Continued

(7) Changes in deferred tax assets (liabilities) for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019		
		Beginning balance	Change	Ending balance
Trade and other receivables	₩	26,436	18,622	45,058
Asset revaluation		(240,446)	11,750	(228,696)
Property, plant and equipment		27,231	12,449	39,680
Derivatives		119	(949)	(830)
Accrued expenses		6,964	(259)	6,705
Provisions		32,980	7,375	40,355
Financial assets measured at FVOCI		48	1	49
Others		(234,630)	78,830	(155,800)
	₩	(381,298)	127,819	(253,479)

※ Recognition amounts of deferred tax assets against unused tax losses are ₩81,304 million as of December 31, 2019.

(In millions of won)		2018		
		Beginning balance	Change	Ending balance
Trade and other receivables	₩	22,321	4,115	26,436
Asset revaluation		(246,637)	6,191	(240,446)
Property, plant and equipment		12,838	14,393	27,231
Derivatives		4,807	(4,688)	119
Accrued expenses		7,932	(968)	6,964
Provisions		47,040	(14,060)	32,980
Financial assets measured at FVOCI		-	48	48
Others		(331,394)	96,764	(234,630)
	₩	(483,093)	101,795	(381,298)

※ Recognition amounts of deferred tax assets against unused tax losses are ₩69,311 million as of December 31, 2018.

(8) Since it is probable that future taxable profit will be available against which the unused tax losses can be utilized, the Group recognized the related deferred tax assets.

38. Earnings per Share

(1) Basic earnings per share for the years ended December 31, 2019 and 2018 are as follows:

		2019	2018
Profit for the year, attributable to the owner of the Company *(In millions of won)*	₩	173,231	268,619
Weighted average number of ordinary shares outstanding *(In thousands of shares) (*)*		14,622	14,622
Earnings per share *(In won)*	₩	11,848	18,371

(*) Weighted average number of ordinary shares

(In shares)	2019		
	Number of shares outstanding	**Weighted average**	**Weighted average number of shares outstanding**
Beginning balance	16,286,617	365/365	16,286,617
Treasury stock	(1,664,931)	365/365	(1,664,931)
Weighted average number of ordinary shares outstanding			14,621,686

(In shares)	2018		
	Number of shares outstanding	**Weighted average**	**Weighted average number of shares outstanding**
Beginning balance	16,286,617	365/365	16,286,617
Treasury stock	(1,664,931)	365/365	(1,664,931)
Weighted average number of ordinary shares outstanding			14,621,686

(2) As the Group has no dilutive securities for the years ended December 31, 2019 and 2018, diluted earnings per share have not been calculated.

39. Cash Generated from Operations

(1) Cash generated from operations for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019	2018
Profit for the year	₩	115,347	283,985
Adjustments for:			
Post-employment benefit costs		54,281	48,179
Depreciation		465,743	420,808
Right-of-use assets depreciation		141,036	-
Amortization		73,144	81,139
Bad debt expenses		52,637	6,676
Finance income		(79,660)	(76,416)
Finance costs		351,760	257,454
Share of profit of equity accounted investees		(50,927)	(29,009)
Other non-operating income		(37,044)	(18,067)
Other non-operating expenses		146,659	314,728
Share of profit of equity accounted investees		(39,615)	(92,985)
Income tax expense		87,463	147,079
Finance income		(24,805)	(28,263)
Finance costs		2,733	2,192
Changes in assets and liabilities:			
Trade receivables		(66,556)	718,628
Other receivables		18,485	(56,878)
Contract assets		(136,416)	(22,800)
Inventories		441,647	(842,714)
Derivatives		(11,332)	169
Firm commitments		-	186
Other current assets		(23,473)	(54,195)
Long-term trade receivables		14,892	(64,450)
Other non-current assets		187	(903)
Trade payables		(269,835)	(77,344)
Other payables		88,157	310,447
Contract liabilities		200,217	62,712
Other current liabilities		15,065	8,406
Long-term other payables		(3,737)	(7,122)
Benefits paid		(49,738)	(41,890)
Succession of benefits		5,613	7,884
Plan assets		(32,577)	(10,343)
Long-term provisions		41,093	(43,984)
Other non-current liabilities		(1,769)	1,415
	₩	1,488,675	1,204,724

39. Cash Generated from Operations, Continued

(2) Significant transactions that do not involve cash inflows and outflows operations for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019	2018
Reclassification of construction-in-progress	₩	550,849	1,113,057
Reclassification of current portion of bond and borrowings		1,113,362	1,396,043
Recognition of right-of-use assets and lease liabilities		719,705	-

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

(1) Categories of financial instruments as of December 31, 2019 and 2018 are summarized as follows:

(In millions of won)

		2019					
		Carrying amounts					
		Fair value – hedging instruments	Financial instruments measured at FVTPL	Financial instruments measured at FVOCI	Financial instruments measured at amortized cost	Total	Fair values
Assets carried at fair value:							
Derivative assets	₩	25,477	-	-	-	25,477	25,477
Financial instruments		-	377,265	13	-	377,278	377,278
		25,477	377,265	13	-	402,755	402,755
Assets carried at amortized cost:							
Cash and cash equivalents		-	-	-	2,028,485	2,028,485	-
Financial instruments (*)		-	-	10	324,209	324,219	-
Trade and other receivables		-	-	-	3,079,794	3,079,794	-
		-	-	10	5,432,488	5,432,498	-
Financial assets total		25,477	377,265	23	5,432,488	5,835,253	402,755
Liabilities carried at fair value:							
Financial liabilities		-	-	-	-	-	-
Derivative liabilities		20,661	-	-	-	20,661	20,661
		20,661	-	-	-	20,661	20,661
Liabilities carried at amortized cost:							
Borrowings		-	-	-	4,605,383	4,605,383	-
Debentures		-	-	-	3,462,882	3,462,882	-
Trade and other payables		-	-	-	3,558,002	3,558,002	-
Lease liabilities		-	-	-	581,351	581,351	
		-	-	-	12,207,618	12,207,618	-
Financial liabilities total	₩	20,661	-	-	12,207,618	12,228,279	20,661

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

(1) Categories of financial instruments as of December 31, 2019 and 2018 are summarized as follows, continued:

(In millions of won)

		2018					
		Carrying amounts					
		Fair value –hedging instruments	Financial instruments measured at FVTPL	Financial instruments measured at FVOCI	Financial instruments measured at amortized cost	Total	Fair values
Assets carried at fair value:							
Derivative assets	₩	17,560	-	-	-	17,560	17,560
Financial instruments		-	39,083	34	-	39,117	39,117
		17,560	39,083	34	-	56,677	56,677
Assets carried at amortized cost:							
Cash and cash equivalents		-	-	-	1,099,824	1,099,824	-
Financial instruments(*)		-	-	671	204,732	205,403	-
Trade and other receivables		-	-	-	3,006,739	3,006,739	-
		-	-	671	4,311,295	4,311,966	-
Financial assets total		17,560	39,083	705	4,311,295	4,368,643	56,677
Liabilities carried at fair value:							
Financial liabilities		-	4,771	-	-	4,771	4,771
Derivative liabilities		4,872	-	-	-	4,872	4,872
		4,872	4,771	-	-	9,643	9,643
Liabilities carried at amortized cost:							
Borrowings		-	-	-	4,892,440	4,892,440	-
Debentures		-	-	-	2,982,322	2,982,322	-
Trade and other payables		-	-	-	3,630,658	3,630,658	-
		-	-	-	11,505,420	11,505,420	-
Financial liabilities total	₩	4,872	4,771	-	11,505,420	11,515,063	9,643

(*) The carrying amount was used as there would be no significant difference between the carrying amount and the fair value.

The Group did not present fair value for financial assets and financial liabilities whose carrying amount is deemed to be a reasonable approximation of fair value.

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

(2) Financial instruments income and costs by categories for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019				
		Fair value – hedging instruments	Financial instruments measured at FVTPL	Financial instruments measured at FVOCI	Financial assets at amortized cost	Total
Selling, general and administrative expenses						
Bad debt expense	₩	-	-	-	(52,637)	(52,637)
Finance income						
Interest income		-	-	-	41,028	41,028
Dividend income		-	59	-	-	59
Gain on valuation of financial instruments		-	291	-	-	291
Gain on disposal of financial instruments		-	21,038	-	-	21,038
Gain on foreign currency translation		-	-	-	38,245	38,245
Gain on foreign currency transactions		-	-	-	362,457	362,457
Gain on derivatives transactions		-	21,312	-	-	21,312
Others		-	-	-	399	399
Finance cost						
Interest expense		-	-	-	(292,438)	(292,438)
Loss on valuation of financial instruments		-	(166)	-	-	(166)
Loss on disposal of financial instruments		-	(28,730)	-	-	(28,730)
Loss on foreign currency translation		-	-	-	(39,685)	(39,685)
Loss on foreign currency transaction		-	-	-	(395,135)	(395,135)
Other non- operating income (loss)						
Reversal of other allowance doubtful accounts		-	-	-	590	590
Other bad debt expenses		-	-	-	(15,604)	(15,604)
Other comprehensive income (loss)						
Gain(loss) on valuation of derivative		(6,870)	-	-	-	(6,870)
Losses on valuation of financial instruments at FVOCI		-	-	(2)	-	(2)
	₩	(6,870)	13,804	(2)	(352,780)	(345,848)

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

(2) Financial instruments income and costs by categories for the years ended December 31, 2019 and 2018 are as follows, continued:

(In millions of won)

		2018				
		Fair value – hedging instruments	Financial instruments measured at FVTPL	Financial instruments measured at FVOCI	Financial assets at amortized cost	Total
Selling, general and administrative expenses						
Bad debt expense	₩	-	-	-	(6,676)	(6,676)
Finance income						
Interest income		-	-	-	24,721	24,721
Dividend income		-	24	-	-	24
Gain on valuation of financial instruments		-	14,571	-	-	14,571
Gain on disposal of financial instruments		-	12,841	-	-	12,841
Gain on foreign currency translation		-	-	-	28,492	28,492
Gain on foreign currency transactions		-	-	-	325,745	325,745
Others		-	-	-	688	688
Finance cost						
Interest expense		-	-	-	(224,878)	(224,878)
Loss on valuation of financial instruments		-	(159)	-	-	(159)
Loss on disposal of financial instruments		-	(8,977)	-	-	(8,977)
Loss on foreign currency translation		-	-	-	(32,311)	(32,311)
Loss on foreign currency transaction		-	-	-	(372,096)	(372,096)
Loss on valuation of derivatives transactions		(106)	-	-	-	(106)
Loss on derivatives transactions		(255)	-	-	-	(255)
Others		-	-	-	(15)	(15)
Other non- operating income (loss)						
Reversal of other allowance doubtful accounts		-	-	-	355	355
Other comprehensive income (loss)						
Gain(loss) on valuation of derivative		11,579	-	-	-	11,579
Losses on valuation of financial instruments at FVOCI		-	-	(59)	-	(59)
	₩	11,218	18,300	(59)	(255,975)	(226,516)

41. Financial Instruments

(1) Credit risk

(i) Exposure to credit risk

The carrying amount of financial assets and contract assets represents the maximum credit exposure. The maximum exposure to credit risk as of December 31, 2019 and 2018 are as follows:

(In millions of won)		2019	2018
Cash and cash equivalents (*)	₩	2,028,030	1,099,194
Fair value –hedging instruments		25,477	17,560
Financial instruments measured at FVTPL		377,265	39,083
Financial instruments		324,209	204,731
Trade receivables and other receivables		3,079,794	3,006,739
Contract asset		288,716	170,579
	₩	6,123,491	4,537,886

(*) Cash in hand were excluded.

The maximum exposure to credit risk for financial guarantee contracts is ₩3,721,197 million as of December 31, 2019 (See notes 42 and 44).

The maximum exposure to credit risk for financial assets at amortized cost (including contract asset) at the reporting date by geographic region are as follows:

(In millions of won)		2019	2018
Korea	₩	1,381,046	1,915,527
North America		275,579	156,513
Asia		1,701,957	1,107,574
Europe		179,875	137,475
Others		154,262	64,960
	₩	3,692,719	3,382,049

(ii) Impairment loss

The aging of financial assets at amortized cost (including contract asset) and the related allowance for impairment as of December 31, 2019 and 2018 are as follows:

(In millions of won)		2019		2018	
		Gross	Impairment	Gross	Impairment
Not past due	₩	2,982,197	(52,010)	2,693,854	(49,099)
Past due up to 6 months		621,256	(23,976)	493,058	(4,208)
Past due 6~12 months		102,306	(14,521)	108,977	(7,247)
Past due 1~3 years		84,545	(28,706)	156,684	(29,620)
More than 3 years		254,275	(232,647)	271,775	(252,125)
	₩	4,044,579	(351,860)	3,724,348	(342,299)

41. Financial Instruments, Continued

(1) Credit Risk, continued

(ii) Impairment loss, continued

The movement in the allowance for impairment in respect of financial assets at amortized cost (including contract asset) for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019	2018
Beginning balance	₩	342,299	101,142
Bad debt expenses (reversal of allowance accounts)		42,106	(11,839)
Write-offs		(2,480)	(23,874)
Effects of changes in scope of consolidation		(30,065)	276,870
Ending balance	₩	351,860	342,299

The allowance accounts in respect of financial assets at amortized cost (including contract asset) are used to record impairment losses unless the Group is satisfied that all collection measures have been exhausted. At that point, the amounts are considered irrecoverable and are written off against the financial asset directly.

For the years ended December 31, 2019 and 2018 impairment losses and impairment reversals that occur in financial assets at amortized cost (including contract asset) recorded as other non-operating income are as follows:

(In millions of won)		2019	2018
Other bad debt expense	₩	(15,604)	-
Reversal of other allowance doubtful accounts		590	355
	₩	(15,014)	355

41. Financial Instruments, Continued

(2) Liquidity risk

(i) The contractual maturities of financial liabilities, including estimated interest payments and excluding the impact of netting agreements as of December 31, 2019 and 2018 are summarized as follows:

(In millions of won)		2019					
		Carrying amount	**Contractual cash flow**	**6 months or less**	**6~12 months**	**1~3 years**	**More than 3 years**
Non-derivative financial liabilities:							
Borrowings	₩	4,605,383	4,758,236	2,197,486	729,291	1,056,387	775,072
Debentures		3,462,882	3,713,395	301,272	252,851	1,610,946	1,548,326
Trade and other payables		3,558,002	3,564,163	3,339,648	194,944	20,977	8,594
Lease liabilities		581,351	626,060	72,711	60,803	257,016	235,530
Derivative financial liabilities:							
Derivative contracts used for hedging		20,661	20,673	16,260	2,379	1,943	91
	₩	12,228,279	12,682,527	5,927,377	1,240,268	2,947,269	2,567,613

(In millions of won)		2018					
		Carrying amount	**Contractual cash flow**	**6 months or less**	**6~12 months**	**1~3 years**	**More than 3 years**
Non-derivative financial liabilities:							
Borrowings	₩	4,892,439	5,085,769	2,565,594	1,007,706	844,359	668,110
Debentures		2,982,322	3,186,331	826,822	291,441	1,228,311	839,757
Trade and other payables		3,630,658	3,687,330	3,609,465	39,967	29,453	8,445
Derivative financial liabilities:							
Derivative contracts used for hedging		4,872	4,885	4,487	58	340	-
Other derivative contracts		4,771	4,843	4,843	-	-	-
	₩	11,515,062	11,969,158	7,011,211	1,339,172	2,102,463	1,516,312

The maximum amount for financial guarantee contracts is ₩3,721,197 million as of December 31, 2019 (See notes 42 and 44).
It is not expected that the cash flows included in the maturity analysis could occur significantly earlier, or at significantly different amounts.

(ii) The periods in which the cash flows associated with cash flow hedges are expected to occur as of December 31, 2019 and 2018 are summarized as follows:

(In millions of won)		2019					
		Carrying amount	**Contractual cash flow**	**6 months or less**	**6~12 months**	**1~3 years**	**More than 3 years**
Forward exchange contracts							
Assets	₩	10,821	10,980	8,110	2,870	-	-
Liabilities		(3,213)	(3,213)	(419)	(1,887)	(907)	-
Interest rate swaps							
Assets		477	477	235	146	96	-
Liabilities		(1,732)	(1,744)	(266)	(351)	(1,036)	(91)
Product forward							
Assets		14,179	14,179	14,131	48	-	-
Liabilities		(15,716)	(15,716)	(15,575)	(141)	-	-
	₩	4,816	4,963	6,216	685	(1,847)	(91)

41. Financial Instruments, Continued

(2) Liquidity risk, continued

(ii) The periods in which the cash flows associated with cash flow hedges are expected to occur as of December 31, 2019 and 2018 are summarized as follows, continued:

(In millions of won)		2018				
		Carrying amount	Contractual cash flow	6 months or less	6~12 months	1~3 years
Forward exchange contracts						
Assets	₩	2,560	2,577	2,357	198	22
Liabilities		(214)	(214)	(214)	-	-
Interest rate swaps						
Assets		1,918	1,933	1,933	-	-
Liabilities		(420)	(433)	(35)	(58)	(340)
Product forward						
Assets		13,083	13,083	13,083	-	-
Liabilities		(4,238)	(4,238)	(4,238)	-	-
	₩	12,689	12,708	12,886	140	(318)

(3) Currency risk

(i) Exposure to currency risk: The Group's exposure to foreign currency risk based on notional amounts as of December 31, 2019 and 2018 are as follows:

(In millions of won)		2019					
		USD	EUR	CNY	JPY	Others	Total
Cash and cash equivalents	₩	231,128	959	-	47	1,682	233,816
Trade and other receivables		1,410,419	59,745	23,071	26	77,598	1,570,859
Trade and other payables		(1,765,685)	(15,655)	(3,451)	(12,123)	(7,177)	(1,804,091)
Borrowings and debentures		(622,231)	(66,284)	-	(23,870)	-	(712,385)
Gross statement of financial position exposure		(746,369)	(21,235)	19,620	(35,920)	72,103	(711,801)
Derivative contracts		(198,234)	58,681	-	13,828	-	(125,725)
Net exposure	₩	(944,603)	37,446	19,620	(22,092)	72,103	(837,526)

(In millions of won)		2018					
		USD	EUR	CNY	JPY	Others	Total
Cash and cash equivalents	₩	280,951	15,356	-	35	1,280	297,622
Trade and other receivables		1,062,739	126,763	66,768	275	45,294	1,301,839
Trade and other payables		(1,233,579)	(22,978)	(9,272)	(3,371)	(7,175)	(1,276,375)
Borrowings and debentures		(1,322,255)	(59,618)	-	(55,124)	(959)	(1,437,956)
Gross statement of financial position exposure		(1,212,144)	59,523	57,496	(58,185)	38,440	(1,114,870)
Derivative contracts		(2,402)	-	-	-	-	(2,402)
Net exposure	₩	(1,214,546)	59,523	57,496	(58,185)	38,440	(1,117,272)

41. Financial Instruments, Continued

(3) Currency risk, continued

(ii) Sensitivity analysis
A weakening of the won, as indicated below, against the USD, EUR, CNY, JPY and other currencies as of December 31, 2019 and 2018 would have increased (decreased) profit or loss by the amounts shown below. This analysis is based on foreign currency exchange rate variances that the Group considered to be reasonably possible at the reporting date. The analysis assumes that all other variables, in particular interest rates, remain constant. The changes in profit or loss are as follows:

(In millions of won)		Profit or loss	
		2019	2018
USD (3 percent strengthening)	₩	(28,338)	(36,436)
EUR (3 percent strengthening)		1,123	1,786
CNY (3 percent strengthening)		589	1,725
JPY (3 percent strengthening)		(663)	(1,746)
Others (3 percent strengthening)		2,163	1,153

A strengthening of the won against the above currencies as of December 31, 2019 and 2018 would have had the equal but opposite effect on the above currencies to the amounts shown above assuming all other variables remain constant.

(4) Interest rate risk

(i) The interest rate profile of the Group's interest-bearing financial instruments as of December 31, 2019 and 2018 are as follows:

(In millions of won)		2019	2018
Fixed rate instruments:			
Financial assets	₩	1,607,516	472,785
Financial liabilities		(5,902,539)	(5,513,975)
	₩	(4,295,023)	(5,041,190)
Variable rate instruments:			
Financial assets	₩	890,876	950,604
Financial liabilities		(2,233,508)	(2,539,364)
	₩	(1,342,632)	(1,588,760)

(ii) Interest rate risk arises from savings and borrowings with floating interest rates. The Group properly hedges the risk borrowings with floating interest rates through interest rate swaps. Interest rate swap contracts as of December 31, 2019 are as follows:

(In millions won, In thousands of USD)

Counterparties	Currency	Amount	Interest rate		Expiration date
Woori Bank	KRW	40,000	Receives floating interest rate Pays fixed interest rate	CD(3M) + 1.45% 3.28%	2024.06.11
KEB Hana Bank	USD	80,000	Receives floating interest rate Pays fixed interest rate	CD(3M) + 1.50% 3.49%	2021.09.17
Shinhan Bank	USD	100,000	Receives floating interest rate Pays fixed interest rate	CD(3M) + 0.29% 1.40%	2021.08.20
Woori Bank	USD	50,000	Receives floating interest rate Pays fixed interest rate	CD(3M) + 0.29% 1.50%	2021.10.07

41. Financial Instruments, Continued

(4) Interest rate risk, continued

(iii) Cash flow sensitivity analysis for variable rate instruments

A change of 100 basis points in interest rates as of December 31, 2019 and 2018 would have increased (decreased) equity and profit or loss by the amounts shown below. This analysis assumes that all other variables, in particular foreign currency rates, remain constant. The changes in equity and profit or loss are as follows:

(In millions of won)		**Profit or loss**	
		100 bp increase	**100 bp decrease**
2019			
Variable rate instruments	₩	(13,426)	13,426
Interest rate swaps		2,700	(2,700)
Net cash flow sensitivity	₩	(10,726)	10,726
2018			
Variable rate instruments	₩	(15,888)	15,888
Interest rate swaps		3,354	(3,354)
Net cash flow sensitivity	₩	(12,534)	12,534

(5) Fair values

(i) Fair value hierarchy

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

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

The financial instruments carried at fair value, by fair value hierarchy as of December 31, 2019 and 2018 are as follows:

(In millions of won)		**Level 1**	**Level 2**	**Level 3**	**Total**
2019					
Financial assets measured at FVOCI	₩	13	-	-	13
Financial assets measured at FVTPL		-	323,224	54,041	377,265
Derivative assets		-	25,477	-	25,477
Derivative liabilities		-	20,661	-	20,661
2018					
Financial assets measured at FVOCI	₩	34	-	-	34
Financial assets measured at FVTPL		-	210	38,873	39,083
Derivative assets		-	17,560	-	17,560
Financial liabilities measured at FVTPL		104	4,667	-	4,771
Derivative liabilities		-	4,872	-	4,872

41. Financial Instruments, Continued

(5) Fair values, continued

(i) Fair value hierarchy, continued

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

The fair value of financial instruments that are not traded in an active market (for example, over-the-counter derivatives) is determined by using valuation techniques. These valuation techniques maximize the use of observable market data where it is available and rely as little as possible on entity specific estimates. If all significant inputs required to fairly value an instrument are observable, the instrument is included in level 2. If one or more of the significant inputs is not based on observable market data, the instrument is included in level 3.

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

(ii) The valuation of the fair value hierarchy Level 2 and inputs description.
The valuation techniques and input variables used in measuring Level 2 fair values as of December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018	Valuation techniques	Input variables
Derivatives assets:					
Derivatives	₩	25,477	17,560	Cash flow discount model and others	Currency forward price, discount rate and others
Financial assets measured at FVTPL:					
Short-term financial assets		323,224	210	Net asset value and others	Discount rate and others
Derivatives liabilities:					
Derivatives		20,661	4,872	Cash flow discount model and others	Currency forward price, discount rate and others
Financial liabilities measured at FVTPL:					
Derivatives		-	4,667	Cash flow discount model and others	Currency forward price, discount rate and others

41. Financial Instruments, Continued

(5) Fair values, continued

(iii) Valuation techniques and significant unobservable inputs at fair value hierarchy Level 3 as of December 31, 2019 and 2018

(a) Changes in financial asset classified as Level 3 in the fair value hierarchy of assets and liabilities measured at fair value are as follows;

(In millions of won)

		2019	2018
Financial assets at FVTPL:			
Beginning balance	₩	38,873	-
Acquisition		16,515	36,817
Disposal		(1,686)	-
Transfer to Level 3 fair values		-	1,788
Profit and loss included in net income		(118)	268
Exchange differences on translating foreign operations		457	-
Ending balance	₩	54,041	38,873

(b) The valuation technique and inputs of assets and liabilities classified as level 3 in the fair value hierarchy of assets and liabilities measured at fair value as of December 31, 2019 is as follows;

(In millions of won)

		Amount	Valuation technique	Input valuables	Significant unobservable inputs	Range of significant unobservable inputs
Financial assets measured at FVTPL:						
Construction Guarantee Cooperation	₩	356	Market comparison on technique	PBR	PBR	0.51
Machinery Financial Cooperation		2,489	Net asset value method	-	-	-
Short-term financial assets		48,065	Discounted cash flows	Discount rate	-	-
Others (*)		3,131	-	-	-	-
	₩	54,041				

(*) The carrying amount was used as there would be no significant difference between the carrying amount and the fair value.

(c) The effect of changes in unobservable inputs as of December 31, 2019 on the fair value measurement of financial assets and financial liabilities is as follows:

(In millions of won)

	Unobser-vable inputs	Effects of unobservable inputs on the measurement of fair value	Calculating the effects of variation		Variation effects of fair value — Net income: Favorable change	Variation effects of fair value — Net income: Unfavorable change
Financial assets measured at FVTPL:						
Construction Guarantee Cooperation	PBR	Fair value change as increase(decrease) of price-to-book ratio	Fair value change as increase(decrease) of 1P (price-to-book ratio)	₩	7	(7)

41. Financial Instruments, Continued

(6) Offsetting of financial assets and financial liabilities
The details of financial assets or financial liabilities netting arrangements as of December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019					
					Related amount: won't be setoff in the statement of financial position		
		Total recognized financial assets	Total recognized financial assets that will be setoff	Net financial assets presented in the statement of financial position	Financial instruments	Received cash security	Net amount
Financial assets							
Trade and other receivables	₩	14,213	(9,487)	4,726	-	-	4,726
Financial liabilities							
Financial liabilities measured at amortized cost		23,727	(9,487)	14,240	-	-	14,240

(In millions of won)

		2018					
					Related amount: won't be setoff in the statement of financial position		
		Total recognized financial assets	Total recognized financial assets that will be setoff	Net financial assets presented in the statement of financial position	Financial instruments	Received cash security	Net amount
Financial assets							
Trade and other receivables	₩	8,943	(5,031)	3,912	-	-	3,912
Financial liabilities							
Financial liabilities measured at amortized cost		34,142	(5,031)	29,111	-	-	29,111

The ‘related amount that won’t be setoff in the statement of financial position’ is recognized up to the amount of ‘Net financial assets presented in the consolidated statement of financial position’.

42. Commitments and Contingencies

(1) As of December 31, 2019, the Group has entered into overdraft agreements with KEB Hana Bank and other financial institutions amounting to ₩30,000 million and general loan agreements with Korea Development Bank and others amounting to ₩1,641,875 million, USD 394,063 thousand, EUR 21,275 thousand, CNY 1,065,586 thousand, and INR 1,340,000 thousand.

(2) As of December 31, 2019, the Group has entered into credit facilities agreements such as letters of credit with KEB Hana Bank and others for the Group's exports and imports totaling ₩8,100 million and USD 5,365,064 thousand.

(3) As of December 31, 2019, the Group has entered into credit facilities agreements such as secured receivables loan with Shinhan Bank and others totaling ₩1,158,800 million and USD 215,063 thousand.

(4) As of December 31, 2019, the Group provides guarantees amounting to ₩1,729,000 million, USD 1,371,050 thousand, ERU 24,000 thousand, CNY 1,435,000 thousand, and INR 168,000 thousand for the borrowings and others of its subsidiaries.

(5) In relation to the Group's contract performance guarantees of export and domestic construction, as of December 31, 2019, the Group has been provided with maximum guarantees amounting to ₩483,778 million and USD 583,544 thousand by various banking facilities and provides 1 case of assumption of debt agreement amounting to USD 661 thousand.

(6) As of December 31, 2019, the Group has entered into a share option agreement with the Shell Petroleum Company Limited ("Shell"), a shareholder of Hyundai Shell Base Oil Co., Ltd. According to the agreement, Shell holds a put option to sell its 40% of shares to Hyundai Oilbank Co., Ltd. that evaluated by the external evaluation institution at that time (From August 2014 to August 2021: If the supply of raw materials from Hyundai Oilbank Co., Ltd. to Hyundai Shell Base Oil Co., Ltd. falls below a certain level, After August 2021: no condition). Also, Hyundai Oilbank Co., Ltd. holds a call option to purchase its 40% of shares from Shell that evaluated by the external evaluation institution at that time (From August 2021 to August 2029: If the volume of products purchased from Hyundai Shell Base Oil Co., Ltd. falls below a certain level, After August 2029: no condition).

(7) As of December 31, 2019, the Group has been provided guarantees for the borrowings from Lotte Chemical Co., Ltd. and Hyundai OCI Co., Ltd. amounting to ₩1,046,000 million and ₩160,000 million, respectively.

(8) As of December 31, 2019, the Group has entered into an agreement about the land (book value of ₩22,286 million) that acquired from Daegu Metropolitan City that Daegu Metropolitan City can reclaim the land if the Company do not dispose land within five years after transferring ownership or do not use contractual purpose acquired from Daegu Metropolitan City.

(9) In accordance with Article 530, paragraph 9.1 of the Commercial law, an existing entity, KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD. (formerly, Hyundai Heavy Industries Co., Ltd) and newly established entity, Hyundai Electric & Energy Systems Co., Ltd., Hyundai Construction Equipment Co., Ltd., and Hyundai Heavy Industries Holdings Co., Ltd. are jointly liable for the liability of KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD. (formerly, Hyundai Heavy Industries Co., Ltd) prior to split-off.

(10) As of December 31, 2019, Hyundai Electric & Energy Systems Co., Ltd., a subsidiary, has granted a debt guarantee amounting to ₩44,973 million for the loan for treasury stock of employee stock ownership association based on the board of directors' decision on October 31, 2017. The amount of debt is ₩37,477 million at the time of guarantee and the amount of debt guarantee is based on 120% of the debt. Due to the repayment of debt from certain employees' stock ownership association, the remaining balance of debt is ₩20,376 million and debt guarantee is ₩32,683 million as of December 31, 2019.

42. Commitments and Contingencies, Continued

(11) As of December 31, 2019, Hyundai Construction Equipment Co., Ltd., a subsidiary, provided a debt guarantee amounting to ₩70,250 million for the borrowing of treasury stock of the employees 'shareholders' equity in the amount of the amount allocated for treasury stock issuance on October 31, 2017 by resolution of the board of directors. Debt guarantees amounted to ₩58,542 million at the time of guarantee, and the guaranteed guarantee amount is based on 120% of the debt amount. As a result of repayment of loans to certain employees of the Group's employees, the Group's outstanding loan balance amounted to ₩38,295 million as of December 31, 2019, and the amount of the guaranteed guarantee amounted to ₩70,250 million.

(12) As of December 31, 2019, the Group has entered into a contract with shareholders that grants call options to Aramco Overseas Company B.V., 2.9% of the interest in Hyundai Oilbank Co., Ltd.

(13) As of December 31, 2019, Hyundai Oilbank Co., Ltd., a subsidiary, has signed a long-term crude oil purchase contract and refinery product supply contract with Saudi Aramco and others, and the details of the contract are as follows:

	Contract for the sale of crude oil equipment		Refinery product supply contract
The counterparty to the contract	Saudi Arabian Oil Company	Aramco Trading Co	Aramco Trading Singapore Pte Ltd.
Contract period	2020.01.01 ~ 2039.12.31		2020.02.01 ~ 2020.12.31
Contracted product	Saudi crude oil	Saudi and others' crude oil	Gasoline, diesel, aviation oil -

43. Litigations

(1) Ordinary wage lawsuit

1) Ordinary wage lawsuit (Supreme Court 2016da7975)

Date of filing	December 28, 2012.
Litigant	Plaintiff: Kyung-Hwan Jeong and nine others, Defendant: KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD. (formerly, Hyundai Heavy Industries Co., Ltd)
Litigation content	Plaintiff filed a suit claiming that total bonuses should be included in the ordinary wage category and recalculated.
Litigation value	₩630 million
The progress of litigation	Defendant partially lost the first trial (Ulsan District Court 2012 gahap 10108) on February 12, 2015. Defendant won the second trial (Busan High Court 2015 na 1888) on January 13, 2016. Plaintiff filled appeals and the third trial is in progress (Supreme Court 2016 da 7975) on January 28, 2016.
Future litigation schedule and countermeasures	Currently, the 3rd trial at the supreme court is in progress and the Supreme Court examines a principal law. Discussion under dispute.
The effect on the Group as a result of litigation	If KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD. (formerly, Hyundai Heavy Industries Co., Ltd) loses the case, it is expected to make an additional loss from compensation. Currently, the impact on the Group's financial statements, if any, cannot be reliably estimated.

2) Ordinary wage lawsuits (Busan High Court 2018na54524)

Date of filing	July 9, 2015
Litigant	Plaintiff: Dong-guk, Kim and 12,436 others, Defendant: KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD. (formerly, Hyundai Heavy Industries Co., Ltd).
Litigation content	Plaintiff filed a suit claiming that total bonuses should be included in the ordinary wage category and recalculated
Litigation value	₩1,250 million
The progress of litigation	Filed a lawsuit on July 9, 2015 Defendant won the first trials (Ulsan District Court 2015 gahap 2351) on May 30, 2018 Plaintiff filled appeals and the third trial is in progress (Busan High Court 2018 na 54524) on June 20, 2018 First date of a sentence on November 7, 2018
Future litigation schedule and countermeasures	Currently, appeal process is in progress.
The effect on the Group as a result of litigation	If KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD. (formerly, Hyundai Heavy Industries Co., Ltd) loses the case, it is expected to make an additional loss from compensation. Currently, the impact on the Group's financial statements, if any, cannot be reliably estimated.

Above-mentioned cases submitted to KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD. (formerly, Hyundai Heavy Industries Co., Ltd) are transferred only to the plaintiffs to which the newly established company belongs.

43. Litigations, Continued

(2) Claim for defect in KWI/IWI wind-power turbine product (American Arbitration Association/International Centre for Dispute Resolution)

Date of filing	April 11, 2017
Litigant	Claimant: Kingston Wind, Ipswich Wind, D&C Construction Defendant: KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD. (formerly, Hyundai Heavy Industries Co., Ltd), Hyundai Corporation
Litigation content	Plaintiff filed an arbitration claiming that KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD. (formerly, Hyundai Heavy Industries Co., Ltd) has made a false representation of the product and has willfully breached the express warranty.
Litigation value	USD 79 million
The progress of litigation	Confirmation of ICDR arbitration application on April 11, 2017. Response submitted on June 2, 2017. Negotiated agreement on October 13, 2017. Settle court of arbitration (appoint chairman) on January 29, 2018. Filed arbitrated documents on July 19, 2018. Plaintiff claimed statement of claim (litigation value USD 424 million → USD 62 million) on October 17, 2018. Plaintiff's additional claim (litigation value USD 62 million → USD 79 million) on January 15, 2019. Submit answer on February 1, 2019. Supplementary written submissions on March 28, 2019. Acquisition of additional statements of reply on June 11, 2019. Submission of additional written documents (Rejoinder) on September 6, 2019. Send USD 5.5Mil's agreement proposal to the other company on September 19, 2019. Mediation Hearing (First week of both companies' statements and fact-related witness questioning, second week of expert witness questioning) on November 1, 2019.
Future litigation schedule and countermeasures	Procedures for investigation of evidence are scheduled.
The effect on the Group as a result of litigation	If KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD. (formerly, Hyundai Heavy Industries Co., Ltd) loses the case, it is expected to make an additional loss from compensation. Currently, the impact on the Group's financial statements, if any, cannot be reliably estimated. However, the wind power business is under the jurisdiction of Hyundai Electric & Energy Systems Co., Ltd., the Company will settle any expenses resulting from the arbitration.

43. Litigations, Continued

(3) Claim for damages of PT Hanbit Unit 2 (Supreme Court 2019da297038)

Date of filing	March 9, 2019.
Litigant	Plaintiff: Korea Hydro & Nuclear Power Co., Ltd. Defendant: Hyundai Electric & Energy Systems Co., Ltd.
Litigation content	Damage of PT (instrument transformer) Hanbit unit 2, which the subsidiary supplied to KHNP and installed, caused power supply to stop. Plaintiff filed a suit against the subsidiary claiming compensation amounting to ₩300 million (total ₩33.1 billion of part claim) for the loss of power sales. The Group won the first trial, but KHNP appealed against it.
Litigation value	₩300 million (partial value of claim amounting to ₩33.1billion)
The progress of litigation	The first trial suit is won on June 26, 2019. The second trial suit is won on November 14, 2019. Korea Hydro & Nuclear Power Co., Ltd. Submits appeal on December 6, 2019.
Future litigation schedule and countermeasures	Procedures for investigation of evidence are scheduled.
The effect on the Group as a result of litigation	If Hyundai Electric & Energy Systems Co., Ltd. loses the case, it is expected to make an additional loss from compensation. Currently, the impact on the Group's financial statements, if any, cannot be reliably estimated.

43. Litigations, Continued

(4) The transformer's antidumping

1) The transformer's second annual antidumping appeal (US Court of International Trade)

Date of filing	March 2016.
Litigant	Plaintiff: ABB, INC., Defendant: United States Department of Commerce
Litigation content	In March 2016, ABB, INC., appealed the US Department of Commerce's antidumping duties determination rate of 4.07% in the second annual review to the United States Court of International Trade (CIT).
The progress of litigation	Litigation process is in progress.
Future litigation schedule and countermeasures	US International Trade Court (CIT) final judgment expected in the first half of 2020
The effect on the Group as a result of litigation	The Group will reflect impact of CIT Final judgment on consolidated financial statements. Currently, the impact on the Group’s financial statements, if any, cannot be reliably estimated.

2) The transformer's third annual antidumping appeal (US Court of International Trade)

Date of filing	March 30, 2017.
Litigant	Plaintiff: KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD. (formerly, Hyundai Heavy Industries Co., Ltd) Defendant: United States Department of Commerce
Litigation content	Before spin off, March 14, 2017, KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD. (formerly, Hyundai Heavy Industries Co., Ltd) appealed the US Department of Commerce's antidumping duties determination rate of 60.81% about transformer that electro electronic segment of KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD. (formerly, Hyundai Heavy Industries Co., Ltd) exported in the third annual review to the United States Court of International Trade (CIT).
The progress of litigation	On August 2, 2019 (U.S. time), the Court of International Trade accepted a tariff rate of 60.81% by the U.S. Department of Commerce and decided to confirm the decision. Appeal to the Federal Circuit Court of Appeals (CAFC) on October 1, 2019.
Future litigation schedule and countermeasures	Submission of counterclaims and oral arguments according to litigation procedures.
The effect on the Group as a result of litigation	As the electric and electronic business is under the jurisdiction of the subsidiary Hyundai Electric & Energy System Co., Ltd., the additional payment estimate (USD 28 million) was reflected in the consolidated financial statements, excluding the deposit payable, according to the U.S. International Trade Court's ruling (60.81%) result.

43. Litigations, Continued

(4) The transformer's antidumping, continued

3) The transformer's fourth annual antidumping appeal (US Court of International Trade)

Date of filing	March 30, 2018.
Litigant	Plaintiff: KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD. (formerly, Hyundai Heavy Industries Co., Ltd) Defendant: United States Department of Commerce
Litigation content	March 12, 2018, KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD. (formerly, Hyundai Heavy Industries Co., Ltd) appealed the US Department of Commerce's antidumping duties determination rate of 60.81% about transformer that electro electronic segment of KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD. (formerly, Hyundai Heavy Industries Co., Ltd) exported in the fourth annual review to the United States Court of International Trade (CIT).
The progress of litigation	Litigation process is in progress.
Future litigation schedule and countermeasures	Procedures for investigation of evidence are scheduled.
The effect on the Group as a result of litigation	The electric and electronic business before the split is under the jurisdiction of Hyundai Electric & Energy System Co., Ltd., a subsidiary company, so if KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD. (formerly, Hyundai Heavy Industries Co., Ltd) loses, it will have to pay additional tariffs of up to USD 56 million depending on the outcome of the decision, but the outcome of the decision cannot be reasonably predicted at the moment.

4) The Transformer's fifth annual antidumping appeal (US Court of International Trade)

Date of filing	May 08, 2019.
Litigant	Plaintiff: KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD. (formerly, Hyundai Heavy Industries Co., Ltd) Defendant: United States Department of Commerce
Litigation content	April 17, 2019, KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD. (formerly, Hyundai Heavy Industries Co., Ltd) appealed the US Department of Commerce's antidumping duties determination rate of 60.81% about transformer that electro electronic segment of KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD. (formerly, Hyundai Heavy Industries Co., Ltd) exported in the fifth annual review to the United States Court of International Trade (CIT).
The progress of litigation	Litigation process is in progress.
Future litigation schedule and countermeasures	Procedures for investigation of evidence are scheduled.
The effect on the Group as a result of litigation	The electric and electronic business before the split is under the jurisdiction of Hyundai Electric & Energy System Co., Ltd., a subsidiary company, so if KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD. (formerly, Hyundai Heavy Industries Co., Ltd) loses, it will have to pay additional tariffs of up to USD 38 million depending on the outcome of the decision, but the outcome of the decision cannot be reasonably predicted at the moment.

43. Litigations, Continued

(5) Counterindemnity charged sue related to LPG price-fixing (Seoul Central District Court 2012 gahap 85828 and three cases)

Date of filing	April 2, 2010 etc.
Litigant	Plaintiff: Taxi operator, the disabled and others, Defendant: Hyundai Oilbank Co., Ltd. and six others
Litigation content	The Fair Trade Commission imposed fines on two LPG importers and four domestic oil refinery companies including subsidiaries for alleged collusive price-fixing on LPG prices from January 1, 2003 to December 31, 2008. 117,790 private taxi drivers, corporate taxi drivers and others jointly filed a lawsuit against four domestic oil refinery companies including Hyundai Oilbank Co., Ltd. and two LPG importers claiming damages. On the other hand, Hyundai Oilbank Co., Ltd., has filed a lawsuit against Fair Trade Commission Hyundai Oilbank and filed a lawsuit against Hyundai Oilbank and won on revocation lawsuit and corrective order.
Litigation value	₩12,370 million
The progress of litigation	The first trial suit is currently pending (Seoul Central District Court)
Future litigation schedule and countermeasures	The Group plans to appeal against a decision, if it loses the first trial (entirely or partly).
The effect on the Group as a result of litigation	If Hyundai Oilbank Co., Ltd. loses the case, it is expected to make an additional loss from compensation. Currently, the impact on the Group's financial statements, if any, cannot be reliably estimated.

43. Litigations, Continued

(6) Counterindemnity charged sue related to land contamination for Hankook Shell Oil Co., Ltd. (Seoul High District Court 2018 na 2052465)

Date of filing	February 21, 2012
Litigant	Plaintiff: Hankook Shell Oil Co., Ltd., Defendant: Hyundai Oilbank Co., Ltd.
Litigation content	Hankook Shell Oil Co., Ltd. filed litigation for damages of contamination clean-up costs and others including already accrued costs and costs likely to accrue in the future due to fuel spills at Busan refinery in the past and current Busan oil reservoir of Hyundai Oilbank Co., Ltd. on the site of the Hankook Shell Oil Co., Ltd.
Litigation value	₩14,244 million (Decrease the purpose of the plaintiff's claim from ₩14,775 million)
The progress of litigation	The first trial suit is partially won on August 20, 2018. The second trial suit and appeal on September 10, 2018. According to the first sentence, the quotation amount was ₩7,970 million. If the Group miss the payment, it incurs arrear interest, Hankook Shell Oil Co., Ltd. paid ₩ 11,030 million (quotation amount ₩7,970 million + arrear interest as of August 20, 2019 ₩3,060 million).
Future litigation schedule and countermeasures	Currently pending in the appeals court (Seoul High Court) and will be appealed if lose even a part of it.
The effect on the Group as a result of litigation	If Hyundai Oilbank Co., Ltd. loses the case, it is expected to make an additional loss from compensation. Currently, the impact on the Group's financial statements, if any, cannot be reliably estimated

(7) In addition to the cases mentioned above, the Group has filed various lawsuits pending. Currently, the impact on the Group's consolidated financial statements, if any, cannot be reliably estimated. However, management of the Group believes that the ultimate outcomes will not have a significant impact on the Group's consolidated financial statements.

44. Related Parties

(1) Transactions between the Company and its subsidiaries are eliminated in the preparation of the consolidated financial statements and the related parties as of December 31, 2019 is as follows:

Description (*)	Company	Main business
Associates	KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD. (formerly, Hyundai Heavy Industries Co., Ltd)	Non-finance holding company
Joint ventures	Hyundai Cosmo Petrochemical Co., Ltd	Manufacture of basic chemicals for petrochemical industry
	Hyundai and Shell Base Oil Co., Ltd.	Manufacturing of base oil
	AsanKakao Medical Data Co., Ltd.	Application software development and supply
	Haining Hagong Hyundai Robotics. Co., Ltd.	Sale of robot and service
Others (large-scale corporate conglomerate)	Hyundai Heavy Industries Co., Ltd.	Shipbuilding
	Hyundai Samho Heavy Industries Co., Ltd.	Shipbuilding
	Hyundai Mipo Dockyard Co., Ltd.	Shipbuilding
	Other related companies of Korea Shipbuilding & Offshore Engineering Co., Ltd. (formerly, Hyundai Heavy Industries Co., Ltd)	Others

(*) The related parties of the newly established company are classified based on the dominant position and subsidiary relationship of the newly established company, the status of related companies, and the large business group affiliates.

44. Related Parties, Continued

(2) Transactions with related parties

1) Significant transactions for the years ended December 31, 2019 and 2018 with related parties are as follows:

(In millions of won)		2019			
		Revenue and other	Purchases and other		
Description		Revenue (*1)	Purchase of raw materials	Purchase of Property, Plant and Equipment	Others purchase
Associates:					
KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD. (formerly, Hyundai Heavy Industries Co., Ltd)	₩	73,018	15,745	2,835	31,521
Joint ventures:					
Hyundai Cosmo Petrochemical Co., Ltd		2,139,692	1,224,645	-	6,199
Hyundai and Shell Base Oil Co., Ltd.		757,194	154,057	-	-
		2,896,886	1,378,702	-	6,199
Other related parties (large-scale corporate conglomerate):					
Hyundai Heavy Industries Co., Ltd.		90,211	13,308	202	20,442
Hyundai Samho Heavy Industries Co., Ltd.		58,890	-	-	1,384
Hyundai Mipo Dockyard Co., Ltd.		44,951	-	-	122
Hyundai E&T Co., Ltd		523	7,613	-	3,046
Ulsan Hyundai Football Club Co., Ltd.		55	-	-	17,843
Hyundai Hyms Co., Ltd (*2)		3,799	-	-	2,994
Hyundai Heavy Industries Turbo Machinery Co., Ltd. (*2)		5,973	34	-	84
Hyundai Heavy Industries Mos Co., Ltd.		164	4,646	-	4,509
Hyundai Energy Solutions Co.,Ltd.		2,022	-	-	950
Hyundai Heavy Industries Power Systems Co., Ltd.		5,310	82,785	-	24,959
Hyundai Heavy Industries Brazil - Manufacturing and Trading of Construction Equipment		53,636	8,824	-	353
Others		6,337	61	-	13
		271,871	117,271	202	76,699
	₩	3,241,775	1,511,718	3,037	114,419

(*1) Including sales of property, plant and equipment, interest income and others.
(*2) As of December 31, 2019, It has been excluded from other related parties and includes transactions up to the day before the exclusion of the Group.

44. Related Parties, Continued

(2) Transactions with related parties, continued

1) Significant transactions for the years ended December 31, 2019 and 2018 with related parties are as follows, continued:

(In millions of won)

		2018			
		Revenue and other	Purchases and other		
Description (*1)		Revenue (*1)	Purchase of Raw materials	Purchase of Property, Plant and Equipment	Others purchase
Associates:					
KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD. (formerly, Hyundai Heavy Industries Co., Ltd)	₩	208,660	36,888	565	64,614
Joint ventures:					
Hyundai Cosmo Petrochemical Co., Ltd		2,164,274	1,140,438	-	7,357
Hyundai and Shell Base Oil Co., Ltd.		643,892	171,109	-	-
		2,808,166	1,311,547	-	7,357
Other related parties (large-scale corporate conglomerate):					
Hyundai Samho Heavy Industries Co., Ltd.		49,159	-	-	350
Hyundai Mipo Dockyard Co., Ltd.		38,651	-	-	185
Hyundai E&T Co., Ltd		525	9,457	-	208
Ulsan Hyundai Football Club Co., Ltd.		54	-	-	15,003
Hyundai Hyms Co., Ltd		41,761	16,317	8,983	284
Hyundai Heavy Industries Turboma Chinery Co., Ltd.		6,707	146	-	559
Hyundai Heavy Industries Mos Co., Ltd.		148	11,287	-	274
Hyundai Power Transformers USA Inc. (*2)		4,721	-	-	103
Hyundai Heavy Industries Brazil - Manufacturing and Trading of Construction Equipment		32,210	10,619	-	714
Others		6,178	1,641	21	1,131
		180,114	49,467	9,004	18,811
	₩	3,196,940	1,397,902	9,569	90,782

(*1) Including sales of property, plant and equipment, interest income and others.
(*2) Including transactions up to the date of reclassification to subsidiaries.

44. Related Parties, Continued

(2) Transactions with related parties, continued

1) Significant transactions for the years ended December 31, 2019 and 2018 with related parties are as follows, continued:

The transaction of the acquisition and disposal of equity between the subsidiaries and the other related parties of the Group are as follows (see Note 30):

(In millions of won)

Trading partner				
Disposal	**Acquisition**	**Equity**	**Ratio of shareholding (%)**	**Transaction amount**
HHI China Investment Co., Ltd.	Hyundai Heavy Industries Power Systems Co., Ltd.	Yantai Hyundai Moon Heavy Industries Co., Ltd.	55.00	25,507

2) Outstanding balances as of December 31, 2019 and 2018 between the Group and associates or joint ventures are as follows:

(In millions of won)

		2019			
		Trade and other receivables		Trade and other payables	
		Trade Receivable	Other receivables	Trade Payables	other payables
Associates:					
KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD. (formerly, Hyundai Heavy Industries Co., Ltd)	₩	3,437	1,861	7,272	4,860
joint ventures:					
Hyundai Cosmo Petrochemical Co., Ltd		33,707	2,987	127,135	811
Hyundai and Shell Base Oil Co., Ltd.		10,138	29	23,315	91
		43,845	3,016	150,450	902
Other related parties (large-scale corporate conglomerate):					
Hyundai Heavy Industries Co., Ltd		54,131	3,416	10,960	16,997
Hyundai Samho Heavy Industries Co., Ltd		23,256	24	171	500
Hyundai Mipo Dockyard Co., Ltd.		8,659	-	-	68
Hyundai E&T Co., Ltd		-	116	894	2
Ulsan Hyundai Football Club Co., Ltd.		2	2,833	5	-
Hyundai Heavy Industries Mos Co., Ltd.		24	-	1,487	-
Hyundai Heavy Industries Power Systems Co., Ltd.		127	19,772	13,051	56
Hyundai Heavy Industries Brazil - Manufacturing and Trading of Construction Equipment		32,220	4,731	423	-
Others		1,255	664	167	8,112
		119,674	31,556	27,158	25,735
	₩	166,956	36,433	184,880	31,497

44. Related Parties, Continued

(2) Transactions with related parties, continued

2) Outstanding balances as of December 31, 2019 and 2018 between the Group and associates or joint ventures are as follows, continued:

(In millions of won)		2018			
		Trade and other receivables		Trade and other payables	
		Trade Receivable	Other receivables	Trade Payables	other payables
Associates					
KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD. (formerly, Hyundai Heavy Industries Co., Ltd)	₩	60,418	6,639	12,320	4,960
joint ventures					
Hyundai Cosmo Petrochemical Co., Ltd		21,691	5,599	82,068	1,075
Hyundai and Shell Base Oil Co., Ltd.		8,813	103	18,005	42
		30,504	5,702	100,073	1,117
Other related parties (large-scale corporate conglomerate)					
Hyundai Samho Heavy Industries Co., Ltd		22,306	10	30	22
Hyundai Mipo Dockyard Co., Ltd.		8,850	101	8	-
Hyundai E&T Co., Ltd.		-	41	804	14
Ulsan Hyundai Football Club Co., Ltd.		4	-	-	-
Hyundai Hyms Co., Ltd.		63	-	907	-
Hyundai Heavy Industries Turboma Chinery Co., Ltd.		5,218	-	-	321
Hyundai Heavy Industries Mos Co., Ltd.		15	-	1,628	-
Hyundai Heavy Industries Power Systems Co., Ltd.		-	14,048	-	-
Hyundai Heavy Industries Brazil - Manufacturing and Trading of Construction		29,604	3,347	1,463	-
Others		1,525	146	3,641	-
		67,585	17,693	8,481	357
	₩	158,507	30,034	120,874	6,434

(3) HHI China Investment Co., Ltd., a subsidiary company, has cashpooling arrangements with other related parties, and the details of the group's fund transactions under the agreement are as follows:

(In thousands of CNY currency)		2019		
		Beginning balance	Change	Ending balance
Yantai Hyundai Moon Heavy Industries Co., Ltd.	Borrowing	4,645	(4,645)	-
	Loan	-	2,073	2,073

44. Related Parties, Continued

(4) Details of guarantees provided by the Group for the related parties as of December 31, 2019 is as follows:

(In thousands of USD currency, thousands of CNY currency)

Guarantee provider	Guarantee recipient	Provider	Type of guarantees	Currency	Guaranteed amount
HHI China Investment Co., Ltd.	Yantai Hyundai Moon Heavy Industries Co., Ltd.	Bank of Communications Co., Ltd	payment guarantee	USD	4,632
		Ningbo Bank	payment guarantee	CNY	95,000
		Woori Bank	operating fund	CNY	50,000
				USD	4,632
				CNY	145,000

(5) Compensation for key management of the Group for the years ended December 31, 2019 and 2018 are as follows;

(In millions of won)		2019	2018
Short-term employee benefits	₩	14,989	13,233
Post-employment benefits		2,666	1,934
Termination benefits		-	389
	₩	17,655	15,556

Key management is defined as directors and internal auditors who have important roles and responsibilities involving the planning, operation and control of the Group.

45. Disposal group held for sale

The Group decided on June 20 and November 29, 2019, respectively, to sell the Ship Control Division and Hyundai Heavy Industries Co. Bulgaria in order to enhance management efficiency and financial structure according to the reorganization. Accordingly, the assets and liabilities held by the ship control division and the Hyundai Heavy Industries Co. Bulgaria have been replaced with assets/liabilities held for sale. The details of assets/liabilities to held for sale are as follows, and assets/liabilities held for sale by the ship control division have been sold out during the current year.

(1) Ship Control Division

(In millions of won)		**Carrying amount**
Assets held for sale		
Trade and other receivables	₩	13,155
Contract assets		28
Inventories		13,537
Provision for inventory valuation		(467)
Other current assets		191
Property, plant and equipment		77
	₩	26,521
Liabilities held for sale		
Trade and other payables	₩	4,410
Contract liabilities		156
Provisions		1,104
Defined benefit obligations		715
	₩	6,385

(2) Hyundai Heavy Industries Co. Bulgaria

(In millions of won)		**Carrying amount**
Assets held for sale		
Cash and cash equivalents	₩	3,234
Trade and other receivables		9,645
Inventories		13,098
Property, plant and equipment		5,044
Others		2,608
	₩	33,629
Liabilities held for sale		
Trade and other payables	₩	2,591
Contract liabilities		2,934
Provisions		390
Others		10
	₩	5,925

46. Subsequent Events

(1) On February 6, 2020, the Company decided to purchase and incinerate its shares through the stock market in order to enhance shareholder value through stock price stabilization. The estimated acquisition period is from February 7, 2020 to May 6, 2020, and the number of shares to be acquired and the amount to be acquired are 488,000 shares and ₩129,320 million, respectively.

(2) On February 20, 2019, the Company newly established Hyundai L&S Co., Ltd., a joint venture, and incorporated it as a subsidiary to enter the smart logistics business. The capital is ₩7,500 million, and the ownership interest rate of the Group is 80.1%.

(3) Hyundai Electric & Energy Systems Co., Ltd., a subsidiary, decided to sell all of its shares in Hyundai Heavy Industries Co. Bulgaria on November 29, 2019 through a resolution of the board of directors, and signed a sales contract on January 13, 2020. The sale price is USD 24,500 thousands.

(4) Hyundai Electric & Energy Systems Co., Ltd., a subsidiary, decided to establish a U.S. corporation (tentatively called "Hyundai Electric America Corporation") through its board of directors on February 21, 2020 and invested USD 2,000,000 in March 2020.

(5) Hyundai Oilbank Co., Ltd., a subsidiary, was selected as a preferred bidder by forming a consortium with Koramco Asset Trust Co. in the trading of SK Networks Company Limited gas stations to increase profits through the expansion of the domestic supply chain, and on February 6, 2020, the board of directors approved the signing of the main contract.

(6) On February 6, 2020, Hyundai Oilbank Co., Ltd., a subsidiary, approved the provision of performance guarantees and the issuance of corporate bonds within ₩500 billion for four long-term contracts signed between Singapore Corporation and the shipping company.

(7) Hyundai Oilbank Co., Ltd., a subsidiary, approved the issuance of hybrid bond within ₩300 billion at its board of directors on February 20, 2020.