

HANWHA CHEMICAL CORPORATION AND ITS SUBSIDIARIES

**CONSOLIDATED FINANCIAL STATEMENTS
AS OF AND FOR THE YEAR ENDED
DECEMBER 31, 2016**

ATTACHMENT: INDEPENDENT AUDITORS' REPORT

HANWHA CHEMICAL CORPORATION

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Independent Auditors' Report

English Translation of Independent Auditors' Report Originally Issued in Korean on March 16, 2017.

**To the Shareholders and the Board of Directors of
Hanwha Chemical Corporation:**

Report on the Financial Statements

We have audited the accompanying consolidated financial statements of Hanwha Chemical Corporation and its subsidiaries (the "Group"), which comprise the consolidated statements of financial position as of December 31, 2016 and the consolidated statements of comprehensive income, consolidated statements of changes in shareholders' equity and consolidated statements of cash flows, for the year then ended, and a summary of significant accounting policies and other explanatory information.

Management's Responsibility for the Consolidated Financial statements

Management is responsible for the preparation and fair presentation of these consolidated financial statements in accordance with Korean International Financial Reporting Standards ("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.

Auditors' Responsibility

Our responsibility is to express an audit opinion on these financial statements based on our audits. We conducted our audits in accordance with Korean Standards on Auditing ("KSAs"). Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditors' judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements 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 entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.



We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Hanwha Chemical Corporation and its subsidiaries as of December 31, 2016 and its financial performance and its cash flows for the year then ended in accordance with K-IFRS.

Others

The accompanying consolidated statements of financial position of Hanwha Chemical Corporation and its subsidiaries as of December 31, 2015, and the related consolidated statements of comprehensive income, changes in shareholders' equity and cash flows for the year then ended were audited by Samil PricewaterhouseCoopers in accordance with the former KSAs, known as auditing standards generally accepted in Korea, and an unqualified opinion was expressed on March 17, 2016.

A handwritten signature in black ink that reads "Deloitte Korea LLC". The signature is written in a cursive, flowing style.

March 16, 2017

Notice to Readers

This report is effective as of March 16, 2017, the auditors' report date. Certain subsequent events or circumstances may have occurred between the auditors' report date and the time the auditors' report is read. Such events or circumstances could significantly affect the financial statements and may result in modifications to the auditors' report.

HANWHA CHEMICAL CORPORATION AND ITS SUBSIDIARIES (the “Group”)

**CONSOLIDATED FINANCIAL STATEMENTS
AS OF AND FOR THE YEARS ENDED
DECEMBER 31, 2016 AND 2015**

“The accompanying consolidated financial statements, including all footnote disclosures, were prepared by and are the responsibility of the Group.”

Kim, Chang-Bum

**President and Chief Executive Officer
HANWHA CHEMICAL CORPORATION**

Main Office Address: (Road Name Address) 86, Cheonggyecheon-ro, Jung-gu, Seoul
(Phone Number) 02-729-2700

HANWHA CHEMICAL CORPORATION AND ITS SUBSIDIARIES

CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

AS OF DECEMBER 31, 2016 AND 2015

		Korean won	
	Notes	December 31, 2016	December 31, 2015
ASSETS:			
Cash and cash equivalents	5,6,8	₩ 1,012,313,392,800	₩ 644,785,721,050
Other financial assets	5,6,10	248,706,298,390	390,384,438,875
Trade receivables and other receivables	5,6,7,9,37	1,561,381,114,010	1,817,473,968,091
Other current assets	11	158,917,244,880	84,577,045,114
Inventories	12	1,420,646,719,394	1,825,619,332,882
Current income tax assets		19,261,162,486	14,900,651,168
Assets classified as held for sale	18	102,643,332,657	-
Current assets		4,523,869,264,617	4,777,741,157,180
Available-for-sale financial assets	5,6,13	228,523,417,806	150,075,320,459
Other financial assets	5,6,10, 37	115,721,738,100	111,463,143,304
Long-term trade receivables and other receivables	5,6,9	5,852,035,754	5,947,012,482
Investments in associates and joint ventures	14,37	2,284,495,196,831	2,043,074,302,380
Investment property	15	397,568,949,417	196,317,196,176
Property, plant and equipment	16	5,760,968,279,670	6,050,530,729,270
Intangible assets	17	426,200,340,285	440,814,090,811
Other non-current assets	11	14,652,706,736	18,972,510,353
Deferred income tax assets	34	60,061,200,087	57,684,260,421
Non-Current assets		9,294,043,864,686	9,074,878,565,656
Total assets		₩ 13,817,913,129,303	₩ 13,852,619,722,836
LIABILITIES:			
Trade payables and other payables	4,5,6,19,37	1,758,119,346,199	1,614,994,192,837
Short-term borrowings	4,5,6,7,20	2,254,968,271,540	2,425,288,893,609
Other financial liabilities	4,5,6,21	152,292,183,040	136,341,492,695
Provisions	24	71,039,304,245	69,932,134,709
Other current liabilities	22	612,467,765,013	1,146,148,705,403
Current income tax liabilities		114,095,264,206	27,941,942,794
Current liabilities		4,962,982,134,243	5,420,647,362,047
Long-term trade payables and other payables	4,5,6,19	46,144,007,092	208,595,675,209
Long-term borrowings	4,5,6,20	2,574,625,893,111	2,615,772,998,845
Other financial liabilities	4,5,6,21	22,695,919,236	21,296,887,000
Net defined benefit liabilities	23	393,484,940,783	320,992,400,548
Long-term employee benefits		15,880,880,424	14,355,194,387
Provisions	24	33,523,641,871	30,850,183,425
Other non-current liabilities	22	7,683,639	17,944,309
Deferred tax liabilities	34	300,241,319,975	288,932,688,854
Non-current liabilities		3,386,604,286,131	3,500,813,972,577
Total liabilities		₩ 8,349,586,420,374	₩ 8,921,461,334,624

(Continued)

**HANWHA CHEMICAL CORPORATION
AND ITS SUBSIDIARIES**

CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

AS OF DECEMBER 31, 2016 AND 2015 (CONTINUED)

		Korean won	
	Notes	December 31, 2016	December 31, 2015
EQUITY:			
Capital stock	25	₩ 829,665,480,000	₩ 815,316,540,000
Capital surplus	25	828,447,138,477	829,497,470,364
Capital adjustments	26	(3,196,563,656)	(2,959,148,816)
Accumulated other comprehensive income	27	43,624,934,648	104,669,832,306
Retained earnings	28	<u>3,586,395,957,168</u>	<u>2,886,852,150,585</u>
Equity attributable to the owners of the Company		<u>5,284,936,946,637</u>	<u>4,633,376,844,439</u>
Non-controlling interests	41	<u>183,389,762,292</u>	<u>297,781,543,773</u>
Total equity		<u>₩ 5,468,326,708,929</u>	<u>₩ 4,931,158,388,212</u>
Total liabilities and equity		<u>₩ 13,817,913,129,303</u>	<u>₩ 13,852,619,722,836</u>

(Concluded)

See notes.

HANWHA CHEMICAL CORPORATION AND ITS SUBSIDIARIES

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

FOR THE YEARS ENDED DECEMBER 31, 2016 AND 2015

		Korean won	
	Notes	December 31, 2016	December 31, 2015
REVENUE	37	₩ 9,258,832,683,954	₩ 8,036,991,362,167
COST OF SALES	31,37	<u>7,211,218,409,715</u>	<u>6,540,636,626,588</u>
GROSS PROFIT		2,047,614,274,239	1,496,354,735,579
Selling and administrative expenses	30,31	<u>1,268,396,183,664</u>	<u>1,159,341,804,191</u>
OPERATING INCOME		779,218,090,575	337,012,931,388
Other non-operating income	32	443,233,894,019	397,033,859,683
Other non-operating expenses	32	(608,423,304,979)	(517,472,065,424)
Financial income	33	22,321,804,072	25,386,631,893
Financial expenses	33	(173,291,081,014)	(179,739,068,902)
Share of profit of associates and joint ventures	14	<u>423,322,323,162</u>	<u>166,157,380,212</u>
NON-OPERATING INCOME(LOSS)		<u>107,163,635,260</u>	<u>(108,633,262,538)</u>
INCOME BEFORE INCOME TAX EXPENSE		886,381,725,835	228,379,668,850
Income tax expense	34	<u>115,438,050,287</u>	<u>47,963,902,367</u>
NET INCOME		<u>₩ 770,943,675,548</u>	<u>₩ 180,415,766,483</u>
OTHER COMPREHENSIVE GAIN(LOSS)		(102,965,252,595)	(17,568,346,555)
Items subsequently reclassified to net income:			
Gain(loss) on valuation of available-for-sale financial assets		(8,556,402,176)	55,004,751
Share of other comprehensive income of associates and joint ventures		(11,091,071,939)	19,666,076,907
Gain(loss) on valuation of cash flow hedges		723,946,541	(57,246,770)
Currency translation adjustments		<u>(52,758,351,859)</u>	<u>(20,652,942,826)</u>
Items not subsequently reclassified to net income:			
Remeasurement of net defined benefit liabilities		(29,265,406,820)	(12,925,983,221)
Share of remeasurements of net defined benefit liabilities of associates and joint ventures		<u>(2,017,966,342)</u>	<u>(3,653,255,396)</u>
TOTAL COMPREHENSIVE INCOME		<u>₩ 667,978,422,953</u>	<u>₩ 162,847,419,928</u>

(Continued)

HANWHA CHEMICAL CORPORATION AND ITS SUBSIDIARIES

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

FOR THE YEARS ENDED DECEMBER 31, 2016 AND 2015 (CONTINUED)

		Korean won	
	Notes	December 31, 2016	December 31, 2015
Net income (loss) attributable to:			
Owners of the Company		₩ 755,256,458,806	₩ 188,160,566,124
Non-controlling interests		15,687,216,742	(7,744,799,641)
Total comprehensive income(loss) attributable to:			
Owners of the Company		663,019,040,451	166,735,392,823
Non-controlling interests		4,959,382,502	(3,887,972,895)
Earnings per share attributable to the owners of the Company:			
Basic and diluted earnings per common share	35	<u>₩ 4,604</u>	<u>₩ 1,154</u>
Basic and diluted earnings per preferred share	35	<u>₩ 4,648</u>	<u>₩ 1,204</u>
(Concluded)			

See notes.

HANWHA CHEMICAL CORPORATION AND ITS SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CHANGES IN SHAREHOLDERS' EQUITY

FOR THE YEARS ENDED DECEMBER 31, 2016 AND 2015

	Korean won						
	Capital stock	Consolidated capital surplus	Consolidated capital adjustments	Consolidated accumulated other comprehensive income	Consolidated Retained Earnings	Non- controlling interests	Total
January 1, 2015	₩ 815,316,540,000	₩ 712,889,896,819	₩ (3,402,661,137)	₩ 109,800,817,118	₩2,739,445,969,704	₩ 405,427,721,864	₩4,779,478,284,368
Total comprehensive income(loss):							
Net income(loss)	-	-	-	-	188,160,566,124	(7,744,799,641)	180,415,766,483
Other comprehensive income(loss)							
Items subsequently reclassified to profit(loss)							
Gain(loss) on valuation of available-for-sale financial assets	-	-	-	3,118,845,952	-	(3,063,841,201)	55,004,751
Share of other comprehensive income of associates and joint ventures	-	-	-	19,578,292,987	-	87,783,920	19,666,076,907
Gain(loss) on valuation of cash flow hedges	-	-	-	(57,246,770)	-	-	(57,246,770)
Currency translation differences	-	-	-	(27,770,876,981)	-	7,117,934,156	(20,652,942,825)
Items subsequently not reclassified to profit(loss):							
Remeasurement of net defined benefit liabilities	-	-	-	-	(12,643,769,192)	(282,214,029)	(12,925,983,221)
Share of remeasurements of net defined benefit liabilities of associates and joint ventures	-	-	-	-	(3,650,419,296)	(2,836,100)	(3,653,255,396)
Transactions with shareholders:							
Dividends paid	-	-	-	-	(24,515,683,050)	(1,731,100,000)	(26,246,783,050)
Changes in scope of consolidation							
Acquisition of subsidiaries	-	-	-	-	-	1,203,852,351	1,203,852,351
Changes in ownership interests in subsidiaries that do not result in a loss of control:							
Changes in ownership interests in subsidiaries	-	116,559,150,293	-	-	-	(103,236,732,139)	13,322,418,154
Others	-	48,423,252	443,512,321	-	55,486,295	5,774,592	553,196,460
December 31, 2015	<u>₩ 815,316,540,000</u>	<u>₩ 829,497,470,364</u>	<u>₩ (2,959,148,816)</u>	<u>₩ 104,669,832,306</u>	<u>₩ 2,886,852,150,585</u>	<u>₩ 297,781,543,773</u>	<u>₩ 4,931,158,388,212</u>

(Continued)

HANWHA CHEMICAL CORPORATION AND ITS SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CHANGES IN SHAREHOLDERS' EQUITY

FOR THE YEARS ENDED DECEMBER 31, 2016 AND 2015 (CONTINUED)

	Korean won						
	Capital stock	Consolidated capital surplus	Consolidated capital adjustments	Consolidated accumulated other comprehensive income	Consolidated Retained Earnings	Non- controlling interests	Total
January 1, 2016	₩ 815,316,540,000	₩ 829,497,470,364	₩ (2,959,148,816)	₩ 104,669,832,306	₩2,886,852,150,585	₩ 297,781,543,773	₩4,931,158,388,212
Total comprehensive income(loss):							
Net income(loss)	-	-	-	-	755,256,458,806	15,687,216,742	770,943,675,548
Other comprehensive income(loss)							
Items subsequently reclassified to profit(loss):							
Gain(loss) on valuation of available-for-sale financial assets	-	-	-	(5,613,401,013)	-	(2,943,001,163)	(8,556,402,176)
Share of other comprehensive income of associates and joint ventures	-	-	-	(10,988,030,638)	-	(103,041,301)	(11,091,071,939)
Gain(loss) on valuation of cash flow hedges	-	-	-	723,946,541	-	-	723,946,541
Currency translation differences	-	-	-	(45,167,412,548)	-	(7,590,939,311)	(52,758,351,859)
Items subsequently not reclassified to profit(loss):							
Remeasurement of net defined benefit liabilities	-	-	-	-	(29,191,242,464)	(74,164,356)	(29,265,406,820)
Share of remeasurements of net defined benefit liabilities of associates and joint ventures	-	-	-	-	(2,001,278,233)	(16,688,109)	(2,017,966,342)
Transactions with shareholders:							
Increase in paid-in capital	14,348,940,000	15,569,486,869	-	-	-	-	29,918,426,869
Dividends paid	-	-	-	-	(24,515,683,050)	(4,693,231,000)	(29,208,914,050)
Changes in ownership interests in subsidiaries that do not result in a loss of control:							
Changes in ownership interests in subsidiaries	-	(16,608,249,448)	-	-	-	(114,650,686,632)	(131,258,936,080)
Others	-	(11,569,308)	(237,414,840)	-	(4,448,476)	(7,246,351)	(260,678,975)
December 31, 2016	<u>₩ 829,665,480,000</u>	<u>₩ 828,447,138,477</u>	<u>₩ (3,196,563,656)</u>	<u>₩ 43,624,934,648</u>	<u>₩ 3,586,395,957,168</u>	<u>₩ 183,389,762,292</u>	<u>₩ 5,468,326,708,929</u>

(Concluded)

See notes.

HANWHA CHEMICAL CORPORATION AND ITS SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS

FOR THE YEARS ENDED DECEMBER 31, 2016 AND 2015

		Korean won	
	Notes	December 31, 2016	December 31, 2015
CASH FLOWS FROM OPERATING ACTIVITIES:			
Cash generated from operating activities	38	₩1,189,190,757,508	₩1,293,680,588,048
Income taxes paid		(38,187,146,118)	(84,389,593,297)
Net cash flows from operating activities		<u>1,151,003,611,390</u>	<u>1,209,290,994,751</u>
CASH FLOWS FROM INVESTING ACTIVITIES:			
Interest received		23,385,620,166	34,150,209,453
Dividends received		140,798,394,647	68,380,471,751
Proceeds from disposal of available-for-sale financial assets		262,092,692	238,225,943
Proceeds from disposal of other financial assets		553,402,962,009	91,950,453,370
Proceeds from disposal of investment in associates and joint ventures		45,717,452,524	4,770,000,000
Proceeds from disposal of subsidiaries		(1,814,556,457)	35,600,000,000
Increase in government grants received		-	100,000,000
Proceeds from disposal of investment property		4,388,569,257	224,458,000
Proceeds from disposal of plant, property and equipment		201,344,828,822	97,152,288,767
Proceeds from disposal of intangible assets		3,228,583,405	2,363,836,852
Acquisition of available-for-sale financial assets		-	(214,110,027)
Acquisition of other financial assets		(441,286,102,879)	(249,896,288,361)
Acquisition of investment in associates and joint ventures		(252,578,062,046)	(257,077,519,486)
Acquisition of investment property		(3,627,086,716)	(17,868,885)
Acquisition of property, plant and equipment		(614,754,964,764)	(759,237,070,804)
Acquisition of intangible assets		(16,471,665,694)	(7,469,152,296)
Acquisition of subsidiaries		<u>(102,092,410,386)</u>	<u>(13,579,633,997)</u>
Net cash flows from investing activities		<u>(460,096,345,420)</u>	<u>(952,561,699,720)</u>
CASH FLOWS FROM FINANCING ACTIVITIES:			
Increase in borrowings		2,063,542,394,626	2,208,663,050,782
Increase in other financial liabilities		548,025,648	306,820,373
Increase in paid-in capital		(242,309,890)	-
Changes in non-controlling interests		(29,074,925,235)	18,982,020,513
Repayment of borrowings		(2,143,944,721,244)	(2,164,230,154,589)
Decrease in other financial liabilities		(154,846,779)	(8,375,891,101)
Payment of interest		(184,388,883,510)	(184,873,595,666)
Payment of dividends		<u>(24,515,683,050)</u>	<u>(24,515,683,050)</u>
Net cash flows from financing activities		<u>(318,230,949,434)</u>	<u>(154,043,432,738)</u>
NET INCREASE IN CASH AND CASH EQUIVALENTS		372,676,316,536	102,685,862,293
CASH AND CASH EQUIVALENTS, BEGINNING OF THE YEAR		<u>644,785,721,050</u>	<u>549,393,182,341</u>
EFFECTS OF EXCHANGE RATE CHANGES ON THE BALANCE OF CASH HELD IN FOREIGN CURRENCIES		<u>(5,148,644,786)</u>	<u>(7,293,323,584)</u>
CASH AND CASH EQUIVALENTS, END OF THE YEAR		<u>₩1,012,313,392,800</u>	<u>₩ 644,785,721,050</u>

See notes.

HANWHA CHEMICAL CORPORATION AND ITS SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

AS OF DECEMBER 31, 2016 AND 2015,

1. GENERAL:

Hanwha Chemical Corporation (the “Company”) is headquartered in Janggyo-dong, Jung-gu, Seoul and its manufacturing facilities are located in Ulsan and the petrochemical complex in Yeo-su, Jeolla Namdo, Republic of Korea. The consolidated financial statements for the year ended December 31, 2016 represent ownership interests of the Company and its subsidiaries (the “Group”) in associates and joint ventures.

The Company listed its stocks on the Korea Stock Exchange on June 19, 1974. Major shareholders as of December 31, 2016 are Hanwha Corporation with ownership of 36.51%(except treasury stocks) and others.

The Company’s Global Depositary Receipts (GDR) are listed on the Singapore Stock Exchange (Singapore Exchange Securities Trading Limited) and listed 21,656,060 shares on April 30, 2014.

(1) Details of subsidiaries

The Group’s consolidated subsidiaries as of December 31, 2016 and 2015, are as follows:

Company	Locations	Closing month	Main business	Percentage of ownership	
				December 31, 2016	December 31, 2015
Gyeonggi Yongin Techno Valley Co., Ltd.	Korea	December	Real estate	75.00%	75.00%
Gyeonggi Hwasung Bio Valley Co., Ltd.	Korea	December	Real estate	51.00%	51.00%
Gimhae Techno Valley Co., Ltd.	Korea	December	Real estate	80.00%	80.00%
SEOSAN TECHNO VALLEY	Korea	December	Real estate development and sales	65.00%	65.00%
C-space Co., Ltd	Korea	December	Convenient store chain business	-	100.00%
Asan Techno Valley	Korea	December	Real estate	65.00%	65.00%
Hanwha Galleria Co., Ltd.	Korea	December	Department store and wholesale, retail	100.00%	100.00%
Hanwha Galleria Timeworld Co., Ltd.	Korea	December	Department store	70.65%	70.65%
Hanwha City Development Co., Ltd.	Korea	December	Real estate	100.00%	100.00%
Hanwha B&B Co., Ltd.	Korea	December	Restaurants business	100.00%	100.00%
NHL Development Co.Ltd	Korea	December	Shipping service	100.00%	100.00%
Hanwha Advanced Materials Corporation	Korea	December	Synthetic resin	100.00%	100.00%
Hanwha Compound Corporation	Korea	December	Manufacture and sale of packaging material	99.99%	99.99%
Hanwha Chemical Overseas Holdings, Co., Ltd.	Korea	December	Holding company	100.00%	100.00%
Hanwha Q CELLS Corp.	Korea	December	Photovoltaic business	100.00%	100.00%
HANWHA FINE CHEMICAL CO., LTD.(*1)	Korea	December	Manufacture and sale of chemical product	-	48.54%
Hanwha Chemical Trading (Shanghai) Co., Ltd. (formerly Hanwha Trading(Shanghai) Co., Ltd.)	China	December	Trading business	100.00%	100.00%
Avenir el Divisadero SpA	Chile	December	EPC business	100.00%	100.00%
BOURTON RENEWABLES LIMITED	England	December	EPC business	100.00%	100.00%
Chandler LLC.	U.S.A	December	Real estate development	90.00%	90.00%
Fenland Renewables Limited	England	December	Photovoltaic business	-	100.00%
Fotovoltaica De Los Andes SpA	Chile	December	Photovoltaic business	100.00%	100.00%
Fotovoltaica Del Desierto SPA	Chile	December	Photovoltaic business	100.00%	-
Fotovoltaica Sol del Norte SpA	Chile	December	Photovoltaic business	100.00%	100.00%
Green End Renewables Limited.	England	December	Photovoltaic business	-	100.00%
Hale Ali'I Park Association, LLC	U.S.A	December	Real estate development	-	100.00%
Hale Ka Lae, LLC	U.S.A	December	Real estate development	100.00%	100.00%
Hanwha Advanced Materials America LLC	U.S.A	December	Manufacture of car parts	100.00%	100.00%
Hanwha Advanced Materials Beijing Co., Ltd.	China	December	Manufacture of car parts	100.00%	100.00%

Company	Locations	Closing month	Main business	Percentage of ownership	
				December 31, 2016	December 31, 2015
Hanwha Advanced Materials Chongqing Co., Ltd.	China	December	Manufacture of car parts	100.00%	100.00%
Hanwha Advanced Materials Europe, s.r.o.	Czech	December	Manufacture of car parts	100.00%	100.00%
Hanwha Advanced Materials Germany GmbH	Germany	December	Manufacture of car parts	100.00%	100.00%
Hanwha Advanced Materials Holdings USA Inc.	U.S.A	December	Holding company	100.00%	100.00%
Hanwha Advanced Materials Holdings USA LLC	U.S.A	December	Holding company	100.00%	100.00%
Hanwha Advanced Materials Mexico S. De R.L. De C.V.	Mexico	December	Manufacture of car parts	100.00%	100.00%
Hanwha Advanced Materials Shanghai Co., Ltd.	China	December	Manufacture of car parts	100.00%	100.00%
Hanwha America Development Inc.	U.S.A	December	Holding company	100.00%	-
Hanwha America Development LLC	U.S.A	December	Real estate development	100.00%	100.00%
Hanwha AZDEL, Inc.	U.S.A	December	Manufacture of car parts	100.00%	100.00%
Hanwha Chandler LLC	U.S.A	December	Real estate development	100.00%	100.00%
Hanwha Chemical (Ningbo) Co., Ltd.	China	December	Manufacture of compound	100.00%	100.00%
Hanwha Chemical (Thailand) Co.,Ltd.	Thailand	December	Manufacture of compound	99.99%	99.99%
HANWHA CHEMICAL INDIA PRIVATE LIMITED	India	March	Trading business	99.99%	99.99%
Hanwha Chemical Malaysia Sdn. Bhd.	Malaysia	December	Trading business	100.00%	100.00%
Hanwha Development Services LLC	U.S.A	December	Real estate development	100.00%	100.00%
Hanwha Hawaii LLC	U.S.A	December	Real estate development	100.00%	100.00%
Hanwha Holdings(USA), Inc.	U.S.A	December	Holding company	80.00%	50.98%
Hanwha International Corp.	U.S.A	December	Holding company	100.00%	100.00%
Hanwha International LLC	U.S.A	December	Trading business	100.00%	100.00%
Hanwha Machinery Americas, Inc.	U.S.A	December	Sales machinery	100.00%	100.00%
Hanwha Parcel O LLC	U.S.A	December	Real estate development	100.00%	100.00%
Hanwha Property USA LLC	U.S.A	December	Real estate development and management	100.00%	100.00%
Hanwha PVPLUS LLC	U.S.A	December	Asset securitization	100.00%	100.00%
Hanwha Q CELLS America Inc.	U.S.A	December	Photovoltaic business	100.00%	100.00%
Hanwha Q CELLS America Project Holdings	U.S.A	December	Photovoltaic project investment	100.00%	-
Hanwha Q CELLS Australia Pty Ltd.	Australia	December	Photovoltaic business	100.00%	100.00%
Hanwha Q CELLS Canada, Corp.	Canada	December	Photovoltaic business	100.00%	100.00%
Hanwha Q CELLS Chile SpA	Chile	December	Photovoltaic business	100.00%	100.00%
Hanwha Q CELLS Co., Ltd. (*2)	England	December	Photovoltaic business	93.98%	93.89%
Hanwha Q CELLS(Qidong) Co., Ltd.	China	December	Manufacture of silicon ingot	100.00%	100.00%
Hanwha Q CELLS France SAS	France	December	Photovoltaic business	100.00%	100.00%
Hanwha Q CELLS GmbH	Germany	December	Photovoltaic business	100.00%	100.00%
Hanwha Q CELLS Hong Kong Limited	HongKong	December	Investment and procurement	100.00%	100.00%
Hanwha Q CELLS Investment Co., Ltd.	England	December	Holding company	100.00%	100.00%
Hanwha Q CELLS Malaysia Sdn. Bhd.	Malaysia	December	Photovoltaic business	100.00%	100.00%
Hanwha Q CELLS (Nantong)Co., Ltd. (formerly, Hanwha SolarOne(Nantong) Co., Ltd.)	China	December	Photovoltaic business	100.00%	100.00%
Hanwha Q CELLS Peru S.A.C (*2)	Peru	December	Photovoltaic business	99.99%	99.97%
HANWHA Q CELLS SOLAR POWER SDN. BHD.	Malaysia	December	Photovoltaic business	100.00%	100.00%
Hanwha Q CELLS Technology Co., Ltd.(formerly, Hanwha SolarOne Technology Co., Ltd.)	China	December	Manufacture of silicon ingot	100.00%	100.00%
Hanwha Q CELLS Technology (Shanghai) Co., Ltd. (formerly, Hanwha SolarOne(Shanghai) Co., Ltd.)	China	December	Photovoltaic business	100.00%	100.00%
Hanwha Q CELLS Til Til Dos SpA	Chile	December	EPC business	100.00%	100.00%
Hanwha Q CELLS Til Til Uno SPA	Chile	December	Photovoltaic business	100.00%	100.00%
Hanwha Q CELLS Turkey	Turkey	December	Photovoltaic business	100.00%	100.00%
Hanwha Riverside LLC	U.S.A	December	Real estate development	100.00%	100.00%
Hanwha Solar America LLC	U.S.A	December	Solar energy laboratory	-	100.00%
Hanwha Solar Electric Power Engineering Co., Ltd.	China	December	Photovoltaic business	100.00%	100.00%
Hanwha Solar Engineering R&D center Co., Ltd.	China	December	R&D	100.00%	100.00%
Hanwha Solar Holdings Co.,Ltd.	England	December	Holding company	100.00%	100.00%
Hanwha SolarOne (Laiyang) Co., Ltd	China	December	Photovoltaic business	100.00%	100.00%

Company	Locations	Closing month	Main business	Percentage of ownership	
				December 31, 2016	December 31, 2015
Hanwha SolarOne (Rugao) Co., Ltd	China	December	Photovoltaic business	100.00%	100.00%
Hanwha SolarOne GmbH	Germany	December	Photovoltaic business	100.00%	100.00%
Hanwha SolarOne Investment Holding Ltd.	England	December	Holding company	100.00%	100.00%
Hanwha SolarOne Power Generation (Wuxi) Co., Ltd.	China	December	Photovoltaic business	100.00%	100.00%
Hanwha Sonoran LLC	U.S.A	December	Real estate development	-	100.00%
HANWHA TECHM USA LLC	U.S.A	December	Manufacture of car parts	100.00%	100.00%
HANWHA UK SOLAR 1 LIMITED	England	December	Photovoltaic business	-	100.00%
Hanwha Village Market, LLC	U.S.A	December	Real estate development	100.00%	100.00%
Hanwha West Properties LLC	U.S.A	December	Real estate development	100.00%	100.00%
HARELAW RENEWABLES LIMITED	England	December	EPC business	100.00%	100.00%
HIGH ERCALL RENEWABLES LIMITED	England	December	EPC business	100.00%	100.00%
KMPT Solarpark Verwaltung GmbH	Germany	December	Photovoltaic business	100.00%	100.00%
Lodz Solar Sp. z o.o.	Poland	December	EPC business	52.00%	52.00%
Mazovia Solar 1 Sp. Z o.o.	Poland	December	EPC business	52.00%	52.00%
Mazovia Solar 2 Sp. Z o.o.	Poland	December	EPC business	52.00%	52.00%
Mazovia Solar 3 Sp. Z o.o.	Poland	December	EPC business	52.00%	52.00%
Nantong Hanwha Import & Export Co., Ltd.	China	December	Photovoltaic business	100.00%	100.00%
PV Vallenar Uno SpA	Chile	December	Holding company	100.00%	100.00%
SFH Solarpark GmbH	Germany	December	Photovoltaic business	100.00%	100.00%
Solarpark FFT Infrastruktur GmbH & Co. KG	Germany	December	Photovoltaic business	100.00%	100.00%
Solarpark NSTR Infrastruktur GmbH & Co. KG	Germany	December	EPC business	100.00%	-
Solarpark HZBG Infrastruktur GmbH & Co. KG	Germany	December	EPC business	100.00%	-
Sonoran Vista LLC	U.S.A	December	Real estate development	-	90.00%
Tower Hill Farm Ltd., England	England	December	Photovoltaic business	-	100.00%
Universal Bearings LLC	U.S.A	December	Manufacture of Bearings	100.00%	100.00%
WSE Bradley Road Ltd	England	December	Photovoltaic business	100.00%	100.00%

(*1) The Group's ownership interest in HANWHA FINE CHEMICAL CO., LTD. was a minority stake as of December 31, 2015, but the remaining shareholders were widely dispersed. As such, the Group's ownership was determined to be controlling.

(*2) Due to the issuance of unequal shares during the year ended December 31, 2016, the Group's ownership percentage increased.

(2) Changes of scope of consolidation

Subsidiaries newly included in the consolidation and excluded from the consolidation during the year ended December 31, 2016, are as follows:

1) Subsidiaries newly included in the consolidation during the year ended December 31, 2016, are as follows:

Subsidiaries	Reason
Fotovoltaica Del Desierto SPA	Newly established
Hanwha Q CELLS America Project Holdings	Newly established
Solarpark NSTR Infrastruktur GmbH & Co. KG	Newly established
Solarpark HZBG Infrastruktur GmbH & Co. KG	Newly established
Hanwha America Development Inc.	Newly acquired

2) Subsidiaries excluded from the consolidation during the year ended December 31, 2016, are as follows:

Subsidiaries	Reason
C-space Co., Ltd.	Loss of control due to disposal
Fenland Renewables Limited	Loss of control due to disposal
Green End Renewables Limited.	Loss of control due to disposal
HANWHA UK SOLAR 1 LIMITED	Loss of control due to disposal
Tower Hill Farm Ltd., England	Loss of control due to disposal
HANWHA FINE CHEMICAL CO., LTD.	Merger/ Liquidation
Hale Ali'I Park Association, LLC	Merger/ Liquidation
Hanwha Solar America LLC	Merger/ Liquidation
Hanwha Sonoran, LLC	Merger/ Liquidation
Sonoran Vista LLC	Merger/ Liquidation

3) Financial information of major subsidiaries as of and for the year ended December 31, 2016, is as follows:

	Korean won (In thousands)				
	Assets	Liabilities	Equity	Revenue	Net income (loss)
Gyeonggi Yongin Techno Valley Co., Ltd.	₩ 101,117,695	₩ 101,226,825	₩ (109,130)	₩ -	₩ (4,538,885)
Gyeonggi Hwasung Bio Valley Co., Ltd.	133,602,092	130,442,934	3,159,158	213,587,757	19,913,120
Gimhae Techno Valley Co., Ltd.	291,804,074	263,222,368	28,581,706	162,155,613	13,072,627
SEOSAN TECHNO VALLEY	46,350,305	41,231,212	5,119,093	66,939,148	4,700,890
Asan Techno Valley	50,640,078	50,059,945	580,133	40,516,852	4,321,380
Hanwha Galleria Co., Ltd.	1,710,607,658	941,974,519	768,633,139	362,999,505	(8,922,040)
Hanwha Galleria Timeworld Co., Ltd.	472,873,719	236,208,958	236,664,761	284,781,001	(11,596,245)
Hanwha City Development Co., Ltd.	237,321,533	37,858,887	199,462,646	30,000	8,883,169
Hanwha B&B Co., Ltd.	11,067,380	2,827,325	8,240,055	14,604,688	(184,792)
NHL Development Co.Ltd	134,102,548	29,538,629	104,563,919	92,003,207	(14,155,455)
Hanwha Advanced Materials Corporation	976,876,245	577,677,881	399,198,364	646,793,513	8,264,199
Hanwha Compound Corporation	88,500,128	18,001,230	70,498,898	85,297,410	1,341,579
Hanwha Chemical Overseas Holdings, Co., Ltd.	88,932,409	550	88,931,859	-	(100,582)
Hanwha Chemical Trading (Shanghai) Co., Ltd. (formerly Hanwha Trading(Shanghai) Co., Ltd.)	47,581,742	34,323,414	13,258,328	103,439,099	2,307,311
Hanwha Advanced Materials Beijing Co., Ltd.	61,942,897	19,011,868	42,931,029	71,138,269	3,641,621
Hanwha Advanced Materials Europe, s.r.o.	68,359,026	49,978,734	18,380,292	84,427,472	589,235
Hanwha Advanced Materials Holdings USA Inc.	47,851,472	3,848,223	44,003,249	-	-
Hanwha Advanced Materials Mexico S. De R.L. De C.V.	41,711,936	31,731,391	9,980,545	14,680,007	(5,861,610)
Hanwha Advanced Materials Shanghai Co., Ltd.	57,397,437	31,161,147	26,236,290	57,084,554	(166,916)
Hanwha America Development Inc.	116,427,082	4,282,752	112,144,330	-	(1,464,608)
Hanwha Chemical (Ningbo) Co., Ltd.	327,151,086	138,676,364	188,474,722	358,794,702	61,986,980
Hanwha Chemical (Thailand) Co.,Ltd.	43,076,331	16,018,407	27,057,924	30,446,530	4,556,864
Hanwha Chemical Malaysia Sdn. Bhd.	39,881,815	27,992,293	11,889,522	148,826,932	5,689,610
Hanwha Holdings(USA), Inc. (*1)	831,951,970	515,970,189	315,981,781	687,983,714	12,191,401
Hanwha International Corp.	60,742,245	2,831,822	57,910,423	-	77,705
Hanwha Q CELLS Australia Pty Ltd.	14,393,736	13,551,224	842,512	52,212,019	1,108,643
Hanwha Q CELLS Chile SpA	29,215,878	8,962,599	20,253,279	15,299,387	(1,481,415)
Hanwha Q CELLS Co., Ltd. (*2)	2,939,881,914	1,790,556,639	1,149,325,275	2,748,294,450	82,291,899
Hanwha Q CELLS GmbH	369,302,758	184,465,466	184,837,292	128,189,035	(72,747,632)
Hanwha Q CELLS Investment Co., Ltd.	592,275,862	201,395,633	390,880,229	-	(1,293,310)
Hanwha Q CELLS Malaysia Sdn. Bhd.	637,522,801	526,936,588	110,586,213	811,432,326	82,683,840
Hanwha Q CELLS Turkey	87,951,155	59,098,672	28,852,483	140,911,301	5,579,999
Hanwha Solar Holdings Co.,Ltd.	902,632,215	-	902,632,215	-	(27,098)

(*1) Financial information of intermediate parent company Hanwha Holdings (USA), Inc. and its 19 subsidiaries

(*2) Financial information of intermediate parent company Hanwha Q CELLS Co., Ltd. and its 17 subsidiaries

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES:

(1) Basis of preparation

The Company and its subsidiaries (the “Group”) have prepared the consolidated financial statements in accordance with the Korean International Financial Reporting Standards (“K-IFRS”).

The principal accounting policies are set out below. Except for the effect of the Amendments to K-IFRSs and new interpretations set out below, the principal accounting policies used to prepare the consolidated financial statements as of and for the year ended December 31, 2016 are consistent with the accounting policies used to prepare the consolidated financial statements as of and for the year ended December 31, 2015.

The accompanying consolidated financial statements have been prepared on the historical cost basis except for certain non-current assets and financial instruments that are measured at fair values, as explained in the accounting policies below. Historical cost is based on the fair values of the consideration given.

1) Amendments to K-IFRSs and new interpretations that are mandatorily effective for the current year

In the current year, the Group has applied a number of amendments to K-IFRSs and new interpretations issued that are mandatorily effective accounting periods beginning on or after January 1, 2016.

Amendments to K-IFRS 1110 – Consolidated Financial Statements & K-IFRS 1112 Disclosure of interests in other entities & K-IFRS 1028 Investment in associates

The amendments clarify that in applying the equity method of accounting to an associate or a joint venture that is an investment entity, an investor may retain the fair value measurements that the associate or joint venture used for its subsidiaries. The application of these amendments has no material impact on the disclosures or the amounts recognized in the Group's consolidated financial statements.

Amendments to K-IFRS 1111 – Accounting for Acquisitions of Interests in Joint Operations

The amendments to K-IFRS 1111 provide guidance on how to account for the acquisition of a joint operation that constitutes a business as defined in K-IFRS 1103 *Business Combinations*. A joint operator is also required to disclose the relevant information required by K-IFRS 1103 and other standards for business combinations. The application of these amendments has no material impact on the disclosures or the amounts recognized in the Group's consolidated financial statements.

Amendments to K-IFRS 1001 – Disclosure Initiative

The amendments to K-IFRS 1001 clarify the concept of applying materiality in practice and restrict an entity reducing the understandability of its financial statements by obscuring material information with immaterial information or by aggregating material items that have different natures or functions. The application of these amendments has no material impact on the disclosures or the amounts recognized in the Group's consolidated financial statements.

Amendments to K-IFRS 1016 – Property, Plant and Equipment

The amendments to K-IFRS 1016 prohibit the Group from using a revenue-based depreciation method for items of property, plant and equipment. The application of these amendments has no material impact on the disclosures or the amounts recognized in the Group's consolidated financial statements.

Amendments to K-IFRS 1038 – Intangible Assets

The amendments to K-IFRS 1038 do not allow presumption that revenue is an appropriate basis for the amortization of intangible assets, which the presumption can only be limited when the intangible asset is expressed as a measure of revenue or when it can be demonstrated that revenue and consumption of the economic benefits of the intangible asset are highly correlated. The application of these amendments has no material impact on the disclosures or the amounts recognized in the Group's consolidated financial statements.

Annual Improvements to K-IFRS 2012-2014 Cycle

The annual improvements include amendments to a number of K-IFRSs. The amendments introduce specific guidance in K-IFRS 1105 *Non-current Assets Held for Sale and Discontinued Operations* when an entity reclassifies an asset (or disposal group) from held for sale to held for distribution to owners (or vice versa); such a change is considered as a continuation of the original plan of disposal, and not as a change to a plan of sale. Other amendments in the annual improvements include K-IFRS 1107 *Financial Instruments: Disclosures*, K-IFRS 1019 *Employee Benefits*, and K-IFRS 1034 *Interim Financial Reporting*. The application of these amendments has no material impact on the disclosures or the amounts recognized in the Group's consolidated financial statements.

2) New and revised IFRSs in issue but not yet effective

The Group has not applied the following new and revised K-IFRSs that have been issued but are not yet effective.

Amendments to K-IFRS 1109 – *Financial Instruments*

The amendments to K-IFRS 1109 contain the requirements for the classification and measurement of financial assets and financial liabilities based on a business model whose objective is achieved both by collecting contractual cash flows and selling financial assets and based on the contractual terms that give rise on specified dates to cash flows, impairment methodology based on the expected credit losses, and broadened types of instruments that qualify as hedging instruments and the types of risk components of non-financial items that are eligible for hedge accounting and the change of the hedge effectiveness test. The amendments are effective for annual periods beginning on or after January 1, 2018

Preparations for the analysis of financial impact and design of accounting policy, development of accounting system and system stabilization is necessary for the smooth introduction of K-IFRS 1109. The impact of initial application of this standard on the financial statements will differ depending on the selection and judgment of accounting policy the financial instruments held by the Company, economics condition and other factors during the accounting period.

Amendments to K-IFRS 1115 – *Revenue from Contracts with Customers*

The core principle under K-IFRS 1115 is that an entity should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. The amendments introduces a five-step approach to revenue recognition and measurement: 1) Identify the contract with a customer, 2) Identify the performance obligations in the contract, 3) Determine the transaction price, 4) Allocate the transaction price to the performance obligations in the contract and, 5) Recognize revenue when (or as) the entity satisfies a performance obligation. This standard will supersede K-IFRS 1011 – *Construction Contracts*, K-IFRS 1018 – *Revenue*, K-IFRS 2113 – *Customer Loyalty Programmes*, K-IFRS 2115 – *Agreements for the Construction of Real Estate*, K-IFRS 2118 – *Transfers of Assets from Customers*, and K-IFRS 2031 – *Revenue-Barter Transactions Involving Advertising Services*. The amendments are effective for annual periods beginning on or after January 1, 2018.

Although current K-IFRS 1018 – *Revenue* discloses transactions by category such as sale of goods, provision of services, interest income, royalty income, dividend income and construction contracts, revenue is recognized by applying the 5 step revenue recognition model for all types of contracts in accordance with K-IFRS 1115 and the impact on the financial statements when applying this standard is not likely to be material as of the end of the reporting period.

Amendments to K-IFRS 1102 – *Share-based Payment*

The amendments include: 1) when measuring the fair value of share-based payment, the effects of vesting and non-vesting conditions on the measurement of cash-settled share-based payment should be consistent with the measurement of equity-settled share-based payment, 2) Share-based payment transaction in which the Group settles the share-based payment arrangement net by withholding a specified portion of the equity instruments per statutory tax withholding requirements would be classified as equity-settled in its entirety, if otherwise would be classified as equity-settled without the net settlement feature, and 3) when a cash-settled share-based payment changes to an equity-settled share-based payment because of modifications of the terms and conditions, the original liability recognized is derecognized and the equity-settled share-based payment is recognized at the modification date fair value. Any difference between the carrying amount of the liability at the modification date and the amount recognized in equity at the same date would be recognized in profit and loss immediately. The amendments are effective for annual periods beginning on or after January 1, 2018.

Amendments to K-IFRS 1007 – *Statement of Cash Flows*

The amendments require that changes in liabilities arising from financial activities are disclosed. The amendments are effective for annual periods beginning on or after January 1, 2017.

Amendments to K-IFRS 1012 – *Income Taxes*

The amendments clarify that unrealized losses on fixed-rate debt instruments measured at fair value and measured at cost for tax purposes give rise to a deductible temporary difference regardless of whether the holder expects to recover the carrying amount of the debt instrument by sale or by use and that the estimate of probable future taxable profit may include the recovery of some of assets for more than their carrying amount. When the Group assesses whether there will be sufficient taxable profit, the Group should compare the deductible temporary differences with future taxable profit that excludes tax deductions resulting from the reversal of those deductible temporary differences. The amendments are effective for annual periods beginning on or after January 1, 2017.

The application of these amendments has no material impact on the disclosure in the Group's consolidated financial statements.

(2) Basis of Consolidation

The consolidated financial statements incorporate the financial statements of the Company and entities (including structured entities) controlled by the Company (and its subsidiaries). Control is achieved where the Company 1) has the power over the investee, 2) is exposed, or has rights, to variable returns from its involvement with the investee, and 3) has the ability to use its power to affect its returns. The Company reassesses whether or not it controls an investee if facts and circumstances indicate that there are changes to one or more of the three elements of control listed above.

When the Company has less than a majority of the voting rights of an investee, it has power over the investee when the voting rights are sufficient to give it the practical ability to direct the activities of the investee unilaterally. The Company considers all relevant facts and circumstances in assessing whether or not the Company's voting rights in an investee are sufficient to give it power, including:

- the size of the Company's holding of voting rights relative to the size and dispersion of holdings of the other vote holders;
- potential voting rights held by the Company, other vote holders or other parties;
- rights arising from other contractual arrangements; and
- any additional facts and circumstances that indicate that the Company has, or does not have, the current ability to direct the relevant activities at the time that decisions need to be made, including voting patterns at previous shareholders' meetings.

Income and expenses of subsidiaries acquired or disposed of during the year are included in the consolidated statement of comprehensive income from the date the Company gains control until the date when the Company ceases to control the subsidiary. Profit or loss and each component of other comprehensive income are attributed to the owners of the Company and to the non-controlling interests. Total comprehensive income of subsidiaries is attributed to the owners of the Company and to the non-controlling interests even if this results in the non-controlling interests having a deficit balance

When necessary, adjustments are made to the financial statements of subsidiaries to bring their accounting policies into line with the Group's accounting policies.

All intra-group transactions and related assets and liabilities, income and expenses are eliminated in full on consolidation

Changes in the Group's ownership interests in subsidiaries that do not result in the Group losing control over the subsidiaries are accounted for as equity transactions. The carrying amounts of the Group's interests and the non-controlling interests are adjusted to reflect the changes in their relative interests in the subsidiaries. Any difference between the amount by which the non-controlling interests are adjusted and the fair value of the consideration paid or received is recognized directly in equity and attributed to owners of the Company.

When the Group loses control of a subsidiary, a gain or loss on disposal is calculated as the difference between (i) the aggregate of the fair value of the consideration received and the fair value of any retained interest and (ii) the previous carrying amount of the assets (including goodwill), and liabilities of the subsidiary and any non-controlling interests. When assets of the subsidiary are carried at revalued amounts or fair values and the related cumulative gain or loss has been recognized in other comprehensive income and accumulated in equity, the amounts previously recognized in other comprehensive income and accumulated in equity are accounted for as if the Company had directly disposed of the relevant assets (i.e. reclassified to profit or loss or transferred directly to retained earnings). The fair value of any investment retained in the former subsidiary at the date when control is lost is recognized as the fair value on initial recognition for subsequent accounting under K-IFRS 1039 *Financial Instruments: Recognition and Measurement* or, when applicable, the cost on initial recognition of an investment in an associate or a joint venture.

(3) Business combinations

Acquisitions of businesses are accounted for using the acquisition method. The consideration transferred in a business combination is measured at fair value, which is calculated as the sum of the fair values of the assets transferred by the Group, liabilities incurred by the Group to the former owners of the acquiree and the equity interests issued by the Group in exchange for control of the acquiree. Acquisition-related costs are generally recognized in profit or loss as incurred.

At the acquisition date, the identifiable assets acquired and the liabilities assumed are recognized at their fair value at the acquisition date, except that:

- deferred tax assets or liabilities and liabilities or assets related to employee benefit arrangements are recognized and measured in accordance with K-IFRS 1012 *Income Taxes* and K-IFRS 1019 *Employee Benefits* respectively;
- liabilities or equity instruments related to share-based payment arrangements of the acquiree or share-based payment arrangements of the Group entered into to replace share-based payment arrangements of the acquiree are measured in accordance with K-IFRS 1102 *Share-based Payment* at the acquisition date; and
- assets (or disposal groups) that are classified as held for sale in accordance with K-IFRS 1105 *Non-current Assets Held for Sale and Discontinued Operations* are measured in accordance with that standard.

Goodwill is measured as the excess of the sum of: a) the consideration transferred, b) the amount of any non-controlling interests in the acquiree, and c) the fair value of the acquirer's previously held equity interest in the acquiree (if any); over the net of the acquisition-date amounts of the identifiable assets acquired and the liabilities assumed. If, after reassessment, the net of the acquisition-date amounts of the identifiable assets acquired and liabilities assumed exceeds the sum of: a) the consideration transferred, b) the amount of any non-controlling interests in the acquiree, and c) the fair value of the acquirer's previously held interest in the acquiree (if any); the excess is recognized immediately in profit or loss as a bargain purchase gain.

Non-controlling interests that are present ownership interests and entitle their holders to a proportionate share of the entity's net assets in the event of liquidation may be initially measured either at fair value or at the non-controlling interests' proportionate share of the recognized amounts of the acquiree's identifiable net assets. The choice of measurement basis is made on a transaction-by-transaction basis. Other types of non-controlling interests are measured at fair value or, when applicable, on the basis specified in another K-IFRS.

When the consideration transferred by the Group in a business combination includes assets or liabilities resulting from a contingent consideration arrangement, the contingent consideration is measured at its acquisition-date fair value and included as part of the consideration transferred in a business combination. Changes in the fair value of the contingent consideration that qualify as measurement period adjustments are adjusted retrospectively, with corresponding adjustments against goodwill. Measurement period adjustments are adjustments that arise from additional information obtained during the 'measurement period' (which cannot exceed one year from the acquisition date) about facts and circumstances that existed at the acquisition date

The subsequent accounting for changes in the fair value of the contingent consideration that do not qualify as measurement period adjustments depends on how the contingent consideration is classified. Contingent consideration that is classified as equity is not remeasured at subsequent reporting dates and its subsequent settlement is accounted for within equity. Contingent consideration that is classified as an asset or a liability is remeasured at subsequent reporting dates in accordance with K-IFRS 1039 *Financial Instruments: Recognition and Measurement*, or K-IFRS 1037 *Provisions, Contingent Liabilities and Contingent Assets*, as appropriate, with the corresponding gain or loss being recognized in profit or loss.

When a business combination is achieved in stages, the Group's previously held equity interest in the acquiree is remeasured to fair value at the acquisition date and the resulting gain or loss, if any, is recognized in profit or loss. Amounts arising from interests in the acquiree prior to the acquisition date that have previously been recognized in other comprehensive income are reclassified to profit or loss where such treatment would be appropriate if that interest were disposed of.

If the initial accounting for a business combination is incomplete by the end of the reporting period in which the combination occurs, the Group reports provisional amounts for the items for which the accounting is incomplete. Those provisional amounts are adjusted during the measurement period (see above), or additional assets or liabilities are recognized, to reflect new information obtained about facts and circumstances that existed at the acquisition date that, if known, would have affected the amounts recognized at that date.

(4) Investments in associates and joint ventures

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

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

The results and assets and liabilities of associates or joint ventures are incorporated in these consolidated financial statements using the equity method of accounting, except when the investment is classified as held for sale, in which case it is accounted for in accordance with K-IFRS 1105 *Non-current Assets Held for Sale and Discontinued Operations*. Under the equity method, an investment in an associate or a joint venture is initially recognized in the consolidated statement of financial position at cost and adjusted thereafter to recognize the Group's share of the profit or loss and other comprehensive income of the associate or joint venture. When the Group's share of losses of an associate or a joint venture exceeds the Group's interest in that associate or joint venture (which includes any long-term interests that, in substance, form part of the Group's net investment in the associate or joint venture), the Group discontinues recognizing its share of further losses. Additional losses are recognized only to the extent that the Group has incurred legal or constructive obligations or made payments on behalf of the associate or joint venture.

Any excess of the cost of acquisition over the Group's share of the net fair value of the identifiable assets, liabilities and contingent liabilities of an associate or a joint venture recognized at the date of acquisition is recognized as goodwill, which is included within the carrying amount of the investment. Any excess of the Group's share of the net fair value of the identifiable assets, liabilities and contingent liabilities over the cost of acquisition, after reassessment, is recognized immediately in profit or loss.

Upon disposal of an associate or a joint venture that results in the Group losing significant influence over that associate or joint venture, any retained investment is measured at fair value at that date and the fair value is regarded as its fair value on initial recognition as a financial asset in accordance with K-IFRS 1039 *Financial Instruments: Recognition and Measurement*. The difference between the previous carrying amount of the associate or joint venture attributable to the retained interest and its fair value is included in the determination of the gain or loss on disposal of the associate or joint venture. In addition, the Group accounts for all amounts previously recognized in other comprehensive income in relation to that associate or joint venture on the same basis we would be required if that associate or joint venture had directly disposed of the related assets or liabilities. Therefore, if a gain or loss previously recognized in other comprehensive income by that associate or joint venture would be reclassified to profit or loss on the disposal of the related assets or liabilities, the Group reclassifies the gain or loss from equity to profit or loss (as reclassification adjustment) when it loses significant influence over that associate or joint venture.

When the Group reduces its ownership interest in an associate or a joint venture but the Group continues to use the equity method, the Group reclassifies to profit or loss the proportion of the gain or loss that had previously been recognized in other comprehensive income relating to that reduction in ownership interest if that gain or loss would be reclassified to profit or loss on the disposal of the related assets or liabilities. In addition, the Group applies K-IFRS 1105 *Non-current Assets Held for Sale and Discontinued Operations* to a portion of investment in an associate or a joint venture that meets the criteria to be classified as held for sale.

The requirements of K-IFRS 1039 *Financial Instruments: Recognition and Measurement* are applied to determine whether it is necessary to recognize any impairment loss with respect to the Group's investment in an associate or a joint venture. When necessary, the entire carrying amount of the investment (including goodwill) is tested for impairment in accordance with K-IFRS 1036 *Impairment of Assets* by comparing its recoverable amount (higher of value in use and fair value less costs to sell) with its carrying amount, any impairment loss recognized forms part of the carrying amount of the investment. Any reversal of that impairment loss is recognized in accordance with K-IFRS 1036 *Impairment of Assets* to the extent that the recoverable amount of the investment subsequently increases.

The Group continues to use the equity method when an investment in an associate becomes an investment in a joint venture or an investment in a joint venture becomes an investment in an associate. There is no remeasurement to fair value upon such changes in ownership interests.

When an entity transacts with an associate or a joint venture of the Group, profits and losses resulting from the transactions with the associate or joint venture are recognized in the Group's consolidated financial statements only to the extent of interests in the associate or joint venture that are not related to the Group.

(5) Interests in joint operations

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

When an entity undertakes its activities under joint operations, the Group as a joint operator recognizes in relation to its interest in a joint operation:

- its assets, including its share of any assets held jointly;
- its liabilities, including its share of any liabilities incurred jointly;
- its revenue from the sale of its share of the output arising from the joint operation;
- its share of the revenue from the sale of the output by the joint operation; and
- its expenses, including its share of any expenses incurred jointly.

The Group accounts for the assets, liabilities, revenues and expenses relating to its interest in a joint operation in accordance with the K-IFRSs applicable to the particular assets, liabilities, revenues and expenses.

When an entity transacts with a joint operation in which an entity is a joint operator (such as a sale or contribution of assets), the Group is considered to be conducting the transaction with the other parties to the joint operation, and gains and losses resulting from the transactions are recognized in the Group's consolidated financial statements only to the extent of other parties' interests in the joint operation.

When an entity transacts with a joint operation in which an entity is a joint operator (such as a purchase of assets), the Group does not recognize its share of the gains and losses until it resells those assets to a third party.

(6) Goodwill

Goodwill resulting from an acquisition of a business is carried at cost as established at the date of acquisition of the business less accumulated impairment losses, if any.

For the purpose of impairment testing, goodwill is allocated to each of the Group's cash-generating units (or groups of cash-generating units) that is expected to benefit from the synergies of the combination.

A cash-generating unit to which goodwill has been allocated is tested for impairment annually, or more frequently when there is indication that the unit may be impaired. If the recoverable amount of the cash-generating unit is less than its carrying amount, the impairment loss is allocated first to reduce the carrying amount of any goodwill allocated to the unit and then to the other assets of the unit on a pro rata basis based on the carrying amount of each asset in the unit. Any impairment loss for goodwill is recognized directly in profit or loss. An impairment loss recognized for goodwill is not reversed in subsequent periods.

On disposal of the relevant cash-generating unit, the attributable amount of goodwill is included in the determination of the profit or loss on disposal.

The Group's policy for goodwill resulting from the acquisition of an associate is described at Note 2. (4).

(7) Non-current assets held for sale

Non-current assets and disposal groups are classified as held for sale if their carrying amount will be recovered principally through a sale transaction rather than through continuing use. This condition is regarded as met only when the sale is highly probable and the non-current asset (or disposal group) is available for immediate sale in its present condition. Management must be committed to the sale, which should be expected to qualify for recognition as a completed sale within one year from the date of classification.

When the Group is committed to a sale plan involving loss of control of a subsidiary, all of the assets and liabilities of that subsidiary are classified as held for sale when the criteria described above are met, regardless of whether the Group will retain a non-controlling interest in its former subsidiary after the sale.

When the Group is committed to a sale plan involving disposal of an investment, or a portion of an investment, in an associate or joint venture, the investment or the portion of the investment that will be disposed of is classified as held for sale when the criteria described above are met, and the Group discontinues the use of the equity method in relation to the portion that is classified as held for sale. Any retained portion of an investment in an associate or a joint venture that has not been classified as held for sale continues to be accounted for using the equity method. The Group discontinues the use of the equity method at the time of disposal when the disposal results in the Group losing significant influence over the associate or joint venture.

After the disposal takes place, the Group accounts for any retained interest in the associate or joint venture in accordance with K-IFRS 1039 *Financial Instruments: Recognition and Measurement* unless the retained interest continues to be an associate or a joint venture, in which case the Group uses the equity method.

Non-current assets (and disposal groups) classified as held for sale are measured at the lower of their previous carrying amount and fair value less costs to sell.

(8) Revenue recognition

Revenue is measured at the fair value of the consideration received or receivable. Revenue is reduced for estimated customer returns, rebates and other similar allowances. The Group recognizes revenue when the amount of revenue can be reliably measured; when it is probable that future economic benefits will flow to the entity; and when specific criteria have been met for each of the Group's activities, as described below.

1) Sale of goods

Revenue from the sale of goods is recognized when the Group has transferred to the buyer the significant risks and rewards of ownership of the goods.

Sales of goods that result in award credits for customers, under the Group's Maxi-Points Scheme, are accounted for as multiple element revenue transactions and the fair value of the consideration received or receivable is allocated between the goods supplied and the award credits granted. The consideration allocated to the award credits is measured by reference to their fair value – the amount for which the award credits could be sold separately. Such consideration is not recognized as revenue at the time of the initial sale transaction – but is deferred and recognized as revenue when the award credits are redeemed and the Group's obligations have been fulfilled.

2) Rendering of services

Revenue from a contract to provide services is recognized by reference to the stage of completion of the contract. Depending on the nature of the transaction, the Group determines the stage of completion by reference to surveys of work performed, services performed to date as a percentage of total services to be performed, or the proportion that costs incurred to date bear to the estimated total costs of the transaction, as applicable.

3) Royalties

Royalty revenue is recognized on an accrual basis in accordance with the substance of the relevant agreement (provided that it is probable that the economic benefits will flow to the Group and the amount of revenue can be measured reliably).

4) Dividend and interest income

Dividend income from investments is recognized when the shareholder's right to receive payment has been established (provided that it is probable that the economic benefits will flow to the Group and the amount of income can be measured reliably).

Interest income from a financial asset is recognized when it is probable that the economic benefits will flow to the Group and the amount of income can be measured reliably. Interest income is accrued on a time basis, by reference to the principal outstanding and at the effective interest rate applicable, which is the rate that exactly discounts estimated future cash receipts through the expected life of the financial asset to that asset's net carrying amount on initial recognition

5) Rental income

The Group's policy for recognition of revenue from operating leases is described in Note 2 (10).

6) Customer Royalty Program

The Group operates a customer loyalty program to provide customers with incentives to buy their goods or services. If a customer buys goods or services, the entity grants the customer awards credits (often described as 'points'). The customer can redeem the award credits for awards such as free or discounted goods or services. The awards credits are accounted separately as identifiable component of the sales transaction(s) in which they are granted (the 'initial sales'). The fair value of the consideration received or receivable in respect of the initial sale shall be allocated between the award credits and the other components of the sale.

If the Group supplies the awards itself, it shall recognize the consideration allocated to award credits as revenue when award credits are redeemed and it fulfills its obligation to supply awards. The amount of revenue recognized shall be based on the number of award credits that have been redeemed in exchange for awards, related to the total number expected to be redeemed.

If the third party supplies the awards, the Group shall assess whether it is collecting the consideration allocated to the award credits on its own account (as the principal in the transaction) or on behalf of the third party (as agent for the third party). The amount of revenue recognized shall be net amount retained on its own account.

(9) Construction contracts

Where the outcome of a construction contract can be estimated reliably, revenue and costs are recognized by reference to the stage of completion of the contract activity at the end of the reporting period, measured based on the proportion of contract costs incurred for work performed to date relative to the estimated total contract costs, except where this would not be representative of the stage of completion. Variations in contract work, claims and incentive payments are included to the extent that the amount can be measured reliably and its receipt is considered probable.

Where the outcome of a construction contract cannot be estimated reliably, contract revenue is recognized to the extent of contract costs incurred that it is probable will be recoverable. Contract costs are recognized as expenses in the period in which they are incurred.

When it is probable that total contract costs will exceed total contract revenue, the expected loss is recognized as an expense immediately.

When contract costs incurred to date plus recognized profits less recognized losses exceed progress billing, the surplus is shown as amounts due from customers for contract work. For contracts where progress billings exceed contract costs incurred to date plus recognized profits less recognized losses, the surplus is shown as the amounts due to customers for contract work. Amounts received before the related work is performed are included in the consolidated statement of financial position, as a liability, as advances received. Amounts billed for work performed but not yet paid by the customer are included in the consolidated statement of financial position under trade and other receivables.

(10) Lease

Leases are classified as finance leases whenever the terms of the lease transfer substantially all the risks and rewards of ownership to the lessee. All other leases are classified as operating leases.

1) The Group as lessor

Amounts due from lessees under finance leases are recognized as receivables at the amount of the Group's net investment in the leases. Finance lease income is allocated to accounting periods so as to reflect a constant periodic rate of return on the Group's net investment outstanding in respect of the leases.

Rental income from operating leases is recognized on a straight-line basis over the term of the relevant lease. Initial direct costs incurred in negotiating and arranging an operating lease are added to the carrying amount of the leased asset and recognized on a straight-line basis over the lease term.

2) The Group as lessee

Assets held under finance leases are initially recognized as assets of the Group at their fair value at the inception of the lease or, if lower, at the present value of the minimum lease payments. The corresponding liability to the lessor is included in the statement of financial position as a finance lease obligation.

Lease payments are apportioned between finance expenses and reduction of the lease obligation so as to achieve a constant rate of interest on the remaining balance of the liability. Finance expenses are recognized immediately in profit or loss, unless they are directly attributable to qualifying assets, in which case they are capitalized in accordance with the Group's general policy on borrowing costs (see Note 2 (12)). Contingent rentals are recognized as expenses in the periods in which they are incurred.

Operating lease payments are recognized as an expense on a straight-line basis over the lease term, except where another systematic basis is more representative of the time pattern in which economic benefits from the leased asset are consumed. Contingent rentals arising under operating leases are recognized as an expense in the period in which they are incurred.

In the event that lease incentives are received to enter into operating leases, such incentives are recognized as a liability. The aggregate benefit of incentives is recognized as a reduction of rental expense on a straight-line basis, except where another systematic basis is more representative of the time pattern in which economic benefits from the leased asset are consumed.

(11) Foreign currencies

The individual financial statements of each group entity are presented in the currency of the primary economic environment in which the entity operates (its functional currency). For the purpose of the consolidated financial statements, the results and financial position of each group entity are expressed in Korean Won, which is the functional currency of the entity and the presentation currency for the consolidated financial statements.

In preparing the financial statements of the individual entities, transactions in currencies other than the entity's functional currency (foreign currencies) are recognized at the rates of exchange prevailing at the dates of the transactions. At the end of each reporting period, monetary items denominated in foreign currencies are retranslated at the rates prevailing at that date. Non-monetary items carried at fair value that are denominated in foreign currencies are retranslated at the rates prevailing at the date when the fair value was determined. Non-monetary items that are measured in terms of historical cost in a foreign currency are not retranslated.

Exchange differences are recognized in profit or loss in the period in which they arise except for:

- exchange differences on foreign currency borrowings relating to assets under construction for future productive use, which are included in the cost of those assets when they are regarded as an adjustment to interest costs on those foreign currency borrowings;
- exchange differences on transactions entered into in order to hedge certain foreign currency risks (see Note 2 (25) below for hedging accounting policies); and
- exchange differences on monetary items receivable from or payable to a foreign operation for which settlement is neither planned nor likely to occur (therefore forming part of the net investment in the foreign operation), which are recognized initially in other comprehensive income and reclassified from equity to profit or loss on disposal or partial disposal of the net investment.

For the purpose of presenting consolidated financial statements, the assets and liabilities of the Company's foreign operations are expressed in Korean Won using exchange rates prevailing at the end of the reporting period. Income and expense items are translated at the average exchange rates for the period, unless exchange rates fluctuated significantly during that period, in which case the exchange rates at the dates of the transactions are used. Exchange differences arising, if any, are recognized in other comprehensive income and accumulated in equity (attributed to non-controlling interests as appropriate).

On the disposal of a foreign operation (i.e. a disposal of the Group's entire interest in a foreign operation, or a disposal involving loss of control over a subsidiary that includes a foreign operation, or partial disposal of an interest in a joint arrangement or an associate that includes a foreign operation of which the retained interest becomes a financial asset), all of the accumulated exchange differences in respect of that operation attributable to the owners of the Company are reclassified to profit or loss. Any exchange differences that have previously been attributed to non-controlling interests are derecognized, but they are not reclassified to profit or loss.

In the case of a partial disposal (i.e. no loss of control) of a subsidiary that includes a foreign operation, the proportionate share of accumulated exchange differences are re-attributed to non-controlling interests in equity and are not recognized in profit or loss. For all other partial disposals (i.e. partial disposals of associates or joint arrangements that do not result in the Group losing significant influence or joint control), the proportionate share of the accumulated exchange differences is reclassified to profit or loss.

Goodwill and fair value adjustments arising on the acquisition of a foreign operation are treated as assets and liabilities of the foreign operation and translated at the closing rate. Exchange differences arising are recognized in other comprehensive income.

(12) Borrowing costs

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

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

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

(13) Government grants

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

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

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

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

(14) Retirement benefit costs and termination benefits

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

For defined benefit retirement benefit plans, the cost of providing benefits is determined using the Projected Unit Credit Method, with actuarial valuations being carried out at the end of each reporting period. Remeasurement, comprising actuarial gains and losses, the effect of the changes to the asset ceiling (if applicable) and the return on plan assets (excluding interest), is reflected immediately in the statement of financial position with a charge or credit recognized in other comprehensive income in the period in which they occur. Remeasurement recognized in other comprehensive income is reflected immediately in retained earnings and will not be reclassified to profit or loss. Past service cost is recognized in profit or loss in the period of a plan amendment. Net interest is calculated by applying the discount rate at the beginning of the period to the net defined benefit liability or asset. Defined benefit costs are composed of service cost (including current service cost, past service cost, as well as gains and losses on curtailments and settlements), net interest expense (income), and remeasurement.

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

The retirement benefit obligation recognized in the consolidated statement of financial position represents the actual deficit or surplus in the Group's defined benefit plans. Any surplus resulting from this calculation is limited to the present value of any economic benefits available in the form of refunds from the plans or reductions in future contributions to the plans.

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

Discretionary contributions made by employees or third parties reduce service cost upon payment of these contributions to the plan. When the formal terms of the plans specify that there will be contributions from employees or third parties, the accounting depends on whether the contributions are linked to service, as follows:

If the contributions are not linked to services (e.g. contributions are required to reduce a deficit arising from losses on plan assets or from actuarial losses), they are reflected in the remeasurement of the net defined benefit liability (asset).

If contributions are linked to services, they reduce service costs. For the amount of contribution that is dependent on the number of years of service, the entity reduces service cost by attributing the contributions to periods of service using the attribution method required by K-KFRS 1019 paragraph 70 for the gross benefits. For the amount of contribution that is independent of the number of years of service, the entity reduces service cost in the period in which the related service is rendered / reduces service cost by attributing contributions to the employees' periods of service in accordance with K-IFRS 1019 paragraph 70.

(15) Share-based payment arrangements

1) Share-based payment transactions of the Company

Equity-settled share-based payments to employees and others providing similar services are measured at the fair value of the equity instruments at the grant date.

The fair value determined at the grant date of the equity-settled share-based payments is expensed on a straight-line basis over the vesting period, based on the Group's estimate of equity instruments that will eventually vest. At the end of each reporting period, the Group revises its estimate of the number of equity instruments expected to vest. The impact of the revision of the original estimates, if any, is recognized in profit or loss such that the cumulative expense reflects the revised estimate, with a corresponding adjustment in other component of equity.

Equity-settled share-based payment transactions with parties other than employees are measured at the fair value of the goods or services received, except where that fair value cannot be estimated reliably, in which case they are measured at the fair value of the equity instruments granted, measured at the date the entity obtains the goods or the counterparty renders the service.

For cash-settled share-based payments, a liability is recognized for the goods or services acquired, measured initially at the fair value of the liability. At the end of each reporting period until the liability is settled, and at the date of settlement, the fair value of the liability is remeasured, with any changes in fair value recognized in profit or loss for the year.

2) Share-based payment transactions of the acquire in a business combination

When the share-based payment awards held by the employees of an acquiree (acquiree awards) are replaced by the Group's share-based payment awards (replacement awards), both the acquiree awards and the replacement awards are measured in accordance with K-IFRS 1102 *Share-based payment* at the acquisition date. The portion of the replacement awards that is included in measuring the consideration transferred in a business combination equals the market-based measure of the acquiree awards multiplied by the ratio of the portion of the vesting period completed to the greater of the total vesting period or the original vesting period of the acquire award. The excess of the market-based measure of the replacement awards over the market-based measure of the acquiree awards included in measuring the consideration transferred is recognized as remuneration cost for post-combination service.

However, when the acquiree awards expire as a consequence of a business combination and the Group replaces those awards when it does not have an obligation to do so, the replacement awards as measured at their market-based measure in accordance with K-IFRS 1102. All of the market-based measure of the replacement awards is recognized as remuneration cost for post-combination service.

At the acquisition date, when the outstanding equity-settled share-based payment transactions held by the employees of an acquiree are not exchanged by the Group for its share-based payment transactions, the acquiree share-based payment transactions are measured at their market-based measure at the acquisition date. If the share-based payments have vested by the acquisition date, they are included as part of the non-controlling interest in the acquiree. However, if the share-based payment transactions have not vested by the acquisition date, the market based measure of the unvested share-based payment transactions is allocated to the non-controlling interest in the acquiree based on the ratio of the portion of the vesting period completed to the greater of the total vesting period or the original vesting period of the share-based payment transaction. The balance is recognized as remuneration cost for post-combination service.

(16) Taxation

Income tax expense represents the sum of the tax currently payable and deferred tax.

1) Current tax

The tax currently payable is based on taxable profit for the year. Taxable profit differs from profit as reported in the consolidated statement of profit or loss and comprehensive income because of items of income or expense that are taxable or deductible in other years and items that are never taxable or deductible. The Group's liability for current tax is calculated using tax rates that have been enacted or substantively enacted by the end of the reporting period.

2) Deferred tax

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

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

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

Deferred tax assets and liabilities are measured at the tax rates that are expected to apply in the period in which the liability is settled or the asset realized, based on tax rates (and tax laws) that have been enacted or substantively enacted by the end of the reporting period. The measurement of deferred tax liabilities and assets reflects the tax consequences that would follow from the manner in which the 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 if, and only if the Group has a legally enforceable right to set off current tax assets against current tax liabilities, and the deferred tax assets and liabilities relate to income taxes levied by the same taxation authority on either the same taxable entity or different taxable entities which intend either to settle current tax liabilities and assets on a net basis, or to realize the assets and settle the liabilities simultaneously, in each future period in which significant amounts of deferred tax liabilities or assets are expected to be settled or recovered.

For the purpose of measuring deferred tax liabilities and deferred tax assets for investment properties that are measured using the fair value model, the carrying amounts of such properties are presumed to be recovered entirely through sale, unless the presumption is rebutted. The presumption is rebutted when the investment property is depreciable and is held within a business model whose objective is to consume substantially all of the economic benefits embodied in the investment properties over time, rather than through sale.

3) Current and deferred tax for the year

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

(17) Property, plant and equipment

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

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

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

	<u>Estimated useful lives</u>
	(Years)
Buildings	5–60
Structures	8–55
Machinery	2–15
Vehicles	1–10
Tools and equipment	1–20
Others	1–12

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

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

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

(18) Investment property

Investment properties are properties held to earn rentals and/or for capital appreciation (including property under construction for such purposes). Investment properties are measured initially at cost, including transaction costs. Subsequent to initial recognition, investment properties are reported at cost less accumulated depreciation and accumulated impairment losses.

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

While land is not depreciated, all other investment property is depreciated based on the respective assets estimated useful lives ranging from 5 ~ 60 years using the straight-line method.

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

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

(19) Intangible assets

1) Intangible assets acquired separately

Intangible assets with finite useful lives that are acquired separately are carried at cost, less accumulated amortization and accumulated impairment losses. Amortization is recognized on a straight-line basis over their estimated useful lives as follows:

	<u>Estimated useful lives</u>
	(Years)
Industrial property rights	5–10
Land use rights	44–50
Memberships	20
Other intangible assets	1–20

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

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

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

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

Development expenditure is amortized on a straight-line basis over 5 to 10 years depending on their economic useful lives.

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

Subsequent to initial recognition, internally-generated intangible assets are reported at cost less accumulated amortization and accumulated impairment losses, on the same basis as intangible assets that are acquired separately.

3) Intangible assets acquired in a business combination

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

4) Derecognition of intangible assets

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

(20) Impairment of tangible and intangible assets other than goodwill

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

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

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

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

(21) Inventories

Inventories are stated at the lower of cost and net realizable value. Cost of inventories, except for those in in-transit, are measured under the weighted average method [on a first-in-first-out basis] and consists of the purchase price, cost of conversion and other costs incurred in bringing the inventories to their present location and condition. Net realizable value represents the estimated selling price for inventories less all estimated costs of completion and costs necessary to make the sale.

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

(22) Provisions

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

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

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

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

1) Warranties

Provisions for the expected cost of warranty obligations under local sale of goods legislation are recognized at the date of sale of the relevant products, at the directors' best estimate of the expenditure required to settle the Group's obligation.

(23) Financial Instruments

Financial assets and financial liabilities are recognized when a group entity becomes a party to the contractual provisions of the instruments. Financial assets and financial liabilities are initially measured at fair value. Transaction costs that are directly attributable to the acquisition or issue of financial assets and financial liabilities are added to or deducted from the fair value of the financial assets or financial liabilities, as appropriate, on initial recognition. Transaction costs directly attributable to the acquisition of financial assets or financial liabilities at fair value through profit or loss are recognized immediately in profit or loss.

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

Financial assets are classified into the following specified categories: 'financial assets at fair value through profit or loss (FVTPL)', 'held-to-maturity investments', 'available-for-sale (AFS) financial assets' and 'loans and receivables'. The classification depends on the nature and purpose of the financial assets and is determined at the time of initial recognition.

1) Effective interest method

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

Income is recognized on an effective interest basis for debt instruments other than those financial assets classified as at FVTPL.

2) Financial assets at FVTPL

Financial assets are classified as at FVTPL when the financial asset is contingent consideration that may be paid by an acquirer as part of business combination to which K-IFRS 1103 applies,

A financial asset is classified as held for trading if:

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

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

- such designation eliminates or significantly reduces a measurement or recognition inconsistency that would otherwise arise; or
- the financial asset forms part of a group of financial assets or financial liabilities or both, which is managed and its performance is evaluated on a fair value basis, in accordance with the Group's documented risk management or investment strategy, and information about the grouping is provided internally on that basis; or
- it forms part of a contract containing one or more embedded derivatives, and K-IFRS 1039 Financial Instruments: Recognition and Measurement permits the entire combined contract (asset or liability) to be designated as at FVTPL.

Financial assets at FVTPL are stated at fair value, with any gains or losses arising on remeasurement recognized in profit or loss. The net gain or loss recognized in profit or loss incorporates any dividend or interest earned on the financial asset and is included in the '[other gains and losses]' line item in the consolidated statement of comprehensive income.

3) Held-to-maturity investments

Non-derivatives financial assets with fixed or determinable payments and fixed maturity dates that the Group has the positive intent and ability to hold to maturity are classified as held-to-maturity investments. Held-to-maturity investments are measured at amortized cost using the effective interest method less any impairment, with revenue recognized on an effective yield basis.

4) Available-for-sale ("AFS") financial assets

AFS financial assets are non-derivatives that are either designated as AFS or are not classified as (a) loans and receivables, (b) held-to-maturity investments or (c) financial assets at fair value through profit or loss.

They are subsequently measured at fair value at the end of each reporting period. Changes in the carrying amount of AFS monetary financial assets relating to changes in foreign currency rates (see below), interest income calculated using the effective interest method and dividends on AFS equity investments are recognized in profit or loss. Other changes in the carrying amount of AFS financial assets are recognized in other comprehensive income (as [investments revaluation reserve]). When the investment is disposed of or is determined to be impaired, the cumulative gain or loss previously accumulated in other comprehensive income is reclassified to profit or loss.

Dividends on AFS equity instruments are recognized in profit or loss when the Group's right to receive the dividends is established.

The fair value of AFS monetary financial assets denominated in a foreign currency is determined in that foreign currency and translated at the spot rate prevailing at the end of the reporting period. The foreign exchange gains and losses that are recognized in profit or loss are determined based on the amortized cost of the monetary asset. Other foreign exchange gains and losses are recognized in other comprehensive income.

AFS equity investments that do not have a quoted market price in an active market and whose fair value cannot be reliably measured and derivatives that are linked to and must be settled by delivery of such unquoted equity investments are measured at cost less any identified impairment losses at the end of each reporting period.

5) Loans and receivables

Trade receivables, loans, and other receivables that have fixed or determinable payments that are not quoted in an active market are classified as 'loans and receivables'. Loans and receivables are measured at amortized cost using the effective interest method, less any impairment. Interest income is recognized by applying the effective interest rate, except for short-term receivables when the effect of discounting is immaterial.

6) Impairment of financial assets

Financial assets, other than those at FVTPL, are assessed for indicators of impairment at the end of each reporting period. Financial assets are considered to be impaired when there is objective evidence that more events that occurred after the initial recognition of the financial asset, the estimated future cash flows of the investment have been affected.

For AFS equity investments, a significant or prolonged decline in the fair value of the security below its cost is considered to be objective evidence of impairment.

For all other financial assets, objective evidence of impairment includes:

- significant financial difficulty of the issuer or counterparty; or
- default or delinquency in interest or principal payments; or
- it becoming probable that the borrower will enter bankruptcy or financial re-organization; or
- the disappearance of an active market for that financial asset because of financial difficulties.

For certain categories of financial asset, such as trade receivables, assets that are assessed not to be impaired individually are, in addition, assessed for impairment on a collective basis. Objective evidence of impairment for a portfolio of receivables could include the Group's past experience of collecting payments, an increase in the number of delayed payments in the portfolio past the average credit period, as well as observable changes in national or local economic conditions that correlate with default on receivables.

For financial assets carried at amortized cost, the amount of the impairment loss recognized is the difference between the asset's carrying amount and the present value of estimated future cash flows, discounted at the financial asset's original effective interest rate.

For financial assets that are carried at cost, the amount of the impairment loss recognized is the difference between the asset's carrying amount and the present value of estimated future cash flows, discounted at the current market rate of return for a similar financial asset. Such impairment loss will not be reversed in subsequent periods.

The carrying amount of the financial asset is reduced by the impairment loss directly for all financial assets with the exception of trade receivables, where the carrying amount is reduced through the use of an allowance account. When a trade receivable is considered uncollectible, it is written off against the allowance account.

Subsequent recoveries of amounts previously written off are credited against the allowance account. Changes in the carrying amount of the allowance account are recognized in profit or loss.

When an AFS financial asset is considered to be impaired, cumulative gains or losses previously recognized in other comprehensive income are reclassified to profit or loss in the period.

For financial assets measured at amortized cost, if, in a subsequent period, the amount of the impairment loss decreases and the decrease can be related objectively to an event occurring after the impairment was recognized, the previously recognized impairment loss is reversed through profit or loss to the extent that the carrying amount of the investment at the date the impairment is reversed does not exceed what the amortized cost would have been had the impairment not been recognized.

In respect of AFS equity securities, impairment losses previously recognized in profit or loss are not reversed through profit or loss. Any increase in fair value subsequent to an impairment loss is recognized in other comprehensive income. In respect of AFS debt securities, impairment losses are subsequently reversed through profit or loss if an increase in the fair value of the investment can be objectively related to an event occurring after the recognition of the impairment loss.

7) Derecognition of financial assets

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

On derecognition of a financial asset in its entirety, the difference between the asset's carrying amount and the sum of the consideration received and receivable and the cumulated gain or loss that had been recognized in other comprehensive income and accumulated in equity is recognized in profit or loss.

On derecognition of a financial assets other than in its entirety (e.g. when the Group retains an option to repurchase part of a transferred asset, or it retains a residual interest and such an retained interest indicates that the transferor has neither transferred nor retained substantially all the risks and rewards of ownership and has retained control of the transferred asset), the Group allocates the previous carrying amount of the financial asset between the part it continues to recognize under continuing involvement, and the part it no longer recognizes on the basis of the relative fair value of those parts on the date of the transfer. The difference between the carrying amount allocated to the part that is no longer recognized and the sum of the consideration received for the part that is no longer recognized and any cumulative gain or loss allocated to it that had been recognized in other comprehensive income is recognized in profit or loss. A cumulative gain or loss that had been recognized in other comprehensive income is allocated between the part that continues to be recognized and the part that is no longer recognized on the basis of the relative fair value of those parts.

(24) Financial liabilities and equity instruments

1) Classification as debt or equity

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

2) Equity instruments

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

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

3) Compound instruments

The component parts of compound instruments (convertible bonds) issued by the Group are classified separately as financial liabilities and equity in accordance with the substance of the contractual arrangements and the definitions of a financial liability and equity instrument. Conversion option that will be settled by the exchange of a fixed amount of cash or another financial asset for a fixed number of the Company's own equity instruments is an equity instrument.

At the date of issue, the fair value of the liability component is estimated using the prevailing market interest rate for a similar non-convertible instrument. This amount is recorded as a liability on an amortized cost basis using the effective interest method until extinguished upon conversion or at the instrument's maturity date.

The conversion option classified as equity is determined by deducting the amount of the liability component from the fair value of the compound instrument as a whole. This is recognized and included in equity, net of income tax effects, and is not subsequently remeasured. In addition, the conversion option classified as equity will remain in equity until the conversion option is exercised, in which case, the balance recognized in equity will be transferred to share premium. No gain or loss is recognized in profit or loss upon conversion or expiration of the conversion option.

Transaction costs that relate to the issue of the convertible notes are allocated to liability and equity components in proportion to the allocation of the gross proceeds. Transaction costs relating to equity component are recognized directly in equity. Transaction costs relating to the liability component are included in the carrying amount of the liability component and are amortized over the lives of the convertible notes using the effective interest method.

4) Financial liabilities

Financial liabilities are recognized when the Group becomes a party to the contractual provisions of the instruments. Financial liabilities are initially measured at fair value. Transaction cost that is directly attributable to the issue of financial liabilities is deducted from the fair value of the financial liabilities on initial recognition. Transaction cost directly attributable to acquisition of financial liabilities at fair value through profit or loss are recognized immediately in profit or loss.

Financial liabilities are classified as either 'financial liabilities at FVTPL' or 'other financial liabilities'.

5) Financial liabilities at FVTPL

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

A financial liability is classified as held for trading if:

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

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

- such designation eliminates or significantly reduces a measurement or recognition inconsistency that would otherwise arise; or
- the financial liability forms part of a group of financial assets or financial liabilities or both, which is managed and its performance is evaluated on a fair value basis, in accordance with the Group's documented risk management or investment strategy, and information about the grouping is provided internally on that basis; or
- it forms part of a contract containing one or more embedded derivatives, and K-IFRS 1039 Financial Instruments: *Recognition and Measurement* permits the entire combined contract (asset or liability) to be designated as at FVTPL.

Financial liabilities at FVTPL are stated at fair value, with any gains or losses arising on remeasurement recognized in profit or loss. The net gain or loss recognized in profit or loss incorporates any interest paid on the financial liability and is included in the '[other gains and losses]' line item in the consolidated statement of comprehensive income.

6) Other financial liabilities

Other financial liabilities are subsequently measured at amortized cost using the effective interest method, with interest expense recognized on an effective yield basis.

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

7) Financial guarantee contracts

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

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

- the amount of the obligation under the contract, as determined in accordance with K-IFRS 1037 Provisions, Contingent Liabilities and Contingent Assets; and
- the amount initially recognized less, cumulative amortization recognized in accordance with the K-IFRS 1018 Revenue

8) Derecognition of financial liabilities

The Group derecognize financial liabilities when the Group's obligation are discharged, cancelled or they expire. The difference between the carrying amount of the financial liability derecognized and the consideration paid and payable is recognized in profit or loss.

(25) Derivative financial instruments

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

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

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

1) Embedded derivatives

Derivatives embedded in non-derivative host contracts are treated as separate derivatives when they meet the definition of a derivative, their risks and economic characteristics are not closely related to those of the host contracts and the contracts are not measured at FVTPL.

An embedded derivative is presented as a non-current asset or a non-current liability if the remaining maturity of the hybrid instrument to which the embedded derivative relates is more than 12 months and it is not expected to be realized or settled within 12 months. Other embedded derivatives are presented as current assets or current liabilities.

2) Hedge accounting

The Group designates certain hedging instruments, which include derivatives, embedded derivatives and non-derivatives in respect of foreign currency risk, as either fair value hedges, cash flow hedges, or hedges of net investments in foreign operations. Hedges of foreign exchange risk on firm commitments are accounted for as cash flow hedges.

At the inception of the hedge relationship, the entity documents the relationship between the hedging instrument and the hedged item, along with its risk management objectives and its strategy for undertaking various hedge transactions. Furthermore, at the inception of the hedge and on an ongoing basis, the Group documents whether the hedging instrument is highly effective in offsetting changes in fair values or cash flows of the hedged item.

3) Cash flow hedges

The effective portion of changes in the fair value of derivatives that are designated and qualify as cash flow hedges is recognized in other comprehensive income. The gain or loss relating to the ineffective portion is recognized immediately in profit or loss, and is included in the '[other gains and losses]' line item.

Amounts previously recognized in other comprehensive income and accumulated in equity are reclassified to profit or loss in the periods when the hedged item is recognized in profit or loss, in the same line of the statement of comprehensive income as the recognized hedged item. However, when the forecast transaction that is hedged results in the recognition of a non-financial asset or a non-financial liability, the gains and losses previously accumulated in equity are transferred from equity and included in the initial measurement of the cost of the non-financial asset or non-financial liability.

Hedge accounting is discontinued when the Group revokes the hedging relationship, when the hedging instrument expires or is sold, terminated, or exercised, or it no longer qualifies for hedge accounting. Any gain or loss accumulated in equity at that time remains in equity and is recognized when the forecast transaction is ultimately recognized in profit or loss. When a forecast transaction is no longer expected to occur, the gain or loss accumulated in equity is recognized immediately in profit or loss.

(26) Fair value

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date, regardless of whether that price is directly observable or estimated using another valuation technique. In estimating the fair value of an asset or a liability, the Group takes into account the characteristics of the asset or liability if market participants would take those characteristics into account when pricing the asset or liability at the measurement date. Fair value for measurement and/or disclosure purposes in these consolidated financial statements is determined on such a basis, except for share-based payment transactions that are within the scope of K-IFRS 1102 *Share-based payment*, leasing transactions that are within the scope of K-IFRS 1017 *Leases*, and measurements that have some similarities to fair value but are not fair value, such as net realisable value in K-IFRS 1002 *Inventories* or value in use in K-IFRS 1036 *Impairment of Assets*.

In addition, for financial reporting purposes, fair value measurements are categorized into Level 1, 2 or 3 based on the degree to which the inputs to the fair value measurements are observable and the significance of the inputs to the fair value measurement in its entirety, which are described as follows:

- Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities that the Group can access at the measurement date;
- Level 2 inputs are inputs, other than quoted prices included within Level 1, that are observable for the asset or liability, either directly or indirectly; and
- Level 3 inputs are unobservable inputs for the asset or liability.

(27) Accounting related to the Greenhouse Gas Emission Rights (Allowances) and Obligations

The Group classifies the greenhouse gas emission rights as intangible assets. Greenhouse gas mission rights (allowances) the government allocated free of charge are measured at nil, and emission rights (allowances) purchased are measured at cost, which the Group paid to purchase the allowances. If emission rights the government allocated free of charge are sufficient to settle the emission rights allowances allotted for vintage year, the emissions liabilities are measured at nil. However, for the emissions liabilities that exceed the allowances allocated free of charge, the shortfall is measured at best estimate at the end of the reporting period.

(28) Segment reporting

The Company has one reportable operating segment. Information of each operating segment is reported in a manner consistent with the business segment reporting provided to the chief operating decision-maker (Note 38). The chief operating decision-maker is responsible for allocating resources and assessing performance of the operating segments.

(29) Approval of Issuance of the Financial Statements

The issuance of the December 31, 2016 financial statements of the Group was approved by the Board of Directors on February 23, 2017, which is subject to change with approval at the annual shareholder's meeting on 24 March, 2017.

3. **CRITICAL ACCOUNTING JUDGMENTS AND KEY SOURCES OF ESTIMATION UNCERTAINTY:**

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

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

The following are the key assumptions concerning the future, and other key sources of estimation uncertainty at the end of the reporting period, that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year.

(1) Impairment of goodwill

Determining whether goodwill is impaired requires an estimation of the value in use of the cash-generating units to which goodwill has been allocated. The value in use calculation requires the directors to estimate the future cash flows expected to arise from the cash-generating unit and a suitable discount rate in order to calculate present value.

(2) Defined Benefit Plan

The Group's defined benefit obligation is determined based on the actuarial valuation carried out at the end of each annual reporting period. Actuarial assumptions are the Group's best estimates of the variables in determining the cost of providing post-retirement benefits such as discount rates, rates of expected future salary increases and mortality rates. Significant estimation uncertainty is likely to persist in making such assumptions due to the long-term nature of post-retirement benefit plan. As of December 31, 2016, net defined benefit liability of the plan is ₩393,485 million (2015: ₩320,992 million), as detailed in Note 23.

(3) Useful lives of property, plant and equipment

As described at Note 2 (17) above, the Group reviews the estimated useful lives of property, plant and equipment at the end of each annual reporting period.

(4) Valuation of Financial Instruments

As described in Note 2 (26), the Group uses valuation techniques that include inputs that are not based on observable market data to estimate the fair value of certain type of financial instruments. Note 5 provides detailed information about key assumptions used in the determination of the fair value of financial instruments, as well as the detailed sensitivity analysis for these assumptions. The directors believe that the chosen valuation techniques and assumptions used are appropriate in determining the fair value of financial instruments.

(5) Uncertainty on the Estimation of Earnings Accumulation Tax (EAT)

Under the Earnings Accumulation Tax (EAT) regime, the Group may incur increased tax burden depending on its level of investment, payroll increase or cash dividends for the preceding three years from 2015. There is uncertainty in the estimation of the tax impact to the Group which is reviewed by the management per the current level of investment, payroll increase or cash dividends.

4. FINANCIAL RISK MANAGEMENT:

(1) Financial risk management factors

The Group is exposed to diverse financial risks such as market risk (including foreign exchange risk and interest rate risk), credit risk and liquidity risk due to various activities. The Group's overall risk management policy focuses on the unpredictability of financial markets and seeks to minimize the potential adverse effects on the Group's financial performance.

1) Market risk

(a) Foreign exchange risk

The Group is exposed to foreign exchange risk when future commercial transactions or recognized assets or liabilities are denominated in a currency that is not the Group's functional currency. These transactions are mainly conducted in USD, EUR, JPY and other foreign currencies.

The Group adopts a foreign exchange risk management policy for each respective entity by considering the nature of business and whether that are countermeasures to mitigate foreign exchange risk. In addition, the Group manages maximum losses within an acceptable range regarding foreign exchange risk exposure by using a foreign exchange risk management model and assesses, manages and reports, on a regular basis, foreign exchange exposure risk to management.

The following table shows the sensitivity for each foreign currency on profit before income tax, with all other variables held constant, as of December 31, 2016 and 2015, respectively, when exchange rates change by 1% for the foreign exchange positions held by the Group.

Currency	Korean won (In thousands)				
	December 31, 2016		December 31, 2015		
	1% increase	1% decrease	1% increase	1% decrease	
USD	₩ (7,299,793)	₩ 7,299,793	₩ (5,882,851)	₩ 5,882,851	
EUR	83,231	(83,231)	(270,453)	270,453	
JPY	436,354	(436,354)	(649,013)	649,013	
Total	₩ (6,780,208)	₩ 6,780,208	₩ (6,802,317)	₩ 6,802,317	

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

(b) Interest rate risk

The Group is exposed to fair value risk of deposits and borrowings due to changes in future market interest rates and is exposed to interest rate risk such as changes in cash flows of interest income and expense mainly arising from deposits and borrowings with variable interest rate terms.

The Group has established a policy to manage the uncertainty related to interest rate fluctuations and minimize interest expenses in order to maximize its value.

If the interest rate on variable interest rate borrowings increased/decreased by 1% holding all other variables constant, net profit before income tax as of December 31, 2016 would have been ₩24,716 million (2015: ₩28,098 million) due to the increase/decrease in interest rate.

2) Credit risk

The Group is exposed to credit risk, which is the risk of financial loss to the Group if customers or counterparties to a financial instrument fails to meet its contractual obligations. To minimize such risk, the Group transacts only with customers whose credit rating exceeds a predefined level. The Group evaluates the credit risk of customers with no prior transaction history with the Group using financial and other information provided by credit rating agencies to determine the respective credit line of the new customers.

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

3) Liquidity risk

The Group maintains an adequate level of residual limit of borrowings (Note 36) and manages its liquidity risk to maintain adequate liquidity by constantly managing periodic projected cash flows through estimated required cash levels and cash flow management in order to not violate any borrowing limits or commitments on any of its banking facility agreements. When forecasting liquidity, the Group's financing plans, compliance of commitments, compliance of the Group's internal financial ratios and, if applicable, external regulatory or legal requirements regarding currency restrictions are taken into consideration.

(a) Contractual maturities of non-derivative liabilities

Maturity analysis of non-derivative liabilities according to their remaining maturities as of December 31, 2016 and 2015, is as follows:

	Korean won(In thousands)			
	December 31, 2016			
	Within 1 year	1 to 5 years	After 5 years	Total
Trade payables and other payables(*1)	₩ 1,758,823,866	₩ 48,407,156	₩ -	₩ 1,807,231,002
Borrowings(*1)	2,376,749,357	2,508,094,302	245,024,690	5,129,868,349
Other financial liabilities(*2)	<u>123,614,902</u>	<u>8,700,512</u>	<u>302,776</u>	<u>132,618,190</u>
Total	<u>₩ 4,259,188,125</u>	<u>₩ 2,565,201,970</u>	<u>₩ 245,327,466</u>	<u>₩ 7,069,717,561</u>

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

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

	Korean won (In thousands)			
	December 31, 2015			
	Within 1 year	1 to 5 years	After 5 years	Total
Trade payables and other payables(*1)	₩1,616,258,816	₩ 217,152,468	₩ -	₩1,833,411,284
Borrowings(*1)	2,535,683,217	2,711,166,568	8,172,112	5,255,021,897
Other financial liabilities(*2)	<u>120,050,329</u>	<u>9,604,220</u>	<u>336,763</u>	<u>129,991,312</u>
Total	<u>₩ 4,271,992,362</u>	<u>₩2,937,923,256</u>	<u>₩ 8,508,875</u>	<u>₩ 7,218,424,493</u>

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

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

(b) Expected cash flows of derivative liabilities by maturity

Expected cash flows of derivative liabilities by maturity as of December 31, 2016 and 2015, is as follows:

	Korean won (In thousands)		
	December 31, 2016		
	Within 1 year	1 to 5 years	Total
Derivative liabilities	₩ 2,296,360	₩ 4,138,157	₩ 6,434,517

	Korean won (In thousands)		
	December 31, 2015		
	Within 1 year	1 to 5 years	Total
Derivative liabilities	₩ (3,792,283)	₩ (2,706,958)	₩ (6,499,241)

- (c) In addition to the above financial liabilities, the Group has signed financial guarantee contracts and supplemental funding agreements for related parties. If related parties fail to meet an obligation, additional payment obligations by the Group may be incurred within a year (Note 37).

(2) Capital risk management

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

The debt-to-equity ratio of the Group as of December 31, 2016 and 2015 is as follows:

	Korean won (In thousands)	
	December 31, 2016	December 31, 2015
Total Debt(A)	₩ 8,349,586,420	₩ 8,921,461,335
Total Equity(B)	5,468,326,709	4,931,158,388
Debt-to-Equity Ratio(A/B)	152.69%	180.92%

5. FAIR VALUE:

(1) Fair value of financial instruments by category as of December 31, 2016 and 2015, are as follows:

	Korean won (In thousands)			
	December 31, 2016		December 31, 2015	
	Book value	Fair value	Book value	Fair value
Financial assets:				
Cash and cash equivalents	₩ 1,012,313,393	₩ 1,012,313,393	₩ 644,785,721	₩ 644,785,721
Available-for-sale financial assets(*)	217,975,435	217,975,435	145,770,408	145,770,408
Trade receivables and other receivables	1,567,233,150	1,567,233,150	1,823,420,980	1,823,420,980
Other financial assets:				
Derivative assets	10,011,211	10,011,211	17,664,093	17,664,093
Others	354,416,825	354,416,825	484,183,489	484,183,489
Total	₩ 3,161,950,014	₩ 3,161,950,014	₩ 3,115,824,691	₩ 3,115,824,691
Financial liabilities:				
Trade payables and other payables	₩ 1,804,263,353	₩ 1,804,263,353	₩ 1,823,589,868	₩ 1,823,589,868
Borrowings	4,829,594,165	4,836,357,750	5,041,061,892	5,064,411,300
Other financial liabilities:				
Derivative liabilities	16,020,743	16,020,743	1,584,698	1,584,698
Others	158,967,359	158,967,359	156,053,682	156,053,682
Total	₩ 6,808,845,620	₩ 6,815,609,205	₩ 7,022,290,140	₩ 7,045,639,548

- (*) Equity instruments that do not have a quoted market price in an active market and whose fair value cannot be reliably measured are measured at cost. As such, they are not subject to fair value measurements (Note 5(4)).

(2) Fair value hierarchy

Financial instruments that are carried at fair values by hierarchy level as of December 31, 2016 and 2015, is as follows:

		Korean won (In thousands)							
		December 31, 2016							
		Level 1		Level 2		Level 3		Total	
Recurring fair value measurements:									
Available-for-sale financial assets	₩	99,324,959	₩	88,993	₩	118,561,483	₩	217,975,435	
Derivative assets		-		10,011,211		-		10,011,211	
Derivative liabilities		-		16,020,743		-		16,020,743	
		Korean won (In thousands)							
		December 31, 2015							
		Level 1		Level 2		Level 3		Total	
Recurring fair value measurements:									
Available-for-sale financial assets	₩	109,157,106	₩	87,406	₩	36,525,896	₩	145,770,408	
Derivative assets		-		17,664,093		-		17,664,093	
Derivative liabilities		-		1,584,698		-		1,584,698	

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

- Derivative instruments (currency forwards, options and swaps and interest rate swaps)

Fair value of currency forwards and options is measured based on forward exchange rate quoted in the current market at the end of the reporting period, which has the same remaining period of derivatives to be measured. If the forward exchange rate, which has the same remaining period of currency forward, option, swap and interest rate swap, is not quoted in the current market, fair value is measured using estimates of similar period of forward exchange rate by applying interpolation method with quoted forward exchange rates. As the inputs used to measure fair value of currency forwards and options are supported by observable market data, such as forward exchange rates, the Group classified the estimates of fair value measurements of the currency forwards and options as Level 2 of the fair-value hierarchy.

- Government securities

The fair value of government securities is based on quoted prices in active markets, where available, discounted by the future cash flows of debt securities. The Group classifies government securities as Level 2 of the fair-value hierarchy.

- Unlisted equity securities

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

(4) Financial instruments measured at cost

Details of financial instruments measured at cost as of December 31, 2016 and 2015 are as follows:

	Korean won (In thousands)	
	December 31, 2016	December 31, 2015
Available-for-sale financial assets:		
Unlisted equity securities	₩ 10,547,983	₩ 4,304,912

The above financial instruments are measured at cost and excluded from the fair value disclosures as they do not have a quoted price in an active market and fair values cannot be measured reliably. The Group does not have any plans to dispose the above instruments in the near future. These instruments will be measured at fair value when the Group can develop a reliable estimate of the fair value.

6. FINANCIAL INSTRUMENTS BY CATEGORY:

(1) Financial instruments by category as of December 31, 2016 and 2015, are as follows:

1) Financial Assets

Financial Assets	Korean won (In thousands)				
	December 31, 2016				
	Financial asset at fair value through profit and loss	Available-for-sale financial assets	Loans and receivables		Total
Current:					
Cash and cash equivalents	₩ -	₩ -	₩1,012,313,393		₩1,012,313,393
Trade receivables and other receivables	-	-	1,561,381,114		1,561,381,114
Other financial assets	2,221,182	-	246,485,116		248,706,298
Non-current:					
Available-for-sale financial assets	-	228,523,418	-		228,523,418
Long-term trade receivables and other receivables	-	-	5,852,036		5,852,036
Other long-term financial assets	7,790,029	-	107,931,709		115,721,738
Total	₩ 10,011,211	₩ 228,523,418	₩2,933,963,368		₩3,172,497,997

Financial Assets	Korean won (In thousands)				
	December 31, 2015				
	Financial asset at fair value through profit and loss	Available-for-sale financial assets	Loans and receivables	Others(*)	Total
Current:					
Cash and cash equivalents	₩ -	₩ -	₩ 644,785,721	₩ -	₩ 644,785,721
Trade receivables and other receivables	-	-	1,817,473,968	-	1,817,473,968
Other financial assets	11,027,032	-	376,425,327	2,932,080	390,384,439
Non-current:					
Available-for-sale financial assets	-	150,075,320	-	-	150,075,320
Long-term trade receivables and other receivables	-	-	5,947,012	-	5,947,012
Other long-term financial assets	3,704,981	-	107,758,162	-	111,463,143
Total	₩ 14,732,013	₩ 150,075,320	₩2,952,390,190	₩ 2,932,080	₩3,120,129,603

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

2) Financial Liabilities

Korean won (In thousands)					
December 31, 2016					
Financial Liabilities	Financial liability at fair value through profit and loss	Financial liability at amortized cost	Others(*)	Total	
Current:					
Trade payables and other payables	₩ -	₩1,758,119,346	₩ -	₩1,758,119,346	
Short-term borrowings	-	2,233,237,409	21,730,863	2,254,968,272	
Other financial liabilities	3,920,547	147,795,888	575,748	152,292,183	
Non-current:					
Long-term trade payables and other payables	-	46,144,007	-	46,144,007	
Long-term borrowings	-	2,574,625,893	-	2,574,625,893	
Other long-term financial liabilities	11,768,516	8,980,188	1,947,215	22,695,919	
Total	₩ 15,689,063	₩6,768,902,731	₩ 24,253,826	₩6,808,845,620	

(*) Includes financial liabilities and financial guarantees related to transfer transactions not qualified for derecognition not applicable to financial liabilities by category

Korean won (In thousands)					
December 31, 2015					
Financial liabilities	Financial liability at fair value through profit and loss	Financial liability at amortized cost	Others(*)	Total	
Current:					
Trade payables and other payables	₩ -	₩1,614,994,193	₩ -	₩1,614,994,193	
Short-term borrowings	-	2,406,960,081	18,328,812	2,425,288,893	
Other financial liabilities	1,174,705	134,727,962	438,826	136,341,493	
Non-current:					
Long-term trade payables and other payables	-	208,595,675	-	208,595,675	
Long-term borrowings	-	2,615,772,999	-	2,615,772,999	
Other long-term financial liabilities	409,993	18,202,561	2,684,333	21,296,887	
Total	₩ 1,584,698	₩6,999,253,471	₩ 21,451,971	₩7,022,290,140	

(*) Includes financial liabilities and financial guarantees related to transfer transactions not qualified for derecognition not applicable to financial liabilities by category

- 3) Details of net profit or loss of financial instruments by category during the years ended December 31, 2016 and 2015, are as follows:

Korean won (In thousands)					
2016					
	Financial instruments at fair value through profit and loss	Available-for-sale financial assets	Loans and receivables	Financial liabilities at amortized cost(*)	Total
Interest income	₩ -	₩ -	₩ 19,159,087	₩ -	₩ 19,159,087
Gain on foreign currency transactions	-	-	118,665,637	48,670,836	167,336,473
Gain on foreign currency translation	-	-	92,476,409	19,803,079	112,279,488
Interest expense	-	-	-	(173,291,081)	(173,291,081)
Loss on foreign currency transactions	-	-	(98,989,100)	(86,803,015)	(185,792,115)
Loss on foreign currency translations	-	-	(39,584,444)	(62,372,296)	(101,956,740)
Bad debt expense	-	-	(17,078,887)	-	(17,078,887)
Other bad debt expense	-	-	(4,535,353)	-	(4,535,353)
Reversal of bad debt expense	-	-	22,831	-	22,831
Impairment loss on available-for-sale financial assets	-	(5,538,403)	-	-	(5,538,403)
Reversal of impairment loss on available-for-sale financial assets	-	499	-	-	499
Loss on disposal of trade receivables	-	-	(436,450)	-	(436,450)
Gain on valuation of derivatives	5,867,729	-	-	-	5,867,729
Gain on transactions of derivatives	26,625,491	-	-	-	26,625,491
Loss on valuation of derivatives	(16,382,854)	-	-	-	(16,382,854)
Loss on transactions of derivatives	(50,898,484)	-	-	-	(50,898,484)
Dividend income	-	3,162,717	-	-	3,162,717
Others	-	-	-	(3,426,748)	(3,426,748)
	<u>(34,788,118)</u>	<u>(2,375,187)</u>	<u>69,699,730</u>	<u>(257,419,225)</u>	<u>(224,882,800)</u>
Other comprehensive income:					
Gain on valuation of available-for-sale financial assets	-	(12,701,875)	-	-	(12,701,875)
Total	<u>₩ (34,788,118)</u>	<u>₩ (15,077,062)</u>	<u>₩ 69,699,730</u>	<u>₩ (257,419,225)</u>	<u>₩ (237,584,675)</u>

- (*) Includes profit and loss of financial liabilities and financial guarantees related to transfer transactions not qualified for derecognition in Note 6 (1). (2).

Korean won (In thousands)					
2015					
	Financial instruments at fair value through profit and loss	Available-for-sale financial assets	Loans and receivables	Financial liabilities at amortized cost(*)	Total
Interest income	₩ -	₩ -	₩ 21,357,136	₩ -	₩ 21,357,136
Gain on foreign currency transactions	-	-	85,705,286	44,504,560	130,209,846
Gain on foreign currency translation	-	-	13,627,082	64,136,017	77,763,099
Interest expense	-	-	-	(179,739,069)	(179,739,069)
Loss on foreign currency transactions	-	-	(77,216,500)	(40,269,754)	(117,486,254)
Loss on foreign currency translations	-	-	(88,721,792)	(73,464,424)	(162,186,216)
Bad debt expense	-	-	(3,503,309)	-	(3,503,309)
Other bad debt expense	-	-	(7,957,237)	-	(7,957,237)
Reversal of bad debt expense	-	-	1,532,165	-	1,532,165
Gain on disposal of available-for-sale financial assets	-	18,588,892	-	-	18,588,892
Loss on disposal of available-for-sale financial assets	-	(8,146)	-	-	(8,146)
Reversal of impairment loss on available-for-sale financial assets	-	2,303	-	-	2,303
Gain on valuation of derivatives	15,274,389	-	-	-	15,274,389
Gain on transactions of derivatives	14,296,475	-	-	-	14,296,475
Loss on valuation of derivatives	(263,598)	-	-	-	(263,598)
Loss on transactions of derivatives	(3,789,014)	-	-	-	(3,789,014)
Dividend income	-	4,029,496	-	-	4,029,496
	<u>25,518,252</u>	<u>22,612,545</u>	<u>(55,177,169)</u>	<u>(184,832,670)</u>	<u>(191,879,042)</u>
Other comprehensive income:					
Gain on valuation of available-for-sale financial assets	-	(806,994)	-	-	(806,994)
Total	<u>₩ 25,518,252</u>	<u>₩ 21,805,551</u>	<u>₩ (55,177,169)</u>	<u>₩ (184,832,670)</u>	<u>₩ (192,686,036)</u>

(*) Includes profit and loss of financial liabilities and financial guarantees related to transfer transactions not qualified for derecognition in Note 6 (1). (2).

7. **TRANSFERS OF FINANCIAL ASSETS:**

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

All of the transferred financial assets as of December 31, 2016, are recognized as trade receivables and the related liabilities are accounted for as short-term borrowings. The carrying amounts and fair value of transferred trade receivables and related liabilities amounted to ₩21,731 million (2015: ₩18,329 million) and the net position is nil.

8. CASH AND CASH EQUIVALENTS:

Restricted cash and cash equivalents provided as collateral for borrowings and others as of December 31, 2016, are ₩3,357 million (2015: ₩1,568 million) (Note 36).

9. TRADE RECEIVABLES AND OTHER RECEIVABLES:

(1) Trade receivables and other receivables as of December 31, 2016 and 2015, are as follows:

	Korean won (In thousands)			
	December 31, 2016		December 31, 2015	
	Current	Non-current	Current	Non-current
Trade receivables	₩ 1,543,326,655	₩ 100,556	₩ 1,797,433,456	₩ 100,556
Less: Allowance for doubtful accounts	(42,962,121)	(100,556)	(31,118,957)	(100,556)
Other receivables	62,041,232	197,157,976	51,875,420	197,238,847
Less: Allowance for doubtful accounts	(1,024,652)	(191,305,940)	(715,951)	(191,291,835)
Total	<u>₩ 1,561,381,114</u>	<u>₩ 5,852,036</u>	<u>₩ 1,817,473,968</u>	<u>₩ 5,947,012</u>

(2) The aging analysis of trade receivables and other receivables as of December 31, 2016 and 2015 is as follows:

	Korean won (In thousands)	
	December 31, 2016	December 31, 2015
Receivables not past due	₩ 1,437,152,913	₩ 1,408,219,375
Past due but not impaired		
Less than 3 months	6,116,183	279,664,829
Less than 6 months	60,645,656	81,387,848
Less than 1 year	57,574,515	29,205,483
Over 1 year	<u>43,744,108</u>	<u>53,409,624</u>
	<u>168,080,462</u>	<u>443,667,784</u>
Impaired		
Less than 3 months	2,515,172	-
Less than 6 months	236	-
Less than 1 year	458,819	521,136
Over 1 year	<u>194,418,817</u>	<u>194,239,984</u>
Total	<u>₩ 1,802,626,419</u>	<u>₩ 2,046,648,279</u>

(*) Classification of not impaired and impaired as a result of the assessment of each individual account.

(3) Changes in allowance for doubtful accounts during the years ended December 31, 2016 and 2015, are as follows:

Description	Korean won (In thousands)			
	2016		2015	
	Trade receivables	Other receivables	Trade receivables	Other receivables
Beginning balance	₩ 31,219,514	₩ 192,007,785	₩ 31,364,007	₩ 191,671,241
Increase	17,078,887	4,535,353	3,503,309	116,855
Reversal	(22,831)	-	-	-
Write-offs	(2,541,387)	(275,504)	(3,136,720)	-
Changes in scope of consolidation	(2,431,693)	-	(770,154)	-
Changes in exchange rates and others	(239,813)	(3,937,042)	259,072	219,689
Ending balance	<u>₩ 43,062,677</u>	<u>₩ 192,330,592</u>	<u>₩ 31,219,514</u>	<u>₩ 192,007,785</u>

- (4) Trade receivables and other receivables are provided as collateral for borrowings as of December 31, 2016 (Note 36).

10. OTHER FINANCIAL ASSETS:

- (1) Other financial assets as of December 31, 2016 and 2015, are as follows:

	Korean won (In thousands)			
	December 31, 2016		December 31, 2015	
	Current	Non-current	Current	Non-current
Derivative instruments	₩ 2,221,182	₩ 7,790,029	₩ 13,959,112	₩ 3,704,981
Financial instruments	187,426,926	5,657,950	277,707,312	6,101,300
Loans	39,290,491	56,284,567	82,856,965	48,720,643
Deposits	14,562,787	45,989,192	10,189,308	52,936,219
Accrued revenue	5,204,912	-	5,671,742	-
Total	₩ 248,706,298	₩ 115,721,738	₩ 390,384,439	₩ 111,463,143

- (2) Derivative financial instruments

The Group entered into currency forward, cross currency swaps and other contracts to hedge exchange rate risk of trade receivables denominated in foreign currencies.

Valuation of derivative instruments as of December 31, 2016 and 2015, are as follows:

	Korean won (In thousands)			
	December 31, 2016		December 31, 2015	
	Assets	Liabilities	Assets	Liabilities
Trading:				
Currency forwards	₩ 1,588,489	₩ 294,421	₩ 4,200,024	₩ 65,796
Currency options	3,604,978	6,726,733	6,715,977	-
Currency swaps	4,817,744	8,238,720	3,816,012	-
Interest rate swaps	-	429,189	-	1,451,444
Other derivative financial instruments	-	-	-	67,458
	10,011,211	15,689,063	14,732,013	1,584,698
Cash flow hedge:				
Currency swaps	-	-	2,932,080	-
Interest rate swaps	-	331,680	-	-
	-	331,680	2,932,080	-
Total	₩ 10,011,211	₩ 16,020,743	₩ 17,664,093	₩ 1,584,698

- (3) Other financial assets are provided as collateral for borrowings as of December 31, 2016 (Note 36).

11. OTHER ASSETS:

Other assets as of December 31, 2016 and 2015, are as follows:

	Korean won (In thousands)			
	December 31, 2016		December 31, 2015	
	Current	Non-current	Current	Non-current
Advance payments	₩ 188,968,248	₩ -	₩ 135,263,671	₩ -
Less: Allowances for impairment	(112,131,156)	-	(115,463,603)	-
Prepaid construction costs	595,967	-	4,354,619	-
Prepaid expenses	24,293,554	7,567,197	25,241,805	12,362,941
Prepaid value added tax and others	57,190,632	7,085,510	35,180,553	6,609,569
Total	₩ 158,917,245	₩ 14,652,707	₩ 84,577,045	₩ 18,972,510

12. INVENTORIES:

(1) Inventories as of December 31, 2016 and 2015, are as follows:

	Korean won (In thousands)					
	December 31, 2016			December 31, 2015		
	Acquisition cost	Valuation reserve	Book value	Acquisition cost	Valuation reserve	Book value
Merchandise	₩ 178,126,370	₩ (1,832,360)	₩ 176,294,010	₩ 148,096,806	₩ (609,686)	₩ 147,487,120
Finished goods	422,125,732	(19,948,498)	402,177,234	546,310,363	(38,806,472)	507,503,891
Half-finished goods	28,105,058	(88,085)	28,016,973	31,482,753	(45,544)	31,437,209
Work in process	523,723,810	-	523,723,810	835,795,779	(152,307)	835,643,472
Raw materials	177,749,355	(6,777,274)	170,972,081	209,801,678	(6,552,797)	203,248,881
Supplies	67,660,832	-	67,660,832	66,963,742	-	66,963,742
Goods in transit	51,801,779	-	51,801,779	33,335,018	-	33,335,018
Total	<u>₩ 1,449,292,936</u>	<u>₩ (28,646,217)</u>	<u>₩ 1,420,646,719</u>	<u>₩ 1,871,786,139</u>	<u>₩ (46,166,806)</u>	<u>₩ 1,825,619,333</u>

(2) The loss on valuation of inventories included in cost of sales in the consolidated statements of comprehensive income during the year ended December 31, 2016, amounts to ₩28,646 million (2015: ₩46,167 million).

(3) Inventories are provided as collateral for borrowings as of December 31, 2016 (Note 36).

13. AVAILABLE-FOR-SALE FINANCIAL ASSETS:

(1) Available-for-sale financial assets as of December 31, 2016 and 2015, are as follows:

	Korean won (In thousands)	
	December 31, 2016	December 31, 2015
Equity securities:		
Listed securities	₩ 99,324,959	₩ 109,157,106
Unlisted securities	<u>129,109,466</u>	<u>40,830,809</u>
	<u>228,434,425</u>	<u>149,987,915</u>
Debt securities	<u>88,993</u>	<u>87,405</u>
Total	<u>₩ 228,523,418</u>	<u>₩ 150,075,320</u>

(2) Changes in available-for-sale financial assets during the years ended December 31, 2016 and 2015, are as follows:

	Korean won (In thousands)	
	2016	2015
Beginning balance	₩ 150,075,320	₩ 165,541,393
Acquisition(*1)	-	20,270,198
Disposal/Transfer(*1)	96,668,195	(35,266,143)
Valuation	(12,832,794)	(479,002)
Others(*2)	<u>(5,387,303)</u>	<u>8,874</u>
Ending balance	<u>₩ 228,523,418</u>	<u>₩ 150,075,320</u>

(*1) Investments in associates were transferred to available-for-sale financial assets amounting to ₩96,930 million during the year ended December 31, 2016, due to the issuance of unequal shares by Hanwha Q CELLS Korea Corp., a subsidiary, which caused a loss of significant influence. In addition, available-for-sale financial assets were transferred to investments in associates amounting to ₩35,059 million during the year ended 2015, as Hanwha City Development Co, Ltd., a subsidiary, acquired additional shares of Hanwha Station Development Co., Ltd. (Note 14).

(*2) Includes effects due to changes in scope of consolidation and exchange rate changes

14. INVESTMENT IN ASSOCIATES AND JOINT VENTURES:

(1) Investments in associates and joint ventures as of December 31, 2016 and 2015, are as follows:

	Locations	Closing Month	Main business	Percentage of ownership	
				December 31, 2016	December 31, 2015
Associates:					
Hanwha Savings Bank Co., Ltd.	Korea	December	Bank business	36.05%	36.05%
Hanwha General Insurance Co., Ltd. (*1)	Korea	December	Services for insurance	-	6.02%
Hanwha Newly-Development Force Fund	Korea	December	Fund investment	22.50%	22.50%
Hanwha Station Development Co., Ltd. (*2)	Korea	December	Rent business	48.32%	28.27%
HANWHA Eagles Professional Baseball Club	Korea	December	Sports club operating	50.00%	50.00%
Hanwha General Chemical Co., Ltd.	Korea	December	Manufacture of basic compound of petrochemicals	36.05%	36.05%
Hanwha Q CELLS Korea Co., Ltd. (*3, 4)	Korea	December	Solar Engineering	19.44%	39.00%
HANWHA INVESTMENT AND SECURITIES CO., LTD.(*3, 5)	Korea	December	Stock Broking	21.76%	22.26%
Hanwha Hotels and Resort Co., Ltd.	Korea	December	Tourism and Lodge Industry	48.78%	48.78%
CRP/Extell Parcel J, L.P.	U.S.A	December	Real Estate Development	49.00%	49.00%
Crystal Solar Inc.(*3)	U.S.A	December	Solar Engineering	29.09%	29.53%
GRANSOLAR ATOTONILCO, S.A. DE C.V.	Mexico	December	Construction Business	20.00%	20.00%
GRANSOLAR OCOTLAN, S.A. DE C.V.	Mexico	December	Construction Business	20.00%	20.00%
HongKong YongWang Silicon Investment Co., Ltd.	Hong Kong	December	Holding Company	49.99%	49.99%
International Polymers Company	Saudi Arabia	December	Manufacture of basic compound	25.00%	25.00%
OneRoof Energy Group, Inc.	Canada	December	Photovoltaic business	46.15%	46.15%
Renew Akshay Urja Privated Limited	India	March	Photovoltaic business	43.87%	43.87%
Saudi Specialized Products Company	Saudi Arabia	December	Manufacture of chemicals	25.00%	25.00%
Joint ventures:					
YEOCHUN NCC Co., Ltd.	Korea	December	Manufacture of basic compound	50.00%	50.00%
Burdur Enerji A.S.	Turkey	December	Photovoltaic business	50.00%	50.00%
Garnet Solar Power Generation Station 1, LLC	U.S.A	December	Photovoltaic business	50.00%	50.00%
Gulf Advanced Cables Insulation Company	Saudi Arabia	December	Manufacture of cable	50.00%	50.00%
Hanwha Q CELLS PR Solar Holdings LLC(*6)	U.S.A	December	Photovoltaic business	50.00%	-
HQC Rock River Solar Holdings LLC(*6)	U.S.A	December	Photovoltaic business	50.00%	-
Lakeshore East Retail LLC	U.S.A	December	Real estate development	50.00%	50.00%
Parcel O LLC	U.S.A	December	Real estate development	50.00%	50.00%

(*1) The Group sold all of its ownership interest to Hanwha LIFE INSURANCE CO., LTD. during the year ended December 31, 2016. The Group was deemed to have significant influence as the Group was involved in joint management through contractual agreements as of December 31, 2016. As such, the equity method was used.

(*2) The Group acquired additional ownership interest during the year ended December 31, 2016.

(*3) The Group's ownership percentage decreased due to the issuance of unequal shares during the year ended December 31, 2016.

(*4) Investments in associates and joint ventures were reclassified to available-for-sale financial assets as the Group lost significant influence due to decrease in ownership during the year ended December 31, 2016.

(*5) Ownership percentage decreased as HANWHA INVESTMENT AND SECURITIES CO., LTD. disposed of treasury stock during the year ended December 31, 2016.

(*6) The Group newly acquired the company during the year ended December 31, 2016.

(2) Valuation of investments in associates and joint ventures under the equity method during the years ended December 31, 2016 and 2015, is as follows:

Company	Korean won (In thousands)					
	2016					
	Beginning balance	Acquisition (Disposal)	Gain or loss on equity method investments	Other comprehensive income (loss)	Other(*1)	Ending balance
Associates:						
Hanwha Savings Bank Co., Ltd.	₩ 54,312,810	₩ -	₩ 155,788	₩ (58,637)	₩ (20,489)	₩ 54,389,472
Hanwha General Insurance Co., Ltd.	51,803,935	(41,579,144)	1,839,410	(11,682,008)	(382,193)	-
Hanwha Newly-Development Force Fund	4,380,027	(2,925,000)	1,155,436	(1,032,212)	-	1,578,251
Hanwha Station Development Co., Ltd.	54,825,527	44,108,260	4,751,509	-	(1,955,945)	101,729,351
HANWHA Eagles Professional Baseball Club	1,635,496	-	(177,384)	-	(123,369)	1,334,743
Hanwha General Chemical Co., Ltd.	603,751,099	-	184,196,068	(5,158,922)	(6,330,773)	776,457,472
Hanwha Q CELLS Korea Co., Ltd.	50,020,548	(88,004,755)	24,293,524	(95,957)	13,786,640	-
HANWHA INVESTMENT AND SECURITIES CO., LTD.	195,015,623	42,644,612	(35,641,635)	(320,301)	(3,939,609)	197,758,690
Hanwha Hotels and Resort Co., Ltd.	374,060,856	-	(11,150,426)	(1,662,830)	(392,105)	360,855,495
CRP/Extell Parcel J, L.P.	-	-	-	-	-	-
Crystal Solar Inc.	4,533,076	-	(3,443,419)	(63,117)	(1,026,540)	-
GRANSOLAR ATOTONILCO, S.A. DE C.V.	467,729	-	-	-	(13,679)	454,050
GRANSOLAR OCOTLAN, S.A. DE C.V.	467,729	-	-	-	(13,679)	454,050
HongKong YongWang Silicon Investment Co., Ltd.(*2)	-	-	-	-	-	-
International Polymers Company	84,312,956	-	17,780,290	3,444,486	-	105,537,732
OneRoof Energy Group, Inc.	-	-	-	-	-	-
Renew Akshay Urja Privated Limited	18,306,688	-	(1,388,432)	-	(1,193,760)	15,724,496
Saudi Specialized Products Company	4,298,415	8,718,432	(373,601)	924,590	-	13,567,836
Joint ventures:						
YEOCHUN NCC Co., Ltd.	496,441,519	-	242,269,432	-	(136,246,860)	602,464,091
Burdur Enerji A.S.	358,248	-	(36,375)	(41,125)	(27,443)	253,305
Garnet Solar Power Generation Station 1, LLC	4,245,127	-	(221,053)	-	(152,447)	3,871,627
Gulf Advanced Cables Insulation Company	7,457,750	-	(660,643)	211,169	-	7,008,276
Lakeshore East Retail LLC	10,829,007	-	(272,317)	-	325,825	10,882,515
Parcel O LLC	21,550,137	-	-	-	(1,382,915)	20,167,222
Hanwha Q CELLS PR Solar Holdings LLC	-	6,630,430	(32,034)	-	857,036	7,455,432
HQC Rock River Solar Holdings LLC	-	4,530,360	278,185	-	(2,257,454)	2,551,091
Total	<u>₩2,043,074,302</u>	<u>₩ (25,876,805)</u>	<u>₩ 423,322,323</u>	<u>₩ (15,534,864)</u>	<u>₩(140,489,759)</u>	<u>₩2,284,495,197</u>

(*1) Includes gain on bargain purchase and dividends received.

(*2) Liquidation procedures are in progress as of December 31, 2016.

Company	Korean won (In thousands)					
	2015					
	Beginning balance	Acquisition (Disposal)	Gain or loss on equity method investments	Other comprehensive income (loss)	Other(*)	Ending balance
Associates:						
Hanwha Savings Bank Co., Ltd.	₩ 50,043,722	₩ -	₩ 4,267,996	₩ (31,835)	₩ 32,927	₩ 54,312,810
Hanwha General Insurance Co., Ltd.	35,804,641	-	5,763,950	10,306,168	(70,824)	51,803,935
Hanwha Newly-Development Force Fund	7,055,924	(4,770,000)	3,094,317	349,786	(1,350,000)	4,380,027
Hanwha Station Development Co., Ltd.	-	53,425,030	1,376,856	-	23,641	54,825,527
HANWHA Eagles Professional Baseball Club	1,940,372	-	(304,876)	-	-	1,635,496
Hanwha General Chemical Co., Ltd.	-	535,477,300	45,358,720	140,085	22,774,994	603,751,099
Hanwha Q CELLS Korea Co., Ltd.	40,933,451	-	8,381,209	787,939	(82,051)	50,020,548
HANWHA INVESTMENT AND SECURITIES CO., LTD.	193,151,130	4,141,316	(2,772,728)	1,823,310	(1,327,405)	195,015,623
Hanwha Hotels and Resort Co., Ltd.	378,649,238	-	(6,157,465)	4,205,626	(2,636,543)	374,060,856
CRP/Extell Parcel J, L.P.	-	-	-	-	-	-
Crystal Solar Inc.	4,627,776	2,357,800	(4,009,111)	109,866	1,446,745	4,533,076
GRANSOLAR ATOTONILCO, S.A. DE C.V.	463,353	-	-	-	4,376	467,729
GRANSOLAR OCOTLAN, S.A. DE C.V.	463,353	-	-	-	4,376	467,729
HongKong YongWang Silicon Investment Co., Ltd.	-	-	-	-	-	-
International Polymers Company	65,188,755	-	14,323,617	4,800,584	-	84,312,956
OneRoof Energy Group, Inc.	11,914,322	2,299,240	(14,581,592)	-	368,030	-
Renew Akshay Urja Privated Limited	-	19,186,166	(716,945)	-	(162,533)	18,306,688
Saudi Specialized Products Company	4,105,391	-	(74,573)	267,597	-	4,298,415
Joint ventures:						
YEOCHUN NCC Co., Ltd.	443,833,655	-	114,043,417	-	(61,435,553)	496,441,519
Burdur Enerji A.S.	-	313,962	48,419	(1,000)	(3,133)	358,248
Garnet Solar Power Generation Station, LLC	9,793,570	-	(218,292)	-	(5,330,151)	4,245,127
Gulf Advanced Cables Insulation Company	8,391,745	-	(1,435,884)	501,889	-	7,457,750
Lakeshore East Retail LLC	12,028,289	-	(229,654)	-	(969,628)	10,829,007
Parcel O LLC	20,211,528	-	-	-	1,338,609	21,550,137
Total	<u>₩1,288,600,215</u>	<u>₩ 612,430,814</u>	<u>₩ 166,157,381</u>	<u>₩ 23,260,015</u>	<u>₩ (47,374,123)</u>	<u>₩2,043,074,302</u>

(*) Includes gain on bargain purchase and dividends received.

(3) Summary of financial information of key associates and joint ventures as of December 31, 2016 and 2015, is as follows:

Company	Korean won (In thousands)					
	2016					
	Assets	Liabilities	Equity	Sales	Net income (loss)	Total comprehensive income
Associates:						
Hanwha Savings Bank Co., Ltd.	₩ 648,085,035	₩ 582,229,829	₩ 65,855,206	₩ 41,087,034	₩ 432,186	₩ 212,675
Hanwha Station Development Co., Ltd.	434,805,563	309,186,026	125,619,537	65,421,500	14,612,728	14,396,957
Hanwha General Chemical Co., Ltd.	3,955,187,435	1,584,482,342	2,370,705,093	1,279,942,686	524,678,762	525,774,277
HANWHA INVESTMENT AND SECURITIES CO., LTD.	6,928,094,337	6,120,965,845	807,128,492	1,578,838,362	(161,453,070)	(169,295,435)
Hanwha Hotels and Resort Co., Ltd.	2,427,354,787	1,651,748,087	775,606,700	1,119,808,844	695,737	(3,560,395)
International Polymers Company	1,077,920,962	663,263,687	414,657,275	296,023,910	70,376,156	83,921,520
Joint ventures:						
YEOCHUN NCC Co., Ltd.	2,457,726,586	1,210,519,642	1,247,206,944	4,374,003,366	490,009,236	487,515,515
Gulf Advanced Cables Insulation Company	102,522,733	88,506,181	14,016,552	42,314,072	(1,321,287)	(898,948)
Lakeshore East Retail LLC	63,137,687	38,190,295	24,947,392	5,924,063	(240,037)	(240,037)
Parcel O LLC	45,393,840	-	45,393,840	-	-	-
Company	Korean won (In thousands)					
	2015					
	Assets	Liabilities	Equity	Sales	Net income (loss)	Total comprehensive income
Associates:						
Hanwha Savings Bank Co., Ltd.(*1)	₩ 601,140,925	₩ 535,498,393	₩ 65,642,532	₩ 38,791,764	₩ 11,840,247	₩ 11,843,276
Hanwha General Insurance Co., Ltd.	11,803,410,516	10,942,475,499	860,935,017	5,744,369,025	95,791,681	265,893,948
Hanwha Station Development Co., Ltd.	539,051,620	345,115,068	193,936,552	16,280,932	4,870,410	4,954,034
Hanwha General Chemical Co., Ltd.	2,330,528,585	663,018,497	1,667,510,088	839,327,006	164,252,135	163,110,244
Hanwha Q CELLS Korea Co., Ltd.	572,872,059	443,149,145	129,722,914	538,515,630	14,488,448	16,879,055
HANWHA INVESTMENT AND SECURITIES CO., LTD.	7,662,276,760	6,879,663,532	782,613,228	1,833,789,992	(12,309,355)	(5,648,462)
Hanwha Hotels and Resort Co., Ltd.	2,445,448,203	1,665,103,147	780,345,056	1,026,361,186	(6,816,596)	(4,330,337)
International Polymers Company	1,030,317,054	699,581,299	330,735,755	229,771,585	58,039,474	76,793,399
Joint ventures:						
YEOCHUN NCC Co., Ltd.	2,196,846,000	1,167,154,571	1,029,691,429	4,697,093,092	232,992,647	230,121,541
Gulf Advanced Cables Insulation Company	100,517,734	85,602,233	14,915,501	19,947,108	(2,871,768)	(1,867,989)
Lakeshore East Retail LLC	63,082,455	38,322,654	24,759,801	6,472,339	(391,399)	(391,399)
Parcel O LLC	43,906,883	-	43,906,883	-	-	-

(*) Summary of financial information reflects the difference in fiscal year end.

- (4) Details of financial information of key associates and joint ventures as of December 31, 2016 and 2015, are as follows:

	Korean won (In thousands)			
	YEOCHUN NCC Co., Ltd.		Hanwha General Chemical Co., Ltd.	
	Dec. 31, 2016	Dec. 31, 2015	Dec. 31, 2016(*2)	Dec. 31, 2015
Cash and cash equivalents	₩ 342,577,560	₩ 297,835,008	₩ 253,383,096	₩ 27,542,847
Current liabilities	916,391,859	659,856,744	854,259,800	491,279,251
Non-current liabilities	294,127,783	418,761,282	730,222,542	87,226,847
Depreciation(*1)	142,172,354	133,645,045	35,878,048	26,838,313
Amortization(*1)	3,961,116	3,961,115	1,688,025	-
Interest income	3,230,685	1,424,197	1,836,433	3,349,317
Interest expense	14,289,329	15,765,915	13,288,924	3,111,997
Income tax expense	156,023,774	72,666,247	388,783	32,123,365

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

(*2) Income for an eight-month period is presented as Hanwha General Chemical Co., Ltd. was acquired during the year ended 2015.

- (5) Dividends received from associates and joint ventures during the years ended December 31, 2016 and 2015: are as follows:

	2016	2015
Associates:		
Hanwha General Insurance Co., Ltd.	₩ 382,194	₩ -
Hanwha Newly-Development Force Fund	-	1,350,000
Hanwha Station Development Co., Ltd.	1,851,694	-
HANWHA INVESTMENT AND SECURITIES CO.,LTD.	-	1,304,025
Garnet Solar Power Generation Station 1, LLC	247,743	-
HQC Rock River Solar Holdings LLC	170,906	-
Joint ventures:		
YEOCHUN NCC Co., Ltd.	135,000,000	60,000,000

- (6) Adjustments from financial information of key associates and joint ventures to the book value of investments in associates and joint ventures as of December 31, 2016 and 2015, are as follows:

Company	Korean won (In thousands)					
	December 31, 2016					
	Net assets at year-end (*) (a)	Group ownership (%) (b)	Interest in net assets (a x b)	Goodwill	Dereconized unrealized gains(losses)	Year-end book value
Associates:						
Hanwha Savings Bank Co., Ltd.	₩ 65,855,206	36.05%	₩ 23,738,505	₩ 30,650,967	₩ -	₩ 54,389,472
Hanwha Station Development Co., Ltd.	125,619,537	48.32%	60,693,591	-	41,035,760	101,729,351
Hanwha General Chemical Co., Ltd. (*1)	2,108,112,139	36.05%	759,876,918	2,693,337	13,887,217	776,457,472
HANWHA INVESTMENT AND SECURITIES CO., LTD. (*1)	805,494,567	21.76%	175,282,813	20,787,045	1,688,832	197,758,690
Hanwha Hotels and Resort Co., Ltd. (*1)	774,752,431	48.78%	377,919,925	-	(17,064,430)	360,855,495
International Polymers Company	414,657,275	25.00%	103,664,319	1,795,924	77,489	105,537,732
Joint ventures:						
YEOCHUN NCC Co., Ltd.	1,247,206,944	50.00%	623,603,472	-	(21,139,381)	602,464,091
Gulf Advanced Cables Insulation Company	14,016,552	50.00%	7,008,276	-	-	7,008,276
Lakeshore East Retail LLC	24,947,392	50.00%	12,473,696	-	(1,591,181)	10,882,515
Parcel O LLC	45,393,840	50.00%	22,696,920	-	(2,529,698)	20,167,222

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

Company	Korean won (In thousands)					
	December 31, 2015					
	Net assets at year-end (*) (a)	Group ownership (%) (b)	Interest in net assets (a x b)	Goodwill	Derecognized unrealized gains(losses)	Year-end book value
Associates:						
Hanwha Savings Bank Co., Ltd.	₩ 65,642,532	36.05%	₩ 23,661,843	₩ 30,650,967	₩ -	₩ 54,312,810
Hanwha General Insurance Co., Ltd.	860,935,017	6.02%	51,803,935	-	-	51,803,935
Hanwha Newly-Development Force Fund	19,466,786	22.50%	4,380,027	-	-	4,380,027
Hanwha Station Development Co., Ltd.	193,936,552	28.27%	54,825,527	-	-	54,825,527
Hanwha General Chemical Co., Ltd.	1,667,510,088	36.05%	601,060,258	2,693,337	(2,497)	603,751,099
Hanwha Q CELLS Korea Co., Ltd. (*1)	128,372,845	39.00%	50,065,410	78,624	(123,486)	50,020,548
HANWHA INVESTMENT AND SECURITIES CO., LTD. (*1)	780,515,712	22.26%	173,774,416	21,267,686	(26,479)	195,015,623
Hanwha Hotels and Resort Co., Ltd. (*1)	780,802,155	48.78%	380,870,948	-	(6,810,092)	374,060,856
International Polymers Company	330,735,755	25.00%	82,683,939	1,795,924	(166,907)	84,312,956
Joint ventures:						
YEOCHUN NCC Co., Ltd.	1,029,691,429	50.00%	514,845,715	-	(18,404,196)	496,441,519
Gulf Advanced Cables Insulation Company	14,915,501	50.00%	7,457,750	-	-	7,457,750
Lakeshore East Retail LLC	24,759,801	50.00%	12,379,901	-	(1,550,894)	10,829,007
Parcel O LLC	43,906,883	50.00%	21,953,442	-	(403,305)	21,550,137

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

(7) Fair value of marketable investments in associates and joint ventures as of December 31, 2016 and 2015, is as follows:

	Korean won (In thousands)			
	December 31, 2016		December 31, 2015	
	Fair value	Book value	Fair value	Book value
Hanwha General Insurance Co., Ltd.	₩ -	₩ -	₩ 42,587,345	₩ 51,803,935
HANWHA INVESTMENT AND SECURITIES CO., LTD.	79,775,624	197,758,690	75,589,502	195,015,623
OneRoof Energy Group, Inc.	1,927,038	-	1,809,124	-

(8) Accumulated unreflected changes in equity not recognized due to the equity method no longer being applied as of December 31, 2016, are as follows:

Company	Korean won (In thousands)	
	Unreflected losses	
	Accrued amount	Accumulated amount
OneRoof Energy Group, Inc.	₩ (31,456,706)	₩ (35,476,892)

(9) Investments in associates and joint ventures are provided as collateral for borrowings as of December 31, 2016 (Note 36).

15. INVESTMENT PROPERTY:

(1) Investment property as of December 31, 2016 and 2015, is as follows:

	Korean won (In thousands)					
	December 31, 2016			December 31, 2015		
	Acquisition cost	Accumulated depreciation	Book value	Acquisition cost	Accumulated depreciation	Book value
Land	₩ 223,575,736	₩ -	₩ 223,575,736	₩ 139,883,867	₩ -	₩ 139,883,867
Buildings	195,900,552	(24,331,282)	171,569,270	74,385,224	(20,698,582)	53,686,642
Structures	7,107,439	(4,683,496)	2,423,943	7,505,231	(4,758,544)	2,746,687
Total	₩ 426,583,727	₩ (29,014,778)	₩ 397,568,949	₩ 221,774,322	₩ (25,457,126)	₩ 196,317,196

(2) Changes in investment property during the years ended December 31, 2016 and 2015, are as follows:

Korean won (In thousands)						
2016						
	Land	Buildings	Structures	Total		
Beginning balance	₩ 139,883,867	₩ 53,686,642	₩ 2,746,687	₩ 196,317,196		
Acquisition	253,223	3,373,864	-	3,627,087		
Transfer	80,943,848	113,773,695	-	194,717,543		
Disposal	(3,461,923)	(13,075)	-	(3,474,998)		
Depreciation	-	(3,642,502)	(322,790)	(3,965,292)		
Changes in exchange rates	5,956,721	4,390,646	46	10,347,413		
Ending balance	₩ 223,575,736	₩ 171,569,270	₩ 2,423,943	₩ 397,568,949		

Korean won (In thousands)						
2015						
	Land	Buildings	Structures	Total		
Beginning balance	₩ 146,581,186	₩ 55,587,549	₩ 3,099,098	₩ 205,267,833		
Acquisition	17,869	-	-	17,869		
Transfer	(11,528,335)	(484,606)	(13,866)	(12,026,807)		
Disposal	(601,009)	-	-	(601,009)		
Depreciation	-	(1,768,712)	(338,643)	(2,107,355)		
Changes in exchange rates	5,414,156	352,411	98	5,766,665		
Ending balance	₩ 139,883,867	₩ 53,686,642	₩ 2,746,687	₩ 196,317,196		

(3) Rental income from investment property during the year ended December 31, 2016 amounted to ₩9,590 million (2015: ₩6,694 million).

(4) The Group assessed the difference between fair value and carrying amounts of investment property as insignificant for the year ended December 31, 2016.

(5) Investments property is provided as collateral for borrowings as of December 31, 2016 (Note 36).

16. PROPERTY, PLANT AND EQUIPMENT:

(1) Property, plant and equipment as of December 31, 2016 and 2015, is as follows:

Korean won (In thousands)						
	December 31, 2016			December 31, 2015		
	Acquisition cost	Accumulated depreciation(*)	Book value	Acquisition cost	Accumulated depreciation(*)	Book value
Land	₩ 1,706,669,222	₩ -	₩ 1,706,669,222	₩ 1,839,192,122	₩ -	₩ 1,839,192,122
Buildings	1,618,710,897	(564,684,098)	1,054,026,799	1,554,621,180	(517,713,651)	1,036,907,529
Structures	336,072,054	(148,792,920)	187,279,134	319,433,692	(140,576,055)	178,857,637
Machinery	4,972,806,303	(2,783,658,774)	2,189,147,529	5,030,221,428	(2,622,785,548)	2,407,435,880
Vehicles	60,482,566	(36,846,826)	23,635,740	61,384,031	(34,926,569)	26,457,462
Tools and equipment	321,832,376	(227,593,353)	94,239,023	304,700,163	(218,163,105)	86,537,058
Other property, plant and equipment	35,516,179	(13,025,287)	22,490,892	28,029,512	(15,762,208)	12,267,304
Construction in progress	482,894,913	(439,730)	482,455,183	462,552,461	(630,618)	461,921,843
Machinery in transit	1,024,758	-	1,024,758	953,894	-	953,894
Total	₩ 9,536,009,268	₩(3,775,040,988)	₩ 5,760,968,280	₩ 9,601,088,483	₩(3,550,557,754)	₩ 6,050,530,729

(*) Includes aggregated accumulated impairment losses

(2) Changes in property, plant and equipment during the years ended December 31, 2016 and 2015, are as follows:

Korean won (in thousands)										
2016										
	Land	Buildings	Structures	Machinery	Vehicles	Tools and equipment	Other property, plant, and equipment	Construction in progress	Machinery in transit	Total
Beginning balance	₩1,839,192,122	₩1,036,907,529	₩ 178,857,637	₩2,407,435,880	₩ 26,457,462	₩ 86,537,058	₩ 12,267,304	₩ 461,921,843	₩ 953,894	₩6,050,530,729
Acquisition	1,413,234	63,793,403	3,561,392	93,446,949	1,037,931	13,869,964	16,070,841	405,273,416	10,352,709	608,819,839
Changes in scope of consolidation	-	(293,521)	-	-	(6,077)	(379,625)	-	-	-	(679,223)
Transfer	2,160,783	42,387,959	21,085,729	263,761,419	1,171,117	34,344,380	(3,214,675)	(372,868,320)	(10,281,845)	(21,453,453)
Disposal	(35,621,741)	(21,282,273)	(2,329,999)	(156,375,501)	(548,019)	(7,017,272)	-	(6,177,773)	-	(229,352,578)
Depreciation	-	(62,322,950)	(12,827,675)	(310,736,342)	(4,443,539)	(32,600,860)	(3,388,122)	-	-	(426,319,488)
Impairment loss(*)	-	-	(388,462)	(84,265,940)	-	(568,574)	-	-	-	(85,222,976)
Assets classified as held for sale	(100,615,594)	-	-	(2,643,333)	-	-	-	-	-	(103,258,927)
Changes in exchange rates	140,418	(5,163,348)	(679,488)	(21,475,603)	(33,135)	(53,952)	755,544	(5,693,983)	-	(32,095,643)
Ending balance	<u>₩1,706,669,222</u>	<u>₩1,054,026,799</u>	<u>₩ 187,279,134</u>	<u>₩2,189,147,529</u>	<u>₩ 23,635,740</u>	<u>₩ 94,239,023</u>	<u>₩ 22,490,892</u>	<u>₩ 482,455,183</u>	<u>₩ 1,024,758</u>	<u>₩5,760,968,280</u>

(*) The Group recognized the unrecoverable amount as an impairment loss with regard to the polysilicon and electronic materials operating segments.

Korean won (in thousands)										
2015										
	Land	Buildings	Structures	Machinery	Vehicles	Tools and equipment	Other property, plant, and equipment	Construction in progress	Machinery in transit	Total
Beginning balance	₩1,849,974,534	₩ 978,336,991	₩ 185,307,268	₩2,388,299,602	₩ 31,031,376	₩ 77,381,163	₩ 19,699,638	₩ 503,112,064	₩ 4,977,898	₩6,038,120,534
Acquisition	5,149,030	54,547,567	1,906,735	321,654,006	621,484	33,167,463	2,139,683	333,679,778	2,444,893	755,310,639
Changes in scope of consolidation	(12,897,220)	(6,246,305)	(657,928)	(1,946,896)	(25,194)	278,500	-	29,815,020	(2,076)	8,317,901
Transfer	17,360,443	70,799,340	5,128,952	80,088,817	531,927	21,577,961	1,438,341	(275,902,136)	(6,466,821)	(85,443,176)
Disposal	(20,640,646)	(2,981,516)	(97,380)	(15,092,093)	(857,264)	(1,240,628)	(8,176,422)	(126,088,631)	-	(175,174,580)
Depreciation	-	(56,239,290)	(12,943,287)	(310,885,184)	(4,869,303)	(44,539,517)	(3,648,370)	-	-	(433,124,951)
Impairment loss(*)	-	-	-	(52,417,032)	-	-	-	(338,138)	-	(52,755,170)
Changes in exchange rates	245,981	(1,309,258)	213,277	(2,265,340)	24,436	(87,884)	814,434	(2,356,114)	-	(4,720,468)
Ending balance	<u>₩1,839,192,122</u>	<u>₩1,036,907,529</u>	<u>₩ 178,857,637</u>	<u>₩2,407,435,880</u>	<u>₩ 26,457,462</u>	<u>₩ 86,537,058</u>	<u>₩ 12,267,304</u>	<u>₩ 461,921,843</u>	<u>₩ 953,894</u>	<u>₩6,050,530,729</u>

(*) The Group recognized the unrecoverable amount as an impairment loss with regard to the polysilicon operating segment.

(3) Impairment of property, plant and equipment

The Group assessed the recoverable amount of the cash-generating unit, the polysilicon operating segment, to be impaired. As a result of this assessment, an impairment loss amounting to ₩49,864 million is recognized by which the asset's carrying amount exceeds its recoverable amount. The impairment loss is included in other non-operating expenses as impairment loss in property, plant and equipment.

The recoverable amount of the cash-generating unit is determined on the basis of value-in-use, which is calculated by discounting the future cash flows that are expected to be derived from the continued use of asset. The calculation of value-in-use is based on the following key assumptions:

1. Cash flows are projected over a period of five years and are estimated based on past experience, actual operating results and the Group's business plan for the five year period. Cash flows after five years are estimated using a fixed growth rate of 1%. This growth rate does not exceed the average long-term growth rate of the industry.
2. The selling price of products is applied to the cash flows projection period based on external information.
3. Shareholder value is computed by discounting the operating annual cash flows using a discount rate of 9.00%.

The key assumptions used in calculating value-in-use reflect management's assessment of the future trends of the industry and are determined by considering external and internal (historical) information.

- (4) The capitalization rate of borrowings used to determine the amount of borrowing costs eligible for capitalization during the year ended December 31, 2016 is 0.32%~3.43% (2015: 0.38%~5.67%) and borrowing costs capitalized in property, plant and equipment is ₩9,991 million (2015: ₩10,220 million).
- (5) Line items included in depreciation of property, plant and equipment during the years ended December 31, 2016 and 2015, are as follows:

	Korean won (In thousands)	
	2016	2015
Manufacturing cost and others	₩ 348,235,034	₩ 356,087,873
Selling and administrative expenses(*)	78,084,454	77,037,078
Total	₩ 426,319,488	₩ 433,124,951

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

- (6) Property, plant and equipment is provided as collateral for borrowings as of December 31, 2016 (Note 36).

17. INTANGIBLE ASSETS:

- (1) Intangible assets as of December 31, 2016 and 2015, are as follows:

	Korean won (In thousands)					
	December 31, 2016			December 31, 2015		
	Acquisition cost	Accumulated Amortization(*)	Book value	Acquisition cost	Accumulated Amortization(*)	Book value
Goodwill	₩ 272,910,156	₩ (25,028,072)	₩ 247,882,084	₩ 277,062,904	₩ (19,275,875)	₩ 257,787,029
Industrial property rights	43,275,230	(28,976,679)	14,298,551	42,126,665	(27,065,452)	15,061,213
Leasehold rights	91,953,898	(13,259,312)	78,694,586	90,874,263	(11,116,600)	79,757,663
Development cost	39,580,031	(33,729,035)	5,850,996	41,736,614	(35,066,353)	6,670,261
Membership	56,591,497	(3,728,743)	52,862,754	59,633,481	(1,997,307)	57,636,174
Other intangible assets	80,886,123	(54,274,754)	26,611,369	68,885,396	(44,983,645)	23,901,751
Total	₩ 585,196,935	₩ (158,996,595)	₩ 426,200,340	₩ 580,319,323	₩ (139,505,232)	₩ 440,814,091

(*) Accumulated amortization is the aggregated accumulated impairment losses

- (2) Changes in intangible assets except for emission rights during the years December 31, 2016 and 2015, are as follows:

	Korean won (In thousands)						
	2016						
	Goodwill	Industrial property rights	Land use rights	Development cost	Membership	Other intangible assets	Total
Beginning balance	₩ 257,787,029	₩ 15,061,213	₩ 79,757,663	₩ 6,670,261	₩ 57,636,174	₩ 23,901,751	₩ 440,814,091
Changes in scope of consolidation	(856,737)	(538)	-	-	-	(16,499)	(873,774)
Acquisition	-	1,732,172	2,964,096	164,607	6,650	12,739,338	17,606,863
Transfer	-	348,012	142,881	(57,175)	317,822	1,859,437	2,610,977
Disposal	(32,550)	(331,468)	-	-	(2,745,829)	(1,813,070)	(4,922,917)
Amortization	-	(2,315,482)	(1,894,551)	(922,288)	(306,251)	(9,564,636)	(15,003,208)
Impairment loss(*)	(6,300,324)	-	-	-	(2,065,628)	-	(8,365,952)
Changes in Exchange rates	(2,715,334)	(195,358)	(2,275,503)	(4,409)	19,816	(494,952)	(5,665,740)
Ending balance	₩ 247,882,084	₩ 14,298,551	₩ 78,694,586	₩ 5,850,996	₩ 52,862,754	₩ 26,611,369	₩ 426,200,340

(*) Impairment of membership due to the decline in the market price of membership is recognized.

Korean won (In thousands)							
2015							
	Goodwill	Industrial property rights	Land use rights	Development cost	Membership	Other intangible assets	Total
Beginning balance	₩ 252,563,710	₩ 13,582,295	₩ 66,881,615	₩ 28,335,773	₩ 59,249,829	₩ 47,932,100	₩ 468,545,322
Changes in scope of consolidation	8,666,649	(27,829)	-	-	-	699,156	9,337,976
Acquisition	-	3,010,332	-	2,203,383	1,366,363	889,074	7,469,152
Transfer	-	3,226,846	14,031,286	475,529	-	(17,733,661)	-
Disposal	(11,447)	(4,847)	-	(44,014)	(2,298,788)	(17,801)	(2,376,897)
Amortization	-	(4,264,415)	(1,930,019)	(2,967,553)	(715,713)	(7,028,923)	(16,906,623)
Impairment loss	-	-	-	(21,163,328)	-	(1,100,000)	(22,263,328)
Changes in exchange rates	(3,431,883)	(461,169)	774,781	(169,529)	34,483	261,806	(2,991,511)
Ending balance	₩ 257,787,029	₩ 15,061,213	₩ 79,757,663	₩ 6,670,261	₩ 57,636,174	₩ 23,901,751	₩ 440,814,091

(3) Changes in emission rights during the year ended December 31, 2016, are as follows:

Korean won (In thousands) and quantity in tCO2-eq						
	2015		2016		2017	
	Quantity	Amount(*)	Quantity	Amount	Quantity	Amount
Beginning balance	-	₩ -	-	₩ -	-	₩ -
Merger	87,254	-	83,685	-	82,291	-
Purchases	10,000	137,000	-	-	-	-
Free allocation	1,894,400	-	1,825,831	-	1,836,728	-
Additional allocation	339,949	-	-	-	-	-
Borrowings	256,276	-	(256,276)	-	-	-
Ending balance	2,587,879	₩ 137,000	1,653,240	₩ -	1,919,019	₩ -

(*) Included in other intangible assets

(4) No borrowings costs were capitalized in intangible assets during the year ended December 31, 2016. Borrowing costs capitalized in intangible assets during the year ended December 31, 2015 amounted to ₩373 million and the capitalization rate of borrowings used to determine the amount of borrowing costs eligible for capitalization is 2.73%.

(5) Intangible assets are provided as collateral for borrowings as of December 31, 2016 (Note 36).

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

		Korean won (In thousands)	
		December 31, 2016	December 31, 2015
Solar energy business		₩ 195,769,117	₩ 199,805,677
HANWHA FINE CHEMICAL CO., LTD.		18,510,215	18,510,215
Others		33,602,752	39,471,137
Total		₩ 247,882,084	₩ 257,787,029

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

As a result of the impairment test for goodwill, the carrying amount of cash generating units (groups), except for other segments, does not exceed the recoverable amounts as of December 31, 2016. The Group recognized ₩6,300 million as impairment loss on goodwill of Universal Bearings LLC, an other segment, during the year ended December 31, 2016.

18. ASSETS HELD FOR SALE:

(1) Assets held for sale as of December 31, 2016 and 2015, are as follows:

	Disposal date	Korean won (In thousands)	
		December 31, 2016	
Land(*)	In 2017	₩	100,000,000
Machinery(*)	In 2017		2,643,333
Total		₩	102,643,333

(*) The Group recognized loss on impairment of property, plant and equipment of ₩24,510 million and loss on assets held for sale of ₩616 million when reclassifying this asset as asset held for sale.

(2) Assets held for sale are provided as collateral for borrowings as of December 31, 2016 (Note 36).

19. TRADE PAYABLES AND OTHER PAYABLES:

Trade payables and other payables as of December 31, 2016 and 2015, are as follows:

	Korean won (In thousands)			
	December 31, 2016		December 31, 2015	
	Current	Non-current	Current	Non-current
Trade payables	₩ 1,234,533,977	₩ -	₩1,214,246,939	₩ -
Other payables	523,585,369	46,144,007	400,747,254	208,595,675
Total	₩ 1,758,119,346	₩ 46,144,007	₩1,614,994,193	₩ 208,595,675

20. BORROWINGS:

(1) Borrowings as of December 31, 2016 and 2015, are as follows:

	Korean won (In thousands)			
	December 31, 2016		December 31, 2015	
	Current	Non-current	Current	Non-current
Borrowings from financial institutions	₩ 1,855,214,660	₩ 1,220,470,216	₩1,796,871,298	₩ 1,556,000,533
Debentures	399,753,612	1,354,155,677	628,417,595	1,059,772,466
Total	₩ 2,254,968,272	₩ 2,574,625,893	₩2,425,288,893	₩ 2,615,772,999

(2) Borrowings from financial institutions as of December 31, 2016 and 2015, are as follows:

	Financial Institutions	Korean won (In thousands)	
		December 31, 2016	December 31, 2015
Borrowings in local currency	KDB and others	₩ 990,318,410	₩ 1,145,947,623
	Korea Exim bank		
Borrowings in foreign currency	and others	2,025,935,603	2,184,269,415
Overdraft	Woori bank and others	37,700,000	4,325,981
Loans on trade receivables collateral(*)	Woori bank and others	21,730,863	18,328,812
		3,075,684,876	3,352,871,831
Less: Reclassification of current portion		(1,855,214,660)	(1,796,871,298)
Total		₩ 1,220,470,216	₩ 1,556,000,533

(*) The Group discounted trade receivables through factoring agreements with banks, which were accounted for as secured borrowings. Under the terms of the agreements, the Group is contractually obligated to make payments in the event of default by customers (Note 7).

(3) Debentures as of December 31, 2016 and 2015, are as follows:

Issuing Company	Classification	Date of Maturity	Interest rate	Korean won (In thousands)	
				December 31, 2016	December 31, 2015
Asan Techno Valley	11 privately placed bonds	-	-	₩ -	₩ 12,000,000
	61-2 public				
Hanwha Galleria Co., Ltd.	offered bonds	2017.09.19	4.34	30,000,000	30,000,000
Hanwha Galleria Co., Ltd.	62 public offered bonds	-	-	-	50,000,000
Hanwha Galleria Co., Ltd.	63 public offered bonds	2018.09.09	2.96	50,000,000	50,000,000
Hanwha Galleria Co., Ltd.	FRN	-	-	-	35,160,000
Hanwha Galleria Co., Ltd.	64 privately placed bonds	2018.08.17	2.9	20,000,000	-
Hanwha Galleria Co., Ltd.	65 privately placed bonds	2018.02.28	2.7	10,000,000	-
Hanwha Galleria Co., Ltd.	66 privately placed bonds	2018.10.04	2.9	10,000,000	-
Hanwha Galleria Timeworld Co., Ltd. (*1)	20 public convertible bond	2018.09.15	0.25	49,984,800	49,984,800
Hanwha Advanced Materials Corporation	48 privately placed bonds	-	-	-	35,160,000
Hanwha Advanced Materials Corporation	49 privately placed bonds	-	-	-	20,000,000
Hanwha Advanced Materials Corporation	50 privately placed bonds	-	-	-	10,000,000
Hanwha Advanced Materials Corporation	51 privately placed bonds	2017.10.27	2.67	30,000,000	30,000,000
Hanwha Advanced Materials Corporation	52 FRN	2018.02.13	3L+1.90	36,255,000	35,160,000
Hanwha Advanced Materials Corporation	53 privately placed bonds	2018.03.30	2.95	10,000,000	-
Hanwha Advanced Materials Corporation	54 privately placed bonds	2017.11.10	2.78	30,000,000	-
Hanwha Advanced Materials Corporation	55 FRN	2019.05.19	3L+1.80	36,255,000	-
Hanwha Advanced Materials Corporation	56 privately placed bonds	2018.01.29	2.4	20,000,000	-
Hanwha Chemical Corporation	233-2 public offered bonds	-	-	-	60,000,000
Hanwha Chemical Corporation	234-2 public offered bonds	2017.02.07	4.42	100,000,000	100,000,000
Hanwha Chemical Corporation	235-2 public offered bonds	2017.04.23	4.14	100,000,000	100,000,000
Hanwha Chemical Corporation	237 public offered bonds	-	-	-	150,000,000
Hanwha Chemical Corporation	238 FRN	-	-	-	82,040,000
Hanwha Chemical Corporation	239 privately placed bonds	-	-	-	58,600,000
Hanwha Chemical Corporation	240 public offered bonds	2017.10.21	2.98	110,000,000	110,000,000
Hanwha Chemical Corporation	241 privately placed bonds	2018.11.17	3.03	100,000,000	100,000,000
Hanwha Chemical Corporation	242 public offered bonds	2018.02.05	2.75	103,000,000	103,000,000
Hanwha Chemical Corporation	243-1 public offered bonds	2018.05.28	2.69	102,000,000	102,000,000
Hanwha Chemical Corporation	243-2 public offered bonds	2020.05.28	3.07	98,000,000	98,000,000
Hanwha Chemical Corporation	244 FRN	2018.10.08	3L+1.65	60,425,000	58,600,000
Hanwha Chemical Corporation	245-1 public offered bonds	2018.10.28	2.75	50,000,000	50,000,000
Hanwha Chemical Corporation	245-2 public offered bonds	2020.10.28	3.08	50,000,000	50,000,000
Hanwha Chemical Corporation	246-1 public offered bonds	2019.02.24	2.70	56,000,000	-
Hanwha Chemical Corporation	246-2 public offered bonds	2021.02.24	3.09	50,000,000	-
Hanwha Chemical Corporation	247 FRN	2019.04.08	3L+1.65	120,850,000	-
Hanwha Chemical Corporation	248 public offered bonds	2019.11.07	0.72	207,362,000	-
Hanwha Q CELLS Co., Ltd.	FRN	-	-	-	115,897,773
Hanwha Q CELLS Co., Ltd.	FRN	2019.01.11	3L+2.90	120,850,000	-
	Subtotal			<u>1,760,981,800</u>	<u>1,695,602,573</u>
	Add : Call premium			376,135	376,135
	Less : Discount on debentures			(7,448,646)	(7,788,647)
	Less : Reclassification of current portion			<u>(399,753,612)</u>	<u>(628,417,595)</u>
	Total			<u>₩ 1,354,155,677</u>	<u>₩ 1,059,772,466</u>

(*) Convertible debentures as of December 31, 2016, are as follows:

	Amount
Issuing company	Hanwha Galleria Timeworld Co.,
Face value	₩50,000,000 thousand
Book value	₩47,541,449 thousand
Call premium(rate)	Upon issuance : ₩376,250 thousand (0.7525%)
Coupon rate	0.00%
Rate of return at maturity	0.25%
Terms	₩113,500 face value convertible into 1 share
Conversion period	The bonds are convertible to shares from one month after issuance (October 15, 2015) until one month before the maturity (August 15, 2018).

21. OTHER FINANCIAL LIABILITIES:

Other financial liabilities as of December 31, 2016 and 2015, are as follows:

	Korean won (In thousands)			
	December 31, 2016		December 31, 2015	
	Current	Non-current	Current	Non-current
Derivatives liabilities(Note 10.(2))	₩ 4,085,201	₩ 11,935,542	₩ 1,174,705	₩ 409,993
Deposits	8,164,836	8,925,805	8,125,506	9,553,758
Accrued expenses	139,631,052	54,383	126,602,456	8,648,803
Financial guarantee liabilities(*)	411,094	1,780,189	438,826	2,684,333
Total	₩ 152,292,183	₩ 22,695,919	₩ 136,341,493	₩ 21,296,887

(*) The Group provides payment guarantees to related parties as of December 31, 2016 (Note 36).

22. OTHER LIABILITIES:

Other liabilities as of December 31, 2016 and 2015, are as follows:

	Korean won (In thousands)			
	December 31, 2016		December 31, 2015	
	Current	Non-current	Current	Non-current
Advances from customers	₩ 581,299,914	₩ -	₩ 1,122,903,482	₩ -
Withholdings	10,593,363	-	10,379,820	-
VAT payables	11,869,998	-	6,241,729	-
Unearned revenues	8,704,490	7,684	6,623,674	17,944
Total	₩ 612,467,765	₩ 7,684	₩ 1,146,148,705	₩ 17,944

23. NET DEFINED BENEFIT LIABILITIES:

(1) Net defined benefit liabilities as of December 31, 2016 and 2015, is as follows:

	Korean won (In thousands)	
	December 31, 2016	December 31, 2015
Present value of defined benefit obligation	₩ 457,979,344	₩ 389,125,027
Fair value of plan assets	(64,494,403)	(68,132,626)
Net defined benefit liabilities	₩ 393,484,941	₩ 320,992,401

(2) Changes in the present value of defined benefit obligation during the years ended December 31, 2016 and 2015, are as follows:

	Korean won (In thousands)	
	2016	2015
Beginning balance	₩ 389,125,027	₩ 363,252,721
Current service cost	41,661,851	42,007,430
Interest expense	12,756,031	13,671,749
Remeasurements(*)	37,527,184	16,166,450
Benefits paid	(20,643,124)	(40,739,294)
Changes in scope of consolidation	(2,160,128)	(5,672,377)
Changes in exchange rates and others	(287,497)	438,348
Ending balance	₩ 457,979,344	₩ 389,125,027

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

	Korean won (In thousands)			
	2016		2015	
Actuarial losses due to empirical adjustments	₩	8,422,299	₩	11,887,813
Actuarial losses due to changes in demographic assumptions		24,437,934		4,923,232
Actuarial losses (gains) due to changes in financial assumptions		<u>4,666,951</u>		<u>(644,595)</u>
Total	₩	<u>37,527,184</u>	₩	<u>16,166,450</u>

(3) Changes in fair value of plan assets during the years ended December 31, 2016 and 2015, are as follows:

	Korean won (In thousands)			
	2016		2015	
Beginning balance	₩	68,132,626	₩	74,308,491
Interest income		1,846,287		2,274,590
Remeasurements(*)		(1,218,159)		(1,208,312)
Contributions by the employer		-		1,615,071
Benefits paid		(4,173,472)		(7,566,041)
Changes in scope of consolidation		(6,778)		(1,447,360)
Changes in exchange rates and others		<u>(86,101)</u>		<u>156,187</u>
Ending balance	₩	<u>64,494,403</u>	₩	<u>68,132,626</u>

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

(4) Plan assets as of December 31, 2016 and 2015, are as follows:

	Korean won (In thousands)			
	December 31, 2016		December 31, 2015	
Equity instruments	₩	8,516,098	₩	7,822,297
Debt instruments		3,519,807		4,182,232
Principal guaranteed financial instruments		50,877,521		54,857,326
Others		<u>1,580,977</u>		<u>1,270,771</u>
Total	₩	<u>64,494,403</u>	₩	<u>68,132,626</u>

(5) Expenses recognized in the consolidated statements of comprehensive income during the years ended December 31, 2016 and 2015, are as follows:

	Korean won (In thousands)			
	2016		2015	
Current service cost	₩	41,661,851	₩	42,007,430
Net interest cost		<u>10,909,744</u>		<u>11,397,159</u>
Total	₩	<u>52,571,595</u>	₩	<u>53,404,589</u>

(*) Retirement benefits of ₩374 million (2015: ₩386 million) were reclassified as construction in progress under property, plant and equipment during the year ended December 31, 2016.

(6) Key actuarial assumptions during the years ended December 31, 2016 and 2015, are as follows:

	Korean won (In thousands)	
	2016	2015
Discount rate	2.25 ~ 3.64%	2.58 ~ 3.61%
Expected salary growth rate	3.59 ~ 6.88%	2.50 ~ 7.67%

(7) Sensitivity analysis of defined benefit obligation due to changes in key actuarial assumptions as of December 31, 2016, is as follows:

	Korean won (In thousands)		
	Change in assumption	Increase in assumption	Decrease in assumption
Discount rate	1.00%	6.56% decrease	7.44% increase
Expected Salary growth rate	1.00%	7.43% increase	6.68% decrease

24. PROVISIONS:

(1) Provisions as of December 31, 2016 and 2015, is as follows:

	Korean won (In thousands)			
	December 31, 2016		December 31, 2015	
	Current	Non-current	Current	Non-current
	(In thousands of Korean won)			
Provision for returns	₩ 787,513	₩ -	₩ 792,918	₩ -
Provision for restoration	-	1,087,800	-	1,050,000
Provision for product warranties	48,954,603	22,435,842	41,623,233	19,800,183
Provision for litigation	2,088,090	10,000,000	243,134	10,000,000
Emission liabilities(*)	19,209,098	-	6,553,316	-
Others	-	-	20,719,534	-
Total	<u>₩ 71,039,304</u>	<u>₩ 33,523,642</u>	<u>₩ 69,932,135</u>	<u>₩ 30,850,183</u>

(*) The amount of greenhouse gas estimated to have been discharged during the year ended December 31, 2016, is 2,631,296 tCO2.

(2) Changes in provisions during the years ended December 31, 2016 and 2015, are as follows:

Classification	Korean won (In thousands)						
	2016						
	Provision for returns	Provision for restoration	Provision for product warranties	Provision for litigation	Emissions liabilities	Others	Total
Beginning balance	₩ 792,918	₩ 1,050,000	₩ 61,423,416	₩ 10,243,134	₩ 6,553,316	₩ 20,719,534	₩ 100,782,318
Changes in scope of consolidation	-	-	(509,628)	-	-	-	(509,628)
Addition	33,158	37,800	20,361,272	1,839,556	12,655,782	-	34,927,568
Used	-	-	(6,978,510)	-	-	-	(6,978,510)
Reversal	(38,563)	-	(1,459,699)	-	-	(20,245,400)	(21,743,662)
Changes in exchange rates and others	-	-	(1,446,406)	5,400	-	(474,134)	(1,915,140)
Ending balance:	<u>₩ 787,513</u>	<u>₩ 1,087,800</u>	<u>₩ 71,390,445</u>	<u>₩ 12,088,090</u>	<u>₩ 19,209,098</u>	<u>₩ -</u>	<u>₩ 104,562,946</u>
Current	787,513	-	48,954,603	2,088,090	19,209,098	-	71,039,304
Non-current	-	1,087,800	22,435,842	10,000,000	-	-	33,523,642

Classification	Korean won (In thousands)						
	2015						
	Provision for returns	Provision for restoration	Provision for product warranties	Provision for litigation	Emissions liabilities	Others	Total
Beginning balance	₩ 753,943	₩ -	₩ 60,805,443	₩ -	₩ -	₩ 20,525,666	₩ 82,085,052
Addition	38,975	1,050,000	20,307,914	10,242,384	6,553,316	-	38,192,589
Used	-	-	(8,307,585)	-	-	-	(8,307,585)
Reversal	-	-	(10,301,543)	-	-	-	(10,301,543)
Changes in exchange rates and others	-	-	(1,080,813)	750	-	193,868	(886,195)
Ending balance:	<u>₩ 792,918</u>	<u>₩ 1,050,000</u>	<u>₩ 61,423,416</u>	<u>₩ 10,243,134</u>	<u>₩ 6,553,316</u>	<u>₩ 20,719,534</u>	<u>₩ 100,782,318</u>
Current	792,918	-	41,623,233	243,134	6,553,316	20,719,534	69,932,135
Non-current	-	1,050,000	19,800,183	10,000,000	-	-	30,850,183

25. CAPITAL STOCK AND SURPLUS:

(1) Capital stock as of December 31, 2016 and 2015, is as follows:

	Korean won (In thousands), except for number of shares			
	December 31, 2016		December 31, 2015	
	Common shares	Preferred shares(*)	Common shares	Preferred shares(*)
Total number of authorized shares	200,000,000 shares	100,000,000 shares	200,000,000 shares	100,000,000 shares
Par value per share	₩ 5,000	₩ 5,000	₩ 5,000	₩ 5,000
Number of shares issued	164,809,359 shares	1,123,737 shares	161,939,571 shares	1,123,737 shares
Capital stock	₩ 824,046,795	₩ 5,618,685	₩ 809,697,855	₩ 5,618,685

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

(2) Increase in paid-in capital

The Group issued 2,869,788 new shares for the merger of HANWHA FINE CHEMICAL CO., LTD., a subsidiary, during the year ended December 31, 2016 and acquired 1,698,965 shares of treasury stock equivalent to a controlling interest in HANWHA FINE CHEMICAL CO., LTD. As a result, the increased capital stock and surplus amounted to ₩14,349 million and ₩15,569 million, respectively.

(3) Capital surplus as of December 31, 2016 and 2015, is as follows:

	Korean won (In thousands)	
	December 31, 2016	December 31, 2015
Paid-in capital in excess of par value	₩ 478,258,399	₩ 462,688,912
Revaluation reserve	86,071,253	94,122,434
Gain from merger	75,670,859	75,670,859
Other capital surplus	188,446,627	197,015,265
Total	₩ 828,447,138	₩ 829,497,470

26. CAPITAL ADJUSTMENTS:

Consolidated capital adjustments as of December 31, 2016 and 2015, are composed of other capital adjustments recognized during the prior acquisition of subsidiaries.

27. ACCUMULATED OTHER COMPREHENSIVE INCOME:

Accumulated other comprehensive income as of December 31, 2016 and 2015, is as follows:

	Korean won (In thousands)	
	December 31, 2016	December 31, 2015
Changes in value of available-for-sale financial assets	₩ 30,968,628	₩ 36,582,029
Share of other comprehensive income of associates and joint ventures	112,389,816	123,377,847
Changes in value of derivative instruments	527,497	(196,450)
Currency translation difference	(100,261,006)	(55,093,594)
Total	₩ 43,624,935	₩ 104,669,832

28. RETAINED EARNINGS:

(1) Retained earnings as of December 31, 2016 and 2015, is as follows:

	Korean won (In thousands)	
	December 31, 2016	December 31, 2015
Legal reserves	₩ 50,343,451	₩ 47,891,883
Voluntary reserves	1,932,705,785	1,990,685,999
Revaluation surplus	721,625,392	724,756,688
Unappropriated retained earnings	881,721,329	123,517,581
Total	₩ 3,586,395,957	₩ 2,886,852,151

29. DIVIDENDS:

- (1) During the year ended December 31, 2016, dividends on the Company's common shares of ₩24,291 million (₩150 per share) and dividends on preferred shares of ₩225 million (₩200 per share) were paid out for the year ended December 31, 2015.
- (2) During the year ended December 31, 2015, dividends on the Company's common shares of ₩24,291 million (₩150 per share) and dividends on preferred shares of ₩225 million (₩200 per share) were paid out for the year ended December 31, 2014.
- (3) Dividends on the Company's common shares of ₩57,089 million (₩350 per share) and dividends on preferred shares of ₩449 million (₩400 per share) for the year ended December 31, 2016, are to be proposed at the regular general shareholders' meeting scheduled for March 24, 2017. These consolidated financial statements do not reflect these dividends payable.

30. SELLING AND ADMINISTRATIVE EXPENSES:

Selling and administrative expenses during the years ended December 31, 2016 and 2015, are as follows:

	Korean won (In thousands)	
	2016	2015
Salaries	₩ 292,768,385	₩ 305,726,467
Retirement benefits	25,345,295	24,959,334
Other long-term employee benefits	1,174,723	6,555,966
Voluntary resignation benefits	192,813	86,022
Welfare expenses	53,796,111	54,500,295
Rental expenses	66,860,153	58,558,005
Reception expenses	9,425,249	10,220,057
Depreciation on investment property	509,228	617,605
Depreciation on property, plant and equipment	78,084,454	77,037,078
Amortization	10,983,624	14,832,581
Taxes and dues	27,845,686	29,001,167
Advertising expenses	37,409,388	34,648,821
Bad debt expenses	17,078,887	3,503,309
Travel expenses	15,371,424	14,841,213
Traveling expenses for overseas branch	437,318	329,825
Conference expenses	3,042,474	2,572,548
Communication charges	4,848,682	4,941,337
Supplies expenses	4,576,664	5,512,711
Publication expenses	1,173,127	1,381,401
Outsourcing service expenses	44,057,548	36,195,515
Freight expenses	86,051,383	47,789,221
Custody charges	71,612,233	64,301,388
Sample and packing expenses	7,384,688	6,814,206
Utility expenses	16,829,501	15,352,596
Sales commissions	17,702,586	15,048,147
Export selling expenses	70,956,809	91,901,009

	Korean won (In thousands)	
	2016	2015
Repair expenses	14,879,527	16,626,729
Insurance expenses	14,912,794	12,570,435
Service fee	158,095,453	102,391,331
Research expenses	35,448,644	40,682,912
Ordinary development expenses	38,471,602	22,833,723
Market development expenses	4,422,430	5,844,353
Maintenance expenses for overseas branch	567,747	673,796
Product warranties expenses	17,249,730	10,422,763
Training expenses	6,445,618	5,926,724
Product handling commission	-	29,219
Miscellaneous expenses	5,488,874	7,730,786
Others	6,895,332	6,381,209
Total	<u>₩ 1,268,396,184</u>	<u>₩ 1,159,341,804</u>

31. EXPENSES BY NATURE:

Expenses classified by nature during the years ended December 31, 2016 and 2015, is as follows:

	Korean won (In thousands)	
	2016	2015
Changes in finished goods, half-finished goods and work in process	₩ 420,666,554	₩ 50,493,746
Sales merchandises	912,566,769	727,880,792
Raw materials and merchandise goods used	4,568,479,694	4,302,425,203
Employee benefits(*1)	713,798,373	559,505,388
Welfare expenses	123,021,703	89,603,403
Rental expenses	143,201,973	108,021,040
Depreciation of investment property	3,965,292	2,107,356
Depreciation of property, plant and equipment	426,319,488	433,124,951
Amortization	15,003,208	16,906,623
Warehousing and carrying charges	169,313,071	109,277,623
Utility expenses	144,248,289	127,387,141
Outsourcing expenses	283,390,665	131,733,652
Export selling expenses	71,891,739	73,660,408
Taxes and dues	36,234,528	29,338,855
Others	447,513,247	938,512,250
Total(*2)	<u>₩ 8,479,614,593</u>	<u>₩ 7,699,978,431</u>

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

(*2) The total amount of cost of sales and selling and administrative expenses in the consolidated statements of comprehensive income

32. OTHER INCOME AND OTHER EXPENSES:

(1) Other non-operating income during the years ended December 31, 2016 and 2015, is as follows:

	Korean won (In thousands)	
	2016	2015
Gain on foreign currency transactions	₩ 167,336,473	₩ 130,209,846
Gain on foreign currency translation	112,279,488	77,763,099
Gain on valuation of derivatives	5,867,729	17,458,389
Gain on disposal of available-for-sale financial assets	-	18,588,892
Gain on disposal of investments in associates and joint ventures	57,587,191	13,604,342
Gain on transactions of derivatives	27,485,129	14,296,475
Reversal of impairment on available-for-sale financial assets	499	2,303
Gain on disposal of investment property	56,677	-
Gain on disposal of property, plant and equipment	25,161,022	8,705,690
Gain on disposal of intangible assets	350,284	436,625
Reversal of bad debt expense	22,831	1,532,165
Rental income	193,689	211,191

	Korean won (In thousands)	
	2016	2015
Gain on bargain purchase(*1)	35,810	26,590,337
Debt cancelation	4,970,106	54,898,852
Others	41,886,966	32,735,654
Total	<u>₩ 443,233,894</u>	<u>₩ 397,033,860</u>

(*) Includes gain on bargain purchase amounting to ₩22,994 million from the increase in percentage of ownership, by acquiring and retiring treasury stocks of Hanwha General Chemical Co., Ltd. (Note 14).

(2) Other non-operating expenses during the years ended December 31, 2016 and 2015, is as follows:

	Korean won (In thousands)	
	2016	2015
Loss on foreign currency transactions	₩ 185,792,115	₩ 117,486,254
Loss on foreign currency translation	101,956,740	162,186,216
Loss on valuation of derivatives	16,382,854	263,598
Loss on disposal of available-for-sale financial assets	-	8,146
Loss on disposal of investments in associates and joint ventures	31,625,095	3,597,410
Loss on disposal of available-for-sale financial assets	5,538,403	-
Impairment loss on investments in associates and joint ventures	3,570,087	-
Loss on transactions of derivatives	50,898,484	3,789,014
Loss on disposal of trade receivables	436,450	-
Loss on disposal of investment property	275,001	376,551
Loss on disposal of property, plant and equipment	45,381,788	86,727,982
Loss on disposal of intangible assets	2,161,118	449,686
Impairment loss on property, plant and equipment	85,222,976	52,755,170
Impairment loss on intangible assets	8,365,952	21,163,328
Impairment loss on assets held for sale	615,594	-
Other bad debt expenses	4,535,353	7,957,237
Loss on inventory abandoned	5,252,215	206,173
Commissions(non-operating)	10,826,644	11,240,635
Donation expenses	11,682,795	6,750,886
Others	37,903,641	42,513,779
Total	<u>₩ 608,423,305</u>	<u>₩ 517,472,065</u>

33. FINANCIAL INCOME AND EXPENSE:

(1) Financial income during the years ended December 31, 2016 and 2015, is as follows:

	Korean won (In thousands)	
	2016	2015
Interest income	₩ 19,159,087	₩ 21,357,136
Dividend income	3,162,717	4,029,496
Total	<u>₩ 22,321,804</u>	<u>₩ 25,386,632</u>

(2) Financial expenses during the years ended December 31, 2016 and 2015, is as follows:

	Korean won (In thousands)	
	2016	2015
Interest expense	₩ 173,291,081	₩ 179,739,069

34. INCOME TAX EXPENSE AND DEFERRED INCOME TAX:

(1) Income tax expense during the years ended December 31, 2016 and 2015, is as follows:

	<u>Korean won (In thousands)</u>	
	<u>2016</u>	<u>2015</u>
Current income tax:		
Current income taxes	₩ 112,723,829	₩ 62,040,451
Adjustments for prior years	<u>(21,502,331)</u>	<u>6,173,951</u>
	<u>91,221,498</u>	<u>68,214,402</u>
Deferred income tax:		
Changes of temporary differences	6,028,791	(18,455,162)
Income tax charged directly to equity	<u>18,187,761</u>	<u>(1,795,338)</u>
Income tax expense	<u>₩ 115,438,050</u>	<u>₩ 47,963,902</u>

(2) The actual income tax expense on the Group's profit before income tax, which differs from the amount that is computed using the tax calculated at the weighted average of annual corporate income tax rates rate applied to profits of consolidated entities, during the years ended December 31, 2016 and 2015 is as follows:

	<u>Korean won (In thousands)</u>	
	<u>2016</u>	<u>2015</u>
Profit before income tax	₩ 886,381,726	₩ 228,379,669
Income tax based on statutory tax rate	<u>214,504,378</u>	<u>55,267,880</u>
Adjustments:		
Permanent differences	(47,331,220)	(9,156,837)
Adjustments for prior years	(21,502,331)	6,173,951
Tax credit	(5,541,472)	1,416,207
Effects of unrecognized deferred tax	(13,026,316)	(2,774,573)
Others	<u>(99,066,328)</u>	<u>(7,303,978)</u>
Income tax expense	<u>₩ 115,438,050</u>	<u>₩ 47,963,902</u>

(3) Income tax credited(charged) directly to equity during the years ended December 31, 2016 and 2015, is as follows:

	<u>Korean won (In thousands)</u>	
	<u>2016</u>	<u>2015</u>
Current income tax:		
Remeasurement of net defined benefit liabilities	₩ 297,616	₩ 573,817
Deferred income tax:		
Gain(loss) on valuation of available-for-sale financial assets	4,145,473	738,249
Share of other comprehensive loss of associates and joint ventures	4,443,792	(3,477,583)
Gain(loss) on valuation of derivative instruments	(84,249)	22,467
Currency translation differences	(6,037,723)	(3,455,445)
Remeasurement of net retirement benefit liabilities	9,182,321	3,874,962
Share of remeasurements of net defined benefit liabilities of associates and joint ventures	247,806	781,411
Other capital surplus	5,740,211	(496,523)
Other capital adjustments	<u>252,514</u>	<u>(356,693)</u>
Total	<u>₩ 18,187,761</u>	<u>₩ (1,795,338)</u>

(4) Changes in deferred income tax during the years ended December 31, 2016 and 2015, are as follows:

Korean won (In thousands)							
2016							
	Beginning	Profit or loss	Other comprehensive income	Equity	Changes in scope of consolidation	Ending	
Allowance for doubtful accounts	₩ 47,358,515	₩ (109,285)	₩ -	₩ -	₩ -	₩ 47,249,230	
Loss on valuation of inventories	8,267,838	(4,936,871)	-	-	-	3,330,967	
Gain (loss) on valuation of derivatives	(2,200,079)	2,737,645	(84,249)	-	-	453,317	
Available-for-sale financial assets	3,011,188	(13,578,824)	4,145,473	-	-	(6,422,163)	
Bonuses	4,744,249	2,979,653	-	-	-	7,723,902	
Depreciation	(18,354,657)	(41,159)	-	-	-	(18,395,816)	
Defined benefit obligation	81,965,478	9,234,784	9,182,321	-	-	100,382,583	
Plan assets	(10,786,794)	(145,991)	-	-	-	(10,932,785)	
Revaluation reserve	(27,875,092)	1,963,519	-	-	-	(25,911,573)	
Revaluation surplus	(205,746,697)	6,362,090	-	-	-	(199,384,607)	
Share of remeasurements of net defined benefit liabilities of associates and joint ventures	(146,505,222)	(25,674,152)	(1,346,125)	5,992,725	(2,902,901)	(170,435,675)	
Others	<u>34,872,845</u>	<u>(2,710,345)</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>32,162,500</u>	
Total	<u>₩ (231,248,428)</u>	<u>₩ (23,918,936)</u>	<u>₩ 11,897,420</u>	<u>₩ 5,992,725</u>	<u>₩ (2,902,901)</u>	<u>₩ (240,180,120)</u>	

Korean won (In thousands)							
2015							
	Beginning	Profit or loss	Other comprehensive income	Equity	Changes in scope of consolidation	Ending	
Allowance for doubtful accounts	₩ 47,570,217	₩ (211,702)	₩ -	₩ -	₩ -	₩ 47,358,515	
Loss on valuation of inventories	6,001,268	2,266,570	-	-	-	8,267,838	
Gain (loss) on valuation of derivatives	(669,831)	1,552,715	22,467	-	-	(2,200,079)	
Available-for-sale financial assets	17,120,623	(14,847,684)	738,249	-	-	3,011,188	
Bonuses	825,089	3,919,160	-	-	-	4,744,249	
Depreciation	(13,940,736)	(4,413,921)	-	-	-	(18,354,657)	
Defined benefit obligation	77,966,159	124,357	3,874,962	-	-	81,965,478	
Plan assets	(12,336,958)	1,550,164	-	-	-	(10,786,794)	
Revaluation reserve	(27,973,073)	97,981	-	-	-	(27,875,092)	
Revaluation surplus	(209,697,142)	3,950,445	-	-	-	(205,746,697)	
Share of remeasurements of net defined benefit liabilities of associates and joint ventures	(163,757,135)	25,317,029	(6,151,617)	(853,216)	(1,060,283)	(146,505,222)	
Others	<u>30,248,212</u>	<u>4,624,633</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>34,872,845</u>	
Total	<u>₩ (248,643,307)</u>	<u>₩ 20,824,317</u>	<u>₩ (1,515,939)</u>	<u>₩ (853,216)</u>	<u>₩ (1,060,283)</u>	<u>₩ (231,248,428)</u>	

35. EARNINGS PER SHARE:

- (1) Basic earnings per common share during the years ended December 31, 2016 and 2015, is calculated as follows:

	<u>Korean won (In thousands), except for share amounts</u>	
	<u>2016</u>	<u>2015</u>
Net income	₩ 770,943,676	₩ 180,415,766
Net income attributable to owners of the Company	755,256,459	188,160,566
Net income available to common shares	750,032,975	186,808,074
Weighted-average number of common shares outstanding	<u>162,921,661 shares</u>	<u>161,939,571 shares</u>
Basic earnings per common share (In Korean won)	<u>₩ 4,604</u>	<u>₩ 1,154</u>

- (2) Basic earnings per preferred share during the years ended December 31, 2016 and 2015, is calculated as follows:

	<u>Korean won (In thousands), except for share amounts</u>	
	<u>2016</u>	<u>2015</u>
Net income	₩ 770,943,676	₩ 180,415,766
Net income attributable to owners of the Company	755,256,459	188,160,566
Net income available to preferred shares	5,223,484	1,352,492
Weighted-average number of preferred shares outstanding	<u>1,123,737 shares</u>	<u>1,123,737 shares</u>
Basic earnings per preferred share (In Korean won)	<u>₩ 4,648</u>	<u>₩ 1,204</u>

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

- (3) Potential common shares consist of convertible bonds issued by Hanwha Galleria Timeworld Co., Ltd. Basic and diluted earnings per share during the years ended December 31, 2016 and 2015, are identical since there are no potentially dilutive common shares.

36. COMMITMENTS AND CONTINGENCIES:

- (1) Credit limits provided by financial institutions as of December 31, 2016, are as follows:

	<u>Korean won (In thousands), except USD, EUR, CNY,</u>	
	<u>MYR, CZK, THB, CLP, MXN</u>	
	<u>December 31, 2016</u>	
	<u>Currency</u>	<u>Limit</u>
Overdraft	KRW	135,034,000
	USD	52,200,000
	EUR	5,000,000
	CNY	81,500,000
	THB	30,000,000
Usance	USD	126,940,000
D/A, D/P, Local and foreign trade	USD	99,700,000
	THB	70,000,000
Other credit limits	KRW	1,634,850,000
	USD	1,247,306,375
	EUR	9,000,000
	CNY	1,836,046,729
	MYR	838,000,000
	CZK	841,025,255
	THB	90,000,000
	CLP	2,096,708,966
	<u>MXN</u>	<u>103,320,000</u>

Korean won (In thousands), except USD, EUR, CNY, MYR, CZK, THB, CLP, MXN		
December 31, 2016		
	Currency	Limit
Total	KRW	1,769,884,000
	USD	1,526,146,375
	EUR	14,000,000
	CNY	1,917,546,729
	MYR	838,000,000
	CZK	841,025,255
	THB	190,000,000
	CLP	2,096,708,966
	MXN	103,320,000

- (2) The Group collateralized the following assets as collaterals in relation to borrowings as of December 31, 2016:

Korean won (In thousands)		
December 31, 2016		
Collateral	Collateral amount	Lender
Cash and cash equivalents	₩ 3,356,730	Green End Renewables Limited.
Trade receivables and other receivables	148,329,810	Korea Development Bank and others
Other financial assets	318,187,960	Shinhan Bank and others
Inventories	272,780,177	Korea Development Bank and others
Assets (or disposal groups) held for sale	108,000,000	Shinhan Bank and others
Investments in associates and joint ventures	147,146,770	Korea Securities Finance Corporation and others
Investment property	48,900,000	Hana Bank and others
Property, plant and equipment	2,245,770,040	Korea Development Bank and others
Intangible assets	49,801,021	Hana Bank and others
Subsidiary equity	195,000,000	Korea Development Bank and others

(*) Other than the collaterals listed above, the Group provided collaterals to related parties (Note 37).

- (3) Guarantees provided to others as of December 31, 2016, are as follows:

Korean won (In thousands), except for USD					
December 31, 2016					
Guarantee	Detail	Term	Currency	Amount of guaranteed	
Hanwha L&C Co., Ltd.	Joint guarantee	2014.11.05 ~ 2017.06.30	KRW	₩	2,933,943
Inmobiliaria Lomas Los Colorados S.A.	Lease	2014.02.28~2039.02.28	USD		435,769
Yapicredit	Payment guarantee	2015.10.19~2017.10.19	USD		40,000,000

As of December 31, 2016, the Group provides payment guarantees totaling ₩23,663 million for loans taken out by employees from financial institutions.

The Group provides payment guarantees and collateral for related parties in addition to the above guarantees provided to others (Note 37).

(4) Guarantees provided by others as of December 31, 2016, are as follows:

Guarantor	Detail	Korean won (In thousands)	
		December 31, 2016	
		Term	Amount of guaranteed
Seoul Guarantee Insurance	Forest restoration guarantees	2013.09.05~2018.09.04	₩ 13,120
Seoul Guarantee Insurance	Accounts payable - NongShim	2016.01.01~2016.12.31	150,000
Seoul Guarantee Insurance	Performance guarantees	2010.11.22~2019.02.28	2,358,673
Seoul Guarantee Insurance	Forest restoration guarantees	2014.04.30~2019.04.29	79,899
Seoul Guarantee Insurance	Performance bond - NongShim	2015.07.01~2017.06.30	45,000
JR 8-ho Consigned Real Estate	Pledged leasehold deposits for 63 Building Tosan Logistics Warehouse	2015.12.01~2020.11.30	157,410

(5) Excluding the litigations mentioned in Note 36 (8) and (9), the Group is a plaintiff in 8 litigations involving an aggregate amount of ₩85,398 million and is a defendant in 5 litigations involving an aggregate amount of ₩34,540 million as of December 31, 2016. The Group recorded a provision related to one lawsuit (Note 24) as of December 31, 2016, and the outcome of the other legal proceedings cannot be predicted.

(6) In relation to the transfer of stock ownership in Hanwha Energy Corporation, the Group has an arrangement to jointly compensate the transferee with other shareholders up to ₩50,000 million for any specified loss incurred between the date of the transfer and a certain date. A lawsuit is in progress regarding this matter. The litigation amount, ₩32,282 million, is included in Note 36 (5). The Seoul High Court ruled in favor of the defendants on June 21, 2012. The plaintiff filed an appeal to the Supreme Court on July 25, 2012 and the Supreme Court turned down the appeal on October 15, 2015. The Seoul High Court nullified the delayed indemnification for damages by the Group to the plaintiff of about ₩1,000 million and the Group established a provision for litigation of ₩1,840 million. (Note 24).

(7) On July 11, 2005, the Group sold all of its ownership interests in POSCO ENERGY Co., Ltd. (formerly Korea Independent Energy Co., Ltd.) to POSCO. According to the stock sale and purchase agreement, the Group shall indemnify Korea Independent Energy Co., Ltd. from any complaint filed by a third party regarding intake channels and drainage canals used by Korea Independent Energy Co., Ltd. to the extent of 25% of any related loss upon the termination of the electricity power agreement contracted between Korea Independent Energy Co., Ltd. and Korea Electric Power Corporation or until the cause of the claim is resolved. Management does not believe the ultimate resolution would have a material adverse effect on the financial condition of the Group.

(8) The Hanwha Consortium including the Group signed a memorandum of understanding with Korea Development Bank to acquire ownership in Daewoo Shipbuilding & Marine Engineering Co., Ltd. on November 14, 2008 and paid ₩315,000 million as a performance bond on November 19, 2008. On January 22, 2009, the Hanwha Consortium received a notice from Korea Development Bank rescinding the memorandum of understanding and confiscating the performance bond.

It was determined in accordance with the liquidation entered into among the Group, Hanwha Corporation and Hanwha Engineering & Construction Corporation that the Group's share of the performance bond of ₩315,000 million was ₩190,300 million. Hanwha Consortium was liquidated on May 13, 2009. On June 19, 2009, the Group filed a claim to the Seoul Central District Court demanding the performance bond be returned. The legal case was moved to civil proceedings due to the court ruling not reaching consensus on November 20, 2009.

On February 10, 2011, the Seoul Central District Court ruled against the Group as plaintiff. On June 14, 2012, the Seoul High Court also ruled against the appeal filed on March 2, 2011. The Group filed an appeal to the Supreme Court on July 3, 2012. On July 14, 2016, the Supreme Court made a ruling to overturn the Seoul Central District Court's decision and return the case to the Seoul High Court. The outcome of this legal matter cannot be predicted. The Group recorded total receivables of ₩190,300 million in allowance for doubtful accounts.

- (9) On September 30, 2014, Schuco International KG submitted a request for arbitration to the London Court of International Arbitration regarding compensation of EUR 192 million for defective modules purchased from the Group, but the Group is aggressively claiming the modules are not defective. Although the outcome of the arbitration claim cannot be predicted, arbitration proceedings have been temporarily suspended and discussions are underway for a mutually agreeable settlement.
- (10) On December 19, 2014, the Group sold all of its ownership interests in DREAMPHARMA CORP. to ALVOGEN KOREA CO., LTD. The stock sale and purchase agreement holds that the Group shall compensate the buyer 5% up to 12.5% of the selling price for loss incurred for a certain period from the date of the sale. Furthermore, if any loss is incurred in relation to Myobloc, the Group shall compensate 50% of the loss. Management does not believe the ultimate resolution would have a material adverse effect on the financial condition of the Group.
- (11) On April 30, 2015, the Group acquired 27.62% of ownership interest in Hanwha General Chemical Co., Ltd. to strengthen competitive advantage in the petrochemical industry and establish stable revenue growth through product diversification. The stock sale and purchase agreement states that the Group may make additional payments contingent upon HANWHA TOTAL PETROCHEMICAL CO., LTD.'s performance

On the other hand, Samsung C&T Corporation and Samsung SDI are entitled to the right of first sale regarding their remaining ownership interests at the time of Hanwha General Chemical Co., Ltd.'s initial public offerings. If Hanwha General Chemical Co., Ltd.'s stock cannot be listed within 6 years (7 years if requested by the Group) from the end date of the transaction, Samsung C&T Corporation and Samsung SDI have a put option and the Group has a call option in regard to the remaining ownership interests. If Samsung C&T Corporation and Samsung SDI sell their ownership interests, the Group has first priority in buying them. If the Group sells its ownership interest, Samsung C&T Corporation and Samsung SDI have a tag-along right, and company has a drag-along right. As of December 31, 2016, the Group's ownership interest in Hanwha General Chemical Co., Ltd. was pledged as collateral in relation to payables to the seller. The amount collateralized is ₩147,147 million (Note 36 (2)).

- (12) As of December 31, 2016, the Group provided a guarantee of USD 115,256,613.59 in relation to the module supply agreement between Hanwha Q Cells America Inc. and NextEra.

37. **RELATED PARTIES:**

- (1) Transactions with related parties including others during the years ended December 31, 2016 and 2015, are as follows:

Company	Korean won (In thousands)			
	2016			
	Sales	Disposal of property and intangible assets	Purchase	Purchase of property and intangible assets
Parent company:				
Hanwha Corporation(*1)	₩ 177,305,285	₩ -	₩ 381,649,368	₩ -
Associates:				
Hanwha Savings Bank Co., Ltd.	53,566	-	-	-
Hanwha Station Development Co., Ltd. (*2)	26,402	-	1,141,564	-
HANWHA Eagles Professional Baseball Club	36,080	-	1,866,827	-
Hanwha General Chemical Co., Ltd.	2,881,358	1,248,500	12,306,041	-
HANWHA INVESTMENT AND SECURITIES CO., LTD.	574,395	-	1,534,947	27,000
Hanwha Hotels and Resort Co., Ltd. (*3)	3,734,322	-	16,604,948	-
Crystal Solar Inc.	36,255	-	-	-
International Polymers Company	1,016,825	-	136,627,280	-
Saudi Specialized Products Company	530,861	-	-	-
Joint ventures:				
YEOCHUN NCC Co., Ltd. (*4)	15,907,880	-	1,087,156,531	-
Burdur Enerji A.S.	15,132	-	-	-
Gulf Advanced Cables Insulation Company	2,268,147	-	-	-

Company	Korean won (In thousands)			
	2016			
	Sales	Disposal of property and intangible assets	Purchase	Purchase of property and intangible assets
Others(*9):				
174 Power Global Corporation	-	-	1,545	-
SIT CO., LTD.	51,643	-	-	-
Yeosu Sea World Corporation	140	-	103,012	-
101 Global Co., Ltd.	-	-	49,388	-
Ilsan Seaworld, Co., Ltd.	123	-	75,888	-
Kaes Co., Ltd.	9,980	-	-	-
Taekyung Chemical Co., Ltd.	46,105,306	-	-	-
Hanwha Engineering & Construction Corporation (*5)	2,474,134	-	144,868,130	10,682,817
Hanwha Estate Co., Ltd. (formerly, SNSACE Co., Ltd.)	377,708	-	23,190,833	-
HANWHA 63 CITY CORPORATION	234,952	-	8,645,212	-
HUMANPOWER Co., Ltd.	-	-	1,054,490	-
Green End Renewables Limited.	3,250	-	-	-
DreamPlus Global seed association of investment	4,800	-	-	-
Eco E&O corporation	16,730	-	125,770	-
Jeju Ocean Science Museum Corporation	-	-	166,782	-
Foodist Food Culture(Shanghai) Co., Ltd.	-	-	5,567,293	-
Hanwha Defense Systems Corp.	470,833	-	7,848	-
Hanwha Life Asset Co., Ltd.	24,675	-	-	-
Hanwha LIFE INSURANCE CO., LTD.(*6)	5,066,735	20,909	19,705,328	-
Hanwha General Insurance Co., Ltd.(*7)	2,271,039	-	10,615,258	-
Hanwha Insurance Investigation Co., Ltd.	103,871	-	-	-
Hanwha System Corporation (formerly, Hanwha Thales Co., Ltd.)	581,930	-	-	-
Hanwha Energy Corporation	473,963	-	150,115,675	-
HANWHA S&C CO., LTD.	579,281	-	59,029,652	-
Hanwha Investmedefnt Corp.	4,575	-	-	-
Hanwha Asset Management Co., Ltd.	37,547	-	-	-
Hanwha Q CELLS Korea Co., Ltd.	158,791,520	-	567,556,710	-
HANWHA TECHWIN CO., LTD.	3,849,785	-	-	-
HANWHA TOTAL PETROCHEMICAL Co., Ltd.	6,034,947	-	26,424,741	-
Altinorda Enerji IC ve Dis Ticaret Sanayi ve Ticaret Ltd. Sti.	848,469	-	-	-
Bahcesaray Enerji IC ve Dis Ticaret Sanayi ve Ticaret Ltd. Sti.	878,188	-	-	-
Blue Albatross FZE	-	-	53,791	-
BT1 Enerji IC ve Dis Ticaret Sanayi ve Ticaret Ltd. Sti.	3,557,464	-	-	-
Hanwha America Development Inc.	-	-	964,477	-
Hanwha Europe GmbH	98,251,313	-	1,945,225	-
Hanwha Saudi Contracting Co., Ltd.	134,838	-	-	-
Hanwha Q CELLS Americas Holdings. Corp.	985,136	-	1,102,006	-
Hanwha Q CELLS Japan Co.,Ltd.	376,048,022	-	60,173,515	-
Hanwha Techm Hungary Zrt.	-	-	87,278	-
HSSC Stainless Inc.	18,503	-	-	-
Meca Enerji IC ve Dis Ticaret Sanayi ve Ticaret Ltd. Sti.	848,469	-	-	-
Primo Gunes Enerjisi A.S.	69,696	-	-	-
Razin Elektrik Uretim Sanayi ve Ticaret A.S.	12,317,586	-	-	-
Razin En. San. ve Tic. A.S.	6,389,547	-	-	-
Razin GES Elektrik Sanayi ve Ticaret A.S.	4,796,967	-	-	-
Razin Gunes Enerjisi Sanayi ve Ticaret A.S.	5,206,461	-	-	-
S&P World Network DMCC	309,015	-	-	-
TRI ENERGY GLOBAL PTE. LTD.	67,941,112	-	-	-
Total	<u>₩ 1,010,556,761</u>	<u>₩ 1,269,409</u>	<u>₩ 2,720,517,353</u>	<u>₩ 10,709,817</u>

(*1) The Group paid dividends of ₩8,932 million to Hanwha Corporation during the year ended December 31, 2016.

(*2) The Group received dividends of ₩1,852 million from Hanwha Station Development Co., Ltd. during the year ended December 31, 2016.

(*3) The Group acquired ownership interest in Hanwha Station Development Co., Ltd. owned by Hanwha Hotels and Resort Co., Ltd. for ₩44,108 million during the year ended December 31, 2016.

- (*4) The Group received dividends of ₩135,000 million from YEOCHUN NCC Co., Ltd. during the year ended December 31, 2016.
- (*5) The Group acquired the entire ownership interest of Hanwha America Development Inc. owned by Hanwha Engineering & Construction Corporation for ₩105,574 million during the year ended December 31, 2016.
- (*6) The Group received dividends of ₩2,737 million from HANWHA LIFE INSURANCE CO., LTD. during the year ended December 31, 2016. The Group sold its entire ownership interest in Hanwha General Insurance Co., Ltd. to HANWHA LIFE INSURANCE CO., LTD. for ₩43,598 million.
- (*7) The Group received dividends of ₩382 million from Hanwha General Insurance Co., Ltd. during the year ended December 31, 2016.
- (*8) The Group returned an investment of ₩2,925 million from Hanwha Newly Development Force Fund during the year ended December 31, 2016 as a result of capital reduction.
- (*9) Although these companies are not applicable to related parties defined in K-IFRS 1024 Paragraph 9, a group of large-size affiliates designated by the Korea Fair Trade Commission are classified as related parties according to the resolution by the Securities & Futures Commission in accordance with substantial relationship defined in IFRS 1024 Paragraph 10.

Company	Korean won (In thousands)			
	2015			
	Sales	Disposal of property and intangible assets	Purchase	Purchase of property and intangible assets
Parent company:				
Hanwha Corporation(*1)	₩ 197,352,140	₩ -	₩ 523,379,224	₩ 7,822,280
Associates:				
Hanwha Savings Bank Co., Ltd.	38,205	-	-	-
Hanwha General Insurance Co., Ltd.	1,803,956	-	8,912,531	-
Hanwha Station Development Co., Ltd. (*2)	14,988	-	970,860	-
HANWHA Eagles Professional Baseball Club	35,271	-	2,127,566	-
Hanwha General Chemical Co., Ltd.	619,920	-	5,283,413	-
Hanwha Q CELLS Korea Co., Ltd.	100,196,743	32,500	7,747,616	-
HANWHA INVESTMENT AND SECURITIES CO., LTD. (*3)	473,205	-	288,227	-
Hanwha Hotels and Resort Co., Ltd. (*4)	3,931,774	-	15,359,374	1,674,856
International Polymers Company	-	-	104,549,456	-
Renew Akshay Urja Private Limited	38,407,455	-	-	-
Joint ventures:				
YEOCHUN NCC Co., Ltd. (*5)	18,108,930	-	1,238,769,914	-
Burdur Enerji A.S.	11,825,893	-	-	-
Gulf Advanced Cables Insulation Company	19,011	-	-	-
Others:				
SIT CO., LTD.	14,155	-	-	-
Yeosu Sea World Corporation	-	-	114,781	-
Ilsan Seaworld, Co., Ltd.	2,496	-	79,687	-
Taekyung Chemical Co., Ltd.	40,883,711	-	-	-
HAN COMM. INC.	322,687	-	5,960,309	-
Hanwha Engineering & Construction Corporation	2,933,746	-	134,858,816	-
Hanwha Estate Co., Ltd. (formerly, SNSACE Co., Ltd.)	388,430	-	21,695,284	-
HANWHA 63 CITY CORPORATION	230,305	-	6,911,663	-
HUMANPOWER Co., Ltd.	-	-	513,952	-
Green End Renewables Limited.	3,460	-	-	-
DreamPlus Global seed association of investment	3,900	-	-	-
Eco E&O corporation	8,190	-	-	-
Jeju Ocean Science Museum Corporation	-	-	172,070	-
Foodist Food Culture(Shanghai) Co., Ltd.	-	-	5,808,028	-
Hanwha Life Asset Co., Ltd.	7,871	-	-	-
Hanwha LIFE INSURANCE CO., LTD.(*6)	3,030,635	-	11,187,379	-
Hanwha Insurance Investigation Co., Ltd.	77,171	-	-	-
Hanwha System Corporation (formerly, Hanwha Thales Co., Ltd.)	283,659	-	-	-
Hanwha Energy Corporation	12,033,337	-	154,038,895	-
HANWHA S&C CO., LTD.	15,864,915	-	46,053,190	-
Hanwha Investment Corp.	6,618	-	-	-
Hanwha Asset Management Co., Ltd.	116,798	-	-	-

Company	Korean won (In thousands)			
	2015			
	Sales	Disposal of property and intangible assets	Purchase	Purchase of property and intangible assets
HANWHA TECHWIN CO., LTD.	928,070	-	-	-
HANWHA TOTAL PETROCHEMICAL Co., Ltd.	1,796,397	-	11,527,345	-
Altinorda Enerji IC ve Dis Ticaret Sanayi ve Ticaret Ltd. Sti.	1,637,524	-	-	-
Bahcesaray Enerji IC ve Dis Ticaret Sanayi ve Ticaret Ltd. Sti.	1,637,524	-	-	-
Blue Albatross FZE	-	-	116,524	-
BT1 Enerji IC ve Dis Ticaret Sanayi ve Ticaret Ltd. Sti.	6,550,095	-	-	-
Hanwha America Development Inc.	-	-	1,023,607	-
Hanwha Europe GmbH	98,114,105	-	1,018,981	-
Hanwha Saudi Contracting Co., Ltd.	19,988	-	-	-
Hanwha Q CELLS Americas Holdings. Corp.	227,351,924	-	499,287	-
Hanwha Q CELLS Japan Co., Ltd.	271,133,845	-	103,787,934	-
Hanwha Q CELLS USA Corp.	24,916,915	-	-	-
Hanwha Techm Hungary Zrt.	-	-	126,877	-
Meca Enerji IC ve Dis Ticaret Sanayi ve Ticaret Ltd. Sti.	1,637,524	-	-	-
OneRoof Energy, Inc.	215,750	-	-	-
Razin Elektrik Uretim Sanayi ve Ticaret A.S.	2,303,579	-	-	-
S&P World Network DMCC	1,110,939	-	-	-
Total	<u>₩ 1,088,393,754</u>	<u>₩ 32,500</u>	<u>₩ 2,412,882,790</u>	<u>₩ 9,497,136</u>

(*1) The Group paid dividends of ₩8,932 million to Hanwha Corporation during the year ended December 31, 2015.

(*2) The Group received dividends of ₩864 million from Hanwha Station Development Co., Ltd. during the year ended December 31, 2015.

(*3) The Group received dividends of ₩1,304 million from HANWHA INVESTMENT AND SECURITIES CO., LTD. during the year ended December 31, 2015.

(*4) The Group acquired ownership interest in Hanwha Station Development Co., Ltd. owned by Hanwha Hotels and Resort Co., Ltd. for ₩20,056 million during the year ended December 31, 2015.

(*5) The Group received dividends of ₩60,000 million from YEOCHUN NCC Co., Ltd. during the year ended December 31, 2015.

(*6) The Group received dividends of ₩2,737 million from HANWHA LIFE INSURANCE CO., LTD. during the year ended December 31, 2015.

(*7) The Group returned an investment of ₩4,770 million from Hanwha Newly Development Force Fund during the year ended December 31, 2015 as a result of capital reduction and received dividends of ₩1,350 million.

(2) Outstanding receivables and payables from transactions with related parties including others as of December 31, 2016 and 2015, are as follows:

Company	Korean won (In thousands)					
	December 31, 2016					
	Receivables			Payables		
	Trade receivables	Loans	Non-trade receivables	Trade payables	Borrowings	Non-trade payables
Parent company						
Hanwha Corporation	₩ 20,740,643	₩ -	₩ 1,838,451	₩ 87,292,190	₩ -	₩ 11,816,984
Associates:						
Hanwha Savings Bank Co., Ltd.	-	-	1,001,405	-	-	-
Hanwha Station Development Co., Ltd.	373	-	1,401,465	-	-	299,730
HANWHA Eagles Professional Baseball Club	-	-	455,467	-	-	1,514
Hanwha General Chemical Co., Ltd.	829,565	-	-	1,056,060	-	186,487
HANWHA INVESTMENT AND SECURITIES CO., LTD.	30,529	-	9,345,858	-	-	1,162,040
Hanwha Hotels and Resort Co., Ltd.	627,013	-	41,347,262	627,504	-	1,173,167
Crystal Solar Inc.	-	1,849,005	-	-	-	-
International Polymers Company	-	10,382,701	1,968,709	27,180,546	-	-
Saudi Specialized Products Company	-	9,512,614	281,387	-	-	-

Company	Korean won (In thousands)					
	December 31, 2016					
	Receivables			Payables		
	Trade receivables	Loans	Non-trade receivables	Trade payables	Borrowings	Non-trade payables
Joint ventures:						
YEOCHUN NCC Co., Ltd.	2,631,761	-	281,336	198,507,115	-	77,799,833
Gulf Advanced Cables Insulation Company	-	24,006,993	648,412	-	-	-
Others:						
174 Power Global Corporation	-	-	-	-	-	377
Yeosu Sea World Corporation	-	-	-	-	-	8,763
101 Global Co., Ltd.	-	-	-	54,327	-	-
Ilsan Seaworld, Co., Ltd.	-	-	-	-	-	9,961
Kaes Co., Ltd.	10,978	-	-	-	-	-
Taekyung Chemical Co., Ltd.	1,166,009	-	-	-	-	-
Hanwha Engineering & Construction Corporation	241,316	-	557,548	11,822,678	-	3,912,679
Hanwha Estate Co., Ltd. (formerly, SNSACE Co., Ltd.)	139,869	-	-	-	-	2,452,976
HANWHA 63 CITY CORPORATION	132,893	-	-	-	-	767,015
HUMANPOWER Co., Ltd.	-	-	-	4,783	-	304,822
DreamPlus Global seed association of investment	440	-	-	-	-	-
Eco E&O corporation	-	-	-	-	-	18,746
Jeju Ocean Science Museum Corporation	-	-	-	-	-	14,717
Foodist Food Culture(Shanghai) Co.Ltd.	-	-	-	72,744	-	359,731
Hanwha Defense Systems Corp.	394,153	-	-	-	-	8,633
Hanwha LIFE INSURANCE CO., LTD.	191,557	-	38,778,415	-	-	102,795
Hanwha General Insurance Co., Ltd.	83,217	-	250,740	200	-	402,129
Hanwha System Corporation (formerly, Hanwha Thales Co., Ltd.)	456	-	-	-	-	-
Hanwha Energy Corporation	48,163	-	4,400	14,799,818	-	-
HANWHA S&C CO., LTD.	122	-	28,516	2,680,978	-	4,397,497
Hanwha Investment Corp.	311	-	-	-	-	-
Hanwha Asset Management Co., Ltd.	448	-	-	-	-	-
Hanwha Q CELLS Korea Co., Ltd.	45,628,414	-	507,356	170,072,330	-	180,594
HANWHA TECHWIN CO., LTD.	2,977,323	-	61,382	-	-	-
HANWHA TOTAL PETROCHEMICAL Co., Ltd.	1,967,567	-	-	4,589,476	-	729
Blue Albatross FZE	-	-	-	39,651	-	-
Hanwha Europe GmbH	19,445,817	-	165,281	25,352	-	181,018
Hanwha Q CELLS Americas Holdings. Corp.	5,780,009	-	-	-	-	7,251
Hanwha Q CELLS Japan Co.,Ltd.	47,073,021	-	399,460	1,127,549	-	394,918
Hanwha Q CELLS USA Corp.	-	20,144,062	-	-	-	-
HSSC Stainless Inc.	17,797	-	-	-	-	-
Primo Gunes Enerjisi A.S.	-	3,728,178	-	-	84,595	-
TRI ENERGY GLOBAL PTE. LTD.	223,505	-	-	-	-	-
Total	<u>₩ 150,383,269</u>	<u>₩ 69,623,553</u>	<u>₩ 99,322,850</u>	<u>₩ 519,953,301</u>	<u>₩ 84,595</u>	<u>₩ 105,965,106</u>

	Korean won (In thousands)											
	December 31, 2015											
	Receivables					Payables						
Company	Trade receivables		Loans		Non-trade receivables		Trade payables		Non-trade payables			
Parent company												
Hanwha Corporation	₩	95,961,489	₩	-	₩	155,915	₩	204,658,309	₩	-	₩	13,737,440
Associates:												
Hanwha General Insurance Co., Ltd.		322,174		-		287,404		196		-		356,573
Hanwha Station Development Co., Ltd.		235		-		1,393,491		-		-		283,276
HANWHA Eagles Professional Baseball Club		-		-		168,300		-		-		-
Hanwha General Chemical Co., Ltd.		226,570		-		-		906,788		-		124,850
Hanwha Q CELLS Korea Co., Ltd.		53,721,563		35,358,542		76,810,000		3,726,567		-		-
HANWHA INVESTMENT AND SECURITIES CO., LTD.		29,509		-		4,655,828		-		-		1,162,029
Hanwha Hotels and Resort Co., Ltd.		243,902		-		41,905,331		5,240,439		-		1,413,950
International Polymers Company		-		9,768,343		-		24,584,314		-		-
Renew Akshay Urja Private Limited		6,059,253		-		-		-		-		-
Saudi Specialized Products Company		-		12,276,967		-		-		-		-
Joint ventures:												
YEOCHUN NCC Co., Ltd.		1,692,298		-		199,348		128,561,446		-		23,660,720
Burdur Enerji A.S.		1,457,320		-		-		-		-		-
Gulf Advanced Cables Insulation Company		-		22,707,551		-		-		-		-
Others:												
SIT CO., LTD.		13,635		-		1,936		-		-		-
Yeosu Sea World Corporation		-		-		-		-		-		7,935
Ilsan Seaworld, Co., Ltd.		-		-		-		-		-		7,286
Taekyung Chemical Co., Ltd.		821,699		-		-		-		-		-
Hanwha Engineering & Construction Corporation		325,163		-		12,870,798		48,346,730		-		25,839,000
Hanwha Estate Co., Ltd. (formerly, SNSACE Co., Ltd.)		153,498		-		-		403,150		-		2,504,217
HANWHA 63 CITY CORPORATION		8,652		-		-		57		-		617,924
HUMANPOWER Co., Ltd.		-		-		-		-		-		19,302
DreamPlus Global seed association of investment		440		-		-		-		-		-
Jeju Ocean Science Museum Corporation		-		-		-		-		-		11,056
Foodist Food Culture(Shanghai) Co., Ltd.		-		-		-		494,937		-		-
Hanwha Life Asset Co., Ltd.		1,315		-		-		-		-		-
Hanwha LIFE INSURANCE CO., LTD.		27,046		-		41,453,304		-		-		69,822
HANWHA THALES CO., LTD.		1,100		-		8,184		-		-		-
Hanwha Energy Corporation		42,081		-		4,400		14,506,376		-		35,444
HANWHA S&C CO., LTD.		784		-		23,483		4,542,904		-		8,214,919
Hanwha Asset Management Co., Ltd.		28,816		-		-		-		-		-
HANWHA TECHWIN CO., LTD.		25,757		-		7,480		248,625		-		-
HANWHA TOTAL PETROCHEMICAL Co., Ltd.		1,249,818		-		-		1,387,515		-		35,574
Altinorda Enerji IC ve Dis Ticaret Sanayi ve Ticaret Ltd. Sti.		1,657,264		-		-		-		-		-
Bahcesaray Enerji IC ve Dis Ticaret Sanayi ve Ticaret Ltd. Sti.		1,657,264		-		-		-		-		-
Blue Albatross FZE		-		-		-		559		-		-
BT1 Enerji IC ve Dis Ticaret Sanayi ve Ticaret Ltd. Sti.		6,629,056		-		-		-		-		-
Hanwha America Development Inc.		-		-		-		-		30,337,705		-
Hanwha Europe GmbH		21,623,783		-		140,687		-		11,524,770		129,479
Hanwha Saudi Contracting Co., Ltd.		-		11,740,229		-		-		-		-
Hanwha Q CELLS Americas Holdings. Corp.		45,140,811		-		-		1,288,642		-		-
Hanwha Q CELLS Japan Co.,Ltd.		27,231,179		-		-		7,717,352		-		161,096
Hanwha Q CELLS USA Corp.		-		24,324,928		-		-		-		-
Hanwha Techm Hungary Zrt.		-		-		-		-		5,250,173		-
Meca Enerji IC ve Dis Ticaret Sanayi ve Ticaret Ltd. Sti.		1,657,264		-		-		-		-		-
Primo Gunes Enerjisi A.S.		-		5,925,838		-		-		-		-
Razin Elektrik Uretim Sanayi ve Ticaret A.S		2,331,348		-		-		-		-		-
Total	₩	270,342,086	₩	122,102,398	₩	180,085,889	₩	446,614,906	₩	47,112,648	₩	78,391,892

(3) Loan transactions with related parties during the years ended December 31, 2016 and 2015, are as follows:

Company	Korean won (In thousands)				
	2016				
	Beginning balance	Increase	Decrease	Others(*)	Ending balance
Associates:					
Crystal Solar Inc.	₩ -	₩ 1,812,750	₩ -	₩ 36,255	₩ 1,849,005
International Polymers Company	9,768,343	-	-	614,358	10,382,701
Saudi Specialized Products Company	12,276,967	2,235,655	(5,246,263)	246,255	9,512,614
Joint ventures:					
Gulf Advanced Cables Insulation Company	22,707,551	-	-	1,299,442	24,006,993
Others:					
Hanwha Q CELLS Korea Co., Ltd.	35,358,542	116,470,000	(149,669,000)	(2,159,542)	-
Hanwha Saudi Contracting Co., Ltd.	11,740,229	-	(11,640,144)	(100,085)	-
Hanwha Q CELLS USA Corp.	24,324,928	-	(4,679,200)	498,334	20,144,062
Primo Gunes Enerjisi A.S.	5,925,838	3,561,863	(6,132,558)	373,035	3,728,178
Total	<u>₩ 122,102,398</u>	<u>₩ 124,080,268</u>	<u>₩ (177,367,165)</u>	<u>₩ 808,052</u>	<u>₩ 69,623,553</u>

(*) Includes accrued revenues related to loans

Company	Korean won (In thousands)				
	2015				
	Beginning balance	Increase	Decrease	Others(*)	Ending balance
Associates:					
Hanwha Q CELLS Korea Co., Ltd.	₩ -	₩ 33,723,000	₩ -	₩ 1,635,542	₩ 35,358,542
International Polymers Company	8,889,555	-	-	878,788	9,768,343
Saudi Specialized Products Company	11,234,658	-	-	1,042,309	12,276,967
Joint ventures:					
Gulf Advanced Cables Insulation Company	20,775,695	-	-	1,931,856	22,707,551
Others:					
Hanwha Saudi Contracting Co., Ltd.	-	11,720,000	-	20,229	11,740,229
Hanwha Q CELLS USA Corp.	16,980,231	11,945,000	(5,860,000)	1,259,697	24,324,928
OneRoof Energy, Inc.	3,041,405	-	(2,437,234)	(604,171)	-
Primo Gunes Enerjisi A.S.	-	5,925,838	-	-	5,925,838
Total	<u>₩ 60,921,544</u>	<u>₩ 63,313,838</u>	<u>₩ (8,297,234)</u>	<u>₩ 6,164,250</u>	<u>₩ 122,102,398</u>

(*) Includes accrued revenues related to loans.

(4) Borrowings transactions with related parties during the years ended December 31, 2016 and 2015, are as follows:

Company	Korean won (In thousands)					
	2016					
	Beginning balance	Increase	Decrease	Changes in scope of consolidation	Others(*1)	Endings balance
Others:						
Hanwha America Development Inc.(*2)	₩ 30,337,705	₩ 386,129	₩ -	₩ (29,666,447)	₩ (1,057,387)	₩ -
Hanwha Europe GmbH	11,524,770	-	(11,890,800)	-	366,030	-
Hanwha Techm Hungary Zrt.	5,250,173	5,004,320	(10,281,480)	-	26,987	-
Primo Gunes Enerjisi A.S.	-	84,189	-	-	406	84,595
Total	₩ 47,112,648	₩ 5,474,638	₩ (22,172,280)	₩ (29,666,447)	₩ (663,964)	₩ 84,595

(*1) Includes accrued interest related to borrowings.

(*2) Became a subsidiary (originally considered as others) as the group acquired shares in 2016.(Note 1.(2))

Company	Korean won (In thousands)				
	2015				
	Beginning balance	Increase	Decrease	Others(*1)	Endings balance
Others:					
Hanwha Engineering & Construction Corporation	₩ 8,581,507	₩ -	₩ (7,758,868)	₩ (822,639)	₩ -
Hanwha America Development Inc.	31,121,578	-	(2,811,166)	2,027,293	30,337,705
Hanwha Europe GmbH -		11,524,770	-	-	11,524,770
Hanwha Techm Hungary Zrt.	5,346,080	126,877	-	(222,784)	5,250,173
Total	₩ 45,049,165	₩ 11,651,647	₩ (10,570,034)	₩ 981,870	₩ 47,112,648

(*) Includes accrued interest related to borrowings.

(5) As of December 31, 2016, the Group provides payment guarantees totaling \$48.2 million, \$11.87 million and \$4.343 million for borrowings of International Polymers Company, Gulf Advanced Cables Insulation Company and Saudi Specialized Products Company, respectively.

(6) As of December 31, 2016, the Group pledged collateral of ₩1,510,600 thousand to its related party, HANWHA INVESTMENT AND SECURITIES CO., LTD. in relation to the deposit for the building in Seo-gu, Daejeon.

(7) As of December 31, 2016, the Group has a contractual arrangement to fund EUR 21,592,000 if Hanwha Q CELLS Korea Corp. fails to deliver on its obligation to secure supplementary financing for Luxbon Solar S.A..

(8) As of December 31, 2016, the Group provides a guarantee of USD 131,200,000 for transactions involving sales of modules between Hanwha Q CELLS Japan Co., Ltd. and MARUBENI CORPORATION.

Also, the Group provides a guarantee of JPY 4,610,000,000 for transactions involving purchases of goods between Hanwha Q CELLS Japan Co., Ltd. and NTT-F.

In addition, the Group provides a guarantee of USD 2,526,518 for transactions involving sales of modules between Hanwha Q CELLS Japan Co., Ltd. and Itochu Corporation.

(9) As of December 31, 2016, the Group has a supplementary funding arrangement with KDB Bank and others in connection with Hanwha Q CELLS Korea Co., Ltd.'s facility loans amounting to ₩350,000 million and working capital loans amounting to ₩200,000 million for the construction of a cell power plant in Jincheon and a module facility in Eumseong.

(10) Details of compensation for key executives during the years ended December 31, 2016 and 2015, are as follows:

	Korean won (In thousands)	
	2016	2015
Short-term employee benefits(*)	₩ 25,867,885	₩ 20,465,732
Retirement benefits	4,188,435	5,772,923
Other long-term employee benefits	3,536	8,049
Total	₩ 30,059,856	₩ 26,246,704

38. CASH GENERATED FROM OPERATIONS:

Cash flows generated from operations during the years ended December 31, 2016 and 2015, are as follows:

	Korean won (In thousands)	
	2016	2015
INCOME (LOSS) BEFORE INCOME TAX	₩ 886,381,726	₩ 228,379,669
EXPENSE		
Adjustments:		
Postemployment benefits (*)	52,197,539	53,018,947
Other long-term employee benefits	3,237,959	15,594,797
Depreciation of investment property	3,965,292	2,107,355
Depreciation of property, plant and equipment	426,319,488	433,124,951
Amortization	15,003,208	16,906,623
Bad debt expenses	17,078,887	3,503,309
Rental expenses	692,940	1,097,508
Transfer of provisions	32,718,541	27,891,045
Gain on valuation of derivatives	(5,867,729)	(17,458,389)
Reversal of impairment of available-for-sale financial assets	(499)	(2,303)
Gain on foreign currency translation	(112,279,488)	(77,763,099)
Gain on disposal of available-for-sale financial assets	-	(18,588,892)
Gain on disposal of investment in associates	(57,587,191)	(13,604,342)
Gain on disposal of investment property	(56,677)	-
Gain on disposal of property, plant and equipment	(25,161,022)	(8,705,690)
Gain on disposal of intangible assets	(350,284)	(436,625)
Reversal of other bad debt expenses	(22,831)	(1,532,165)
Gain on bargain purchase	(35,810)	(26,590,337)
Loss on foreign currency translation	101,956,740	162,186,216
Loss on disposal of trade receivables	436,450	-
Loss on disposal of available-for-sale financial assets	-	8,146
Impairment of available-for-sale financial assets	5,538,403	-
Loss on disposal of investment in associates	31,625,095	3,597,410
Impairment of investment in associates	3,570,087	-
Loss on valuation of derivatives	16,382,854	263,598
Loss on disposal of investment property	275,001	376,551
Loss on disposal of property, plant and equipment	45,381,788	86,727,982
Impairment of property, plant and equipment	85,222,976	52,755,170
Loss on disposal of intangible assets	2,161,118	449,686
Impairment of intangible assets	8,365,952	21,163,328
Impairment on assets held for sale	615,594	-
Other bad debt expenses	4,535,353	7,957,237
Loss on inventory abandoned	5,252,215	206,173
Loss on valuation of inventories	28,646,217	46,166,806
Interest income	(19,159,087)	(21,357,136)
Dividends income	(3,162,717)	(4,029,496)
Interest expense	173,291,081	179,739,069
Share of profit of associates and joint ventures	(423,322,323)	(166,157,380)
Others	6,914,291	(47,618,229)

	Korean won (In thousands)	
	2016	2015
Changes in operating assets and liabilities		
Decrease (increase) in trade receivables, net	113,025,597	(595,340,945)
Decrease (increase) in other receivables, net	28,542,105	112,542,445
Decrease(increase) in inventories	165,741,463	70,050,494
Decrease(increase) in other financial assets	13,755,159	212,648
Decrease(increase) in other current assets	(84,820,080)	104,683,282
Decrease(increase) in other non-current assets	4,871,461	(6,769,976)
Increase (decrease) in trade payables	72,205,200	55,576,918
Increase(decrease) in other payables	121,982,937	(140,049,107)
Increase(decrease) in other financial liabilities	16,680,344	48,964,776
Increase(decrease) in other current liabilities	(571,396,611)	759,310,001
Increase(decrease) in other non-current liabilities	(14,956)	(12,716)
Payment of severance indemnities	(20,643,124)	(40,739,294)
Decrease(increase) in plan assets	4,173,472	5,950,969
Payment of other long-term employee benefits	(2,108,191)	(1,261,354)
Increase(decrease) in provisions	(6,978,510)	(8,307,585)
Payment of derivatives	23,413,355	(10,507,461)
Cash generated from operations	<u>₩ 1,189,190,758</u>	<u>₩ 1,293,680,588</u>
(*) Excludes ₩374 million (2015: ₩386 million) transferred to construction in progress from ₩52,572 million (2015: ₩53,405 million).		

39. OPERATING SEGMENT INFORMATION:

The Group has 4 strategic business units as reportable segments. Each strategic business unit operates to provide distinguished products and services. As required technical capabilities and marketing strategies are different for these business units, they are separately operated. The chief decision maker reviews internal reports for each strategic business unit on at least a quarterly basis.

Details of segment reporting are as follows:

- ① Raw materials: manufacturing and distribution of PE, PVC and CA
- ② Manufacturing: manufacturing and distribution of automotive parts
- ③ Retail: department stores, wholesaling and retailing
- ④ Photovoltaic: manufacturing and distribution of solar products such as ingots and modules
- ⑤ Others: manufacturing, distribution and leasing

(1) Operating income by each reportable segment during the years ended December 31, 2016 and 2015, is as follows:

Korean won (In thousands)								
2016								
	Raw materials	Manufacturing	Retail	Photovoltaic	Subtotal	Others	Consolidated adjustment	Total
Revenue								
External revenues	₩3,578,144,832	₩ 739,600,578	₩ 639,157,452	₩2,845,960,254	₩7,802,863,116	₩ 1,455,969,568	₩ -	₩9,258,832,684
Inter-segment revenue	293,657,024	284,426,367	34,206,159	1,066,014,208	1,678,303,758	60,039,500	(1,738,343,258)	-
Total	₩3,871,801,856	₩1,024,026,945	₩ 673,363,611	₩3,911,974,462	₩9,481,166,874	₩1,516,009,068	₩(1,738,343,258)	₩9,258,832,684
Operating profit (*1)	470,966,374	35,881,374	(993,417)	212,526,068	718,380,399	70,421,889	(9,584,197)	779,218,091
Gain or loss on equity method investments								423,322,323
Other income, net								(165,189,411)
Finance income, net								(150,969,277)
Income before income tax								₩ 886,381,726
Depreciation/Amortization(*2)	200,854,934	44,035,458	44,357,777	122,995,885	412,244,054	25,562,869	7,481,065	445,287,988
Loss on valuation of inventories	8,213,537	873,278	548,248	17,538,962	27,174,025	3,171,774	(1,699,582)	28,646,217
Bad debt expenses	(85,402)	1,621,592	2,991,110	8,000,220	12,527,520	4,551,367	-	17,078,887
Capital expenditures(*3)	306,309,079	86,428,862	40,015,617	167,955,822	600,709,380	34,175,037	(30,700)	634,853,717
(*1)	Total segment operating income is different from operating income in the consolidated statements of comprehensive income due to unrecognized income on intersegment transactions, which were eliminated upon consolidation.							
(*2)	Total amount of depreciation of property, plant and equipment and investment property and amortization of intangible assets							
(*3)	Capital expenditures consists of acquisition of property, plant and equipment, investment property and intangible assets							

Korean won (In thousands)								
2015								
	Raw materials	Manufacturing	Retail	Photovoltaic	Subtotal	Others	Consolidated adjustment	Total
Revenue								
External revenues	₩3,479,149,617	₩ 662,813,441	₩ 566,689,054	₩ 1,915,960,976	₩6,624,613,088	₩ 1,412,378,274	₩ -	₩8,036,991,362
Intersegment revenue	351,555,138	282,974,143	18,831,664	955,002,489	1,608,363,434	170,087,008	(1,778,450,442)	-
Total	₩3,830,704,755	₩ 945,787,584	₩ 585,520,718	₩ 2,870,963,465	₩8,232,976,522	₩1,582,465,282	₩(1,778,450,442)	₩8,036,991,362
Operating profit (*1)	166,679,240	36,580,272	17,464,058	78,408,549	299,132,119	58,548,907	(20,668,095)	337,012,931
Gain or loss on equity method investments								166,157,380
Other income, net								(120,438,205)
Finance income, net								(154,352,437)
Income before income tax								₩ 228,379,669
Depreciation/Amortization(*2)	216,038,343	39,279,061	40,916,310	126,638,789	422,872,503	20,465,892	8,800,534	452,138,929
Loss on valuation of inventories	28,703,931	1,242,055	510,702	14,435,988	44,892,676	1,391,918	(117,788)	46,166,806
Bad debt expenses	(482,566)	266,245	1,882,328	981,272	2,647,279	856,030	-	3,503,309
Capital expenditures(*3)	187,289,961	98,954,201	64,365,752	377,983,615	728,593,529	38,610,769	(480,206)	766,724,092
(*1)	Total segment operating income is different from operating income in the consolidated statements of comprehensive income due to unrecognized income on intersegment transactions, which were eliminated upon consolidation.							
(*2)	Total amount of depreciation of property, plant and equipment and investment property and amortization of intangible assets							
(*3)	Capital expenditures consists of acquisition of property, plant and equipment, investment property and intangible assets							

(2) Segment information as of December 31, 2016 and 2015, is as follows:

Korean won (In thousands)								
December 31, 2016								
	Raw materials	Manufacturing	Retail	Photovoltaic	Subtotal	Others	Consolidated adjustment	Total
Segmental assets:								
Current assets	₩ 1,271,699,530	₩ 401,298,214	₩ 461,520,484	₩ 2,299,729,495	₩ 4,434,247,723	₩ 1,047,339,205	₩ (957,717,663)	₩ 4,523,869,265
Investments in associates and joint ventures	3,510,395,845	420,012,212	169,395,235	2,252,181,829	6,351,985,121	385,951,961	(4,453,441,885)	2,284,495,197
Other noncurrent assets	3,106,034,849	602,069,622	1,574,407,514	1,382,767,028	6,665,279,013	658,627,422	(314,357,768)	7,009,548,667
Total	7,888,130,224	1,423,380,048	2,205,323,233	5,934,678,352	17,451,511,857	2,091,918,588	(5,725,517,316)	13,817,913,129
Segmental liabilities:								
Current liabilities	1,583,353,959	430,202,804	774,451,017	1,978,214,730	4,766,222,510	1,141,555,282	(944,795,658)	4,962,982,134
Noncurrent liabilities	1,819,748,454	336,530,466	415,680,060	967,646,417	3,539,605,397	97,433,937	(250,435,048)	3,386,604,286
Total	3,403,102,413	766,733,270	1,190,131,077	2,945,861,147	8,305,827,907	1,238,989,219	(1,195,230,706)	8,349,586,420
Korean won (In thousands)								
December 31, 2015								
	Raw materials	Manufacturing	Retail	Photovoltaic	Subtotal	Others	Consolidated adjustment	Total
Segmental assets:								
Current assets	₩ 954,257,736	₩ 419,387,515	₩ 357,504,138	₩ 2,337,247,447	₩ 4,068,396,836	₩ 1,470,743,319	₩ (761,398,998)	₩ 4,777,741,157
Investments in associates and joint ventures	3,604,605,899	302,723,335	161,055,029	2,231,915,664	6,300,299,927	278,544,195	(4,535,769,820)	2,043,074,302
Other noncurrent assets	3,029,284,688	620,275,481	1,701,470,356	1,426,198,947	6,777,229,472	404,537,378	(149,962,586)	7,031,804,264
Total	7,588,148,323	1,342,386,331	2,220,029,523	5,995,362,058	17,145,926,235	2,153,824,892	(5,447,131,404)	13,852,619,723
Segmental liabilities:								
Current liabilities	1,439,998,708	462,339,564	697,293,759	2,368,427,185	4,968,059,216	1,212,874,526	(760,286,380)	5,420,647,362
Noncurrent liabilities	1,985,997,690	233,227,869	471,805,201	700,191,611	3,391,222,371	170,892,067	(61,300,465)	3,500,813,973
Total	3,425,996,398	695,567,433	1,169,098,960	3,068,618,796	8,359,281,587	1,383,766,593	(821,586,845)	8,921,461,335

(3) Consolidation adjustments of assets and liabilities for each segment as of December 31, 2016 and 2015, are as follows:

Korean won (In thousands)			
		December 31, 2016	December 31, 2015
Consolidated assets			
Segmental assets:			
Total assets for reportable segments	₩	17,451,511,857	₩ 17,145,926,235
Assets of other segments not classified to reportable segments		2,091,918,588	2,153,824,892
Consolidation adjustments:			
Elimination of investments in subsidiaries including equity method adjustment		(4,453,441,885)	(4,535,769,820)
Elimination of intercompany receivables		(906,523,533)	(722,617,792)
Others		(365,551,898)	(188,743,792)
Total consolidated assets	₩	13,817,913,129	₩ 13,852,619,723
Consolidated liabilities			
Segmental liabilities:			
Total liabilities for reportable segments	₩	8,305,827,907	₩ 8,359,281,587
Liabilities of other segments not classified to reportable segments		1,238,989,219	1,383,766,593
Consolidation adjustments:			
Elimination of intercompany payables		(1,036,360,106)	(852,454,365)
Deferred tax liabilities from consolidation adjustments		107,604,854	71,149,301
Others		(266,475,454)	(40,281,781)
Total consolidated liabilities	₩	8,349,586,420	₩ 8,921,461,335

- (4) Details of the Group's sales revenues by region during the years ended December 31, 2016 and 2015 and assets by region as of December 31, 2016 and 2015, are as follows:

1) Regional Sales

		<u>Korean won (In thousands)</u>	
		<u>2016</u>	<u>2015</u>
Domestic	₩	4,872,578,593	₩ 4,596,575,326
Overseas:			
China		3,089,552,764	2,127,622,129
Germany		137,057,932	271,028,451
Others		1,159,643,395	1,041,765,456
Subtotal		<u>4,386,254,091</u>	<u>3,440,416,036</u>
Total	₩	<u>9,258,832,684</u>	<u>₩ 8,036,991,362</u>

2) Regional Assets

		<u>Korean won (In thousands)</u>	
		<u>December 31, 2016</u>	<u>December 31, 2015</u>
Domestic	₩	6,698,731,051	₩ 6,610,912,132
Overseas:			
China		1,081,159,100	1,257,243,935
Germany		217,591,154	222,042,441
Others		886,404,168	659,510,321
Subtotal		<u>2,185,154,422</u>	<u>2,138,796,697</u>
Total	₩	<u>8,883,885,473</u>	<u>₩ 8,749,708,829</u>

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

40. SIGNIFICANT CHANGES IN SCOPE OF CONSOLIDATION:

(1) Exclusion of Hanwha Polydreamer Co., Ltd. from consolidation

Hanwha Polydreamer Co., Ltd., a company established as a spinoff of the film sheet and coating material operating segment of Hanwha Compound Corporation, was sold on April 23, 2015 and excluded from consolidation.

1) Proceeds received by the Group in exchange for the sale are as follows:

	<u>Korean won (In thousands)</u>
Cash and cash equivalents	₩ 36,000,000

2) Sold assets and liabilities of Hanwha Polydreamer Co., Ltd. are as follows:

	<u>Korean won (In thousands)</u>
Assets	
Current assets:	
Cash and cash equivalents	₩ 400,000
Trade receivables and other receivables	16,192,884
Other financial assets	3,500
Other current assets	75,044
Inventories	6,411,935
Noncurrent assets:	
Other financial assets	14,700
Property, plant and equipment	23,746,941
Intangible assets	28,095
Deferred income tax assets	<u>994,065</u>
Subtotal: assets sold	<u>47,867,164</u>

	<u>Korean won (In thousands)</u>	
Liabilities		
Current liabilities:		
Trade payables and other payables	₩	(12,969,396)
Borrowings		(6,260,674)
Other financial liabilities		(258,707)
Other current liabilities		(285,394)
Noncurrent liabilities:		
Longterm borrowings		(34,100)
Other financial liabilities		(33,500)
Net defined benefit liabilities		(4,225,017)
Subtotal: liabilities sold		<u>(24,066,788)</u>
Total: net assets sold	₩	<u>23,800,376</u>

(2) Exclusion of Cspace Co., Ltd. from consolidation

Cspace Co., Ltd. was sold on April 29, 2016 and excluded from consolidation.

1) Proceeds received by the Group in exchange for the sale are as follows:

	<u>Korean won (In thousands)</u>	
Cash and cash equivalents	₩	2,390,388

2) Sold assets and liabilities of Cspace Co., Ltd. are as follows:

	<u>Korean won (In thousands)</u>	
Assets		
Current assets:		
Cash and cash equivalents	₩	2,371,794
Trade receivables and other receivables		226,685
Other financial assets		2,243,267
Other current assets		41,749
Inventories		1,521,547
Current tax assets		17,643
Noncurrent assets:		
Other financial assets		3,655,530
Property, plant and equipment		679,223
Intangible assets		329,407
Subtotal: assets sold		<u>11,086,845</u>
Liabilities		
Current liabilities:		
Trade payables and other payables	₩	(3,972,474)
Borrowings		(1,054,775)
Other financial liabilities		(822,400)
Other current liabilities		(553,959)
Noncurrent liabilities:		
Other financial liabilities		(450,500)
Net defined benefit liabilities		(2,153,351)
Other longterm employee benefits		(112,816)
Subtotal: liabilities sold		<u>(9,120,275)</u>
Total: net assets sold	₩	<u>1,966,570</u>

41. NONCONTROLLING INTERESTS:

(1) Changes in accumulated noncontrolling interests

Profit or loss allocated to noncontrolling interests, net income attributable to noncontrolling interests in equity and accumulated noncontrolling interests of subsidiaries that are material to the Group during the years ended December 31, 2016 and 2015, are as follows:

Korean won (In thousands)						
2016						
Company	Percentage of noncontrolling interests(%)	Accumulated noncontrolling interests at the beginning of the year	Net income allocated to noncontrolling interests	Dividends paid to noncontrolling interests	Others	Accumulated noncontrolling interests at the end of the year
Hanwha Galleria Timeworld Co., Ltd.	29.35%	₩ 80,694,006	₩ (5,474,822)	₩ (1,731,231)	₩ (2,913,254)	₩ 70,574,699
Hanwha Holdings(USA), Inc.	20.00%	143,599,302	4,958,182		(86,871,378)	61,686,106

Korean won (In thousands)						
2015						
Company	Percentage of noncontrolling interests(%)	Accumulated noncontrolling interests at the beginning of the year	Net income allocated to noncontrolling interests	Dividends paid to noncontrolling interests	Others	Accumulated noncontrolling interests at the end of the year
Hanwha Galleria Timeworld Co., Ltd.	29.35%	₩ 81,715,131	₩ 2,784,918	₩ (1,731,100)	₩ (2,074,943)	₩ 80,694,006
Hanwha Holdings(USA), Inc.	49.02%	130,774,218	4,843,170		7,981,914	143,599,302

(2) Summarized financial information of subsidiaries

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

1) Summarized consolidated statements of financial position

Korean won (In thousands)			
December 31, 2016			
	Hanwha Galleria Timeworld Co., Ltd.	Hanwha Holdings (USA), Inc. (*)	
Current Assets	₩ 71,094,355	₩	314,299,523
Noncurrent assets	401,779,364		517,652,447
Current Liabilities	167,970,746		473,605,272
Noncurrent liabilities	68,238,212		42,364,917
Equity	236,664,761		315,981,781

(*) Consolidated financial information of intermediate parent company Hanwha Holdings (USA), Inc. and its 19 subsidiaries

Korean won (In thousands)			
December 31, 2015			
	Hanwha Galleria Timeworld Co., Ltd.	Hanwha Holdings (USA), Inc. (*)	
Current Assets	₩ 92,691,717	₩	441,928,637
Noncurrent assets	399,097,574		322,077,407
Current Liabilities	145,318,872		305,114,952
Noncurrent liabilities	82,830,526		163,109,730
Equity	263,639,893		295,781,362

(*) Consolidated financial information of intermediate parent company Hanwha Holdings (USA), Inc. and its 23 subsidiaries

2) Summarized consolidated statements of comprehensive income

Korean won (In thousands)			
2016			
	Hanwha Galleria Timeworld Co., Ltd.		Hanwha Holdings (USA), Inc. (*)
Revenue	₩ 284,781,001	₩	687,983,714
Net income for the year	(11,596,245)		12,191,401
Other comprehensive income(loss)	(9,480,657)		8,009,018
Total comprehensive income(loss)	(21,076,902)		20,200,419

(*) Consolidated financial information of intermediate parent company Hanwha Holdings (USA), Inc. and its 19 subsidiaries

Korean won (In thousands)			
2015			
	Hanwha Galleria Timeworld Co., Ltd.		Hanwha Holdings (USA), Inc. (*)
Revenue	₩ 168,887,745	₩	783,306,026
Net income for the year	10,786,337		10,509,959
Other comprehensive income(loss)	(10,384,227)		17,749,918
Total comprehensive income(loss)	402,110		28,259,877

(*) Consolidated financial information of intermediate parent company Hanwha Holdings (USA), Inc. and its 23 subsidiaries

(3) Summarized consolidated statements of cash flows

Korean won (In thousands)			
2016			
	Hanwha Galleria Timeworld Co., Ltd.		Hanwha Holdings (USA), Inc. (*)
Cash flows from operating activities	₩ (46,632,109)	₩	20,508,530
Cash flows from investing activities	(30,313,368)		(22,137,147)
Cash flows from financing activities	21,173,940		(3,646,282)
Increase(decrease) in cash and cash equivalents	(55,771,537)		(5,274,899)
Beginning of the year	58,537,284		34,678,387
Effects of foreign exchange rate	(66,871)		858,669
End of the year	2,698,876		30,262,157

(*) Consolidated financial information of intermediate parent company Hanwha Holdings (USA), Inc. and its 19 subsidiaries

Korean won (In thousands)			
2015			
	Hanwha Galleria Timeworld Co., Ltd.		Hanwha Holdings (USA), Inc. (*)
Cash flows from operating activities	₩ 47,503,122	₩	(432,252)
Cash flows from investing activities	(57,437,159)		(40,879,276)
Cash flows from financing activities	62,365,917		54,631,455
Increase(decrease) in cash and cash equivalents	52,431,880		13,319,927
Beginning of the year	6,064,979		19,582,324
Effects of foreign exchange rate	40,425		1,776,136
End of the year	58,537,284		34,678,387

(*) Consolidated financial information of intermediate parent company Hanwha Holdings (USA), Inc. and its 23 subsidiaries

(4) Because Hanwha Engineering & Construction Corporation acquired the entire ownership interest owned by Hanwha America Development Inc., the shareholder company, of Hanwha Holdings (USA), Inc. during the year ended December 31, 2016, the Group's ownership interest in Hanwha Holdings (USA), Inc. decreased, resulting in a decrease in noncontrolling interest of ₩81,947 million.

42. SUBSEQUENT EVENTS:

- (1) Increase in paidin capital of Hanwha Chemical Overseas Holdings, Co., Ltd.

The Group decided to participate in a paidin capital increase through a resolution of the Board of Directors meeting held on February 23, 2017 by investing ₩7,302 million in Hanwha Chemical Overseas Holdings, Co., Ltd. in order to secure operating funds and improve the financial structure of Gulf Advanced Cable Insulation Company, a joint venture.