

**Hanwha Techwin Co., Ltd. and
Subsidiaries**
Consolidated Financial Statements
December 31, 2017 and 2016

Hanwha Techwin Co., Ltd. and Subsidiaries

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December 31, 2017 and 2016

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Independent Auditor's Report

(English Translation of a Report Originally Issued in Korean)

To the Shareholders and Board of Directors of
Hanwha Techwin Co., Ltd.

We have audited the accompanying consolidated financial statements of Hanwha Techwin Co., Ltd. and its subsidiaries (collectively referred to as the "Group"), which comprise the consolidated statements of financial position as at December 31, 2017 and 2016, and the consolidated statements of comprehensive income, consolidated statements of changes in equity and consolidated statements of cash flows for the years then ended, and notes to the consolidated financial statements, including a summary of significant accounting policies and other explanatory information.

Management's Responsibilities for the Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with International Financial Reporting Standards as adopted by the Republic of Korea (Korean IFRS), and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibilities

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

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the consolidated 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 consolidated 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 significant accounting estimates made by management, as well as evaluating the overall presentation of the consolidated 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 accompanying consolidated financial statements present fairly, in all material respects, the consolidated financial position of Hanwha Techwin Co., Ltd. and its subsidiaries as at December 31, 2017 and 2016, and its consolidated financial performance and its consolidated cash flows for the years then ended in accordance with Korean IFRS.

Emphasis matter¹

Without qualifying our opinion, we draw attention to the following area of focus.

Area of focus on construction contracts in accordance with the Practical Guidance of Auditing Standard 2016-1 are those matters that, in the auditor's professional judgment and communication with those charged with governance, were of most significance in the audit of the consolidated financial statements of the current year. These matters were addressed in the context of the audit of the consolidated financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

We have addressed the output of the audit process for the area of focus as below in forming an audit opinion on the consolidated financial statements of Hanwha Techwin Co., Ltd. and its subsidiaries as a whole.

A. Revenue recognition based on the input method

As explained in Note 2 to the consolidated financial statements (Significant Accounting Policies), the Group recognizes contract revenue and contract costs associated with the construction contract as revenue and expense respectively based on the percentage of completion of the contract activity at the end of the reporting period when the outcome of a construction contract can be estimated reliably. The percentage of completion of the contract activity is the proportion that costs incurred to date, excluding any contract cost that does not reflect the work performed, bear to the estimated total costs of the contract. The Group presents the gross amount due from customer for contract work as an asset for all contracts in progress for which costs incurred plus recognized profits (less recognized losses) exceed progress billings, and presents the gross amount due to customers for contract work as a liability for all contracts in progress for which progress billings exceed costs incurred plus recognized profits (less recognized losses).

Also, as explained in Note 3 to the consolidated financial statements (Critical Accounting Estimates and Assumptions), the measurement of contract revenue is affected by a variety of uncertainties that depend on the outcome of future event and total contract costs are estimated based on future estimates of material costs, labor costs and others. The changes in estimated total contract revenue and costs may have impacts on the profit or loss for the current year (or for the succeeding year); therefore, we identified revenue recognition based on the input method as a significant risk.

As at December 31, 2017, in respect of the Group's revenue recognition based on the input method, we have performed the following audit procedures.

¹ This paragraph is being included in accordance with the Practical Guidance of Auditing Standard 2016-1, Practical Guidance for Special Consideration in Auditing Construction Contracts, prescribed by Korean Institute of Certified Public Accountants, and should not be considered as a communication of key audit matter described in the International Standards on Auditing 700 (Revised).

- We assessed whether the accounting policy of revenue recognition is appropriate.
- We compared and analyzed estimated total contract costs and aggregated costs incurred of project has been completed during the current year.

B. Uncertainty of estimated total contract costs

As explained in Note 3 to the consolidated financial statements, total contract costs are estimated based on future estimates of material costs, labor costs and others. Also, as explained in Note 25 to the consolidated financial statements, for the year ended December 31, 2017, the changes in estimated total contract cost amount to ₩ 14,262 million. The impacts of changes in estimated total contract costs on the profit or loss for the current year (or for the succeeding year) are considered; therefore, we identified uncertainty of estimated total contract costs as a significant risk.

As at December 31, 2017, in respect of the Group's uncertainty of estimated total contract costs, we have performed the following audit procedures.

- We tested internal control in relation to approval process of total contract costs.
- We analyzed changes in estimated total contract cost's major components.
- We reviewed project of which total contract cost changed significantly.

C. Measurement of percentage of completion

As explained in Note 2 to the consolidated financial statements, the stage of completion is measured by reference to the contract costs incurred up to the end of the reporting period as a percentage of total estimated costs for each contract. It is probable that the stage of completion reflected changes in estimated total contract costs and aggregated costs incurred effect on the profit or loss for the current year (or for the succeeding year). According to these uncertainty, we identified measurement of percentage of completion as a significant risk.

As at December 31, 2017, in respect of the Group's estimated total contract costs and aggregated cost incurred that have impacts on the measurement of percentage of completion, we have performed the following audit procedures.

- We tested internal control in relation to process of aggregating cost incurred
- We reviewed project whose percentages of completion have significantly changed
- We independently recalculated the percentage of completion for construction contracts.
- We independently tested the appropriateness of cost recognition, which incurred during the year, for each construction contract.

D. Accounting treatment regarding variations in contract work

As explained in Note 3 to the consolidated financial statements, a variation is included in contract revenue when it is probable that the customer will approve the variation and the amount of revenue can be reliably measured.

Total contract revenue is measured at the initial amount of revenue agreed in the contract; however, the measurement of contract revenue is affected by a variety of uncertainties that depend on the outcome of future events such as increase contract revenue due to variations in contract work or decrease contract revenue as a result of penalties arising from delay caused by the Group in the

completion of the contract. Also as explained in Note 25 to the consolidated financial statements, for the year ended December 31, 2017, the changes in total contract revenue amount to ₩ 13,393 million. The impacts of changes in total contract revenue on the profit or loss for the current year (or for the succeeding year) are considered; therefore, we identified accounting treatment regarding variations in contract work as a significant risk.

As at December 31, 2017, in respect of the Group's accounting treatment regarding variations in contract work, we have performed the following audit procedures.

- We tested internal control in relation to process of approving changes in contract amount.
- We tested revised contract of which amount of contract revenue significantly changed.
- We determined whether additional contract cost estimated based on the variation in the contract has been reflected in measurement of estimated total contract cost and percentage of completion.
- We reviewed project's possibility of delay and estimated penalties arising from delay.

Other Matter

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

Seoul, Korea
March 15, 2018

This report is effective as of March 15, 2018, the audit report date. Certain subsequent events or circumstances, which may occur between the audit report date and the time of reading this report, could have a material impact on the accompanying consolidated financial statements and notes thereto. Accordingly, the readers of the audit report should understand that there is a possibility that the above audit report may have to be revised to reflect the impact of such subsequent events or circumstances, if any.

Hanwha Techwin Co., Ltd. and Subsidiaries
Consolidated Statements of Financial Position
December 31, 2017 and 2016

<i>(in Korean won)</i>	Notes	2017	2016
Assets			
Current assets			
Cash and cash equivalents	4, 5, 6, 8	₩ 461,379,841,501	₩ 257,418,395,798
Other financial assets	4, 5, 6, 8, 9	13,300,000,000	348,045,003,538
Trade and other receivables	5, 6, 7, 10	1,113,994,833,474	926,168,439,110
Derivative assets	5, 6, 11	683,867,902	112,687,220
Inventories	12	815,447,394,836	768,791,435,681
Other current assets	13	392,912,117,310	442,287,695,338
Non-current assets held for sale	26	37,376,818,872	37,376,818,872
		<u>2,835,094,873,895</u>	<u>2,780,200,475,557</u>
Non-current assets			
Other financial assets	5, 6, 8, 9	334,543,741,334	429,468,223,719
Long-term trade and other receivables	5, 6, 10	26,510,040,593	26,361,253,848
Derivative assets	5, 6, 11	9,144,499,042	7,356,588,654
Other non-current assets	13	37,066,891,695	42,130,816,425
Property, plant and equipment	14	1,426,613,387,099	1,360,067,053,232
Intangible assets	15	953,933,551,508	926,769,923,537
Investments in associates	16	48,214,311,220	35,701,840,836
Deferred tax assets	21	76,451,864,208	44,382,190,398
		<u>2,912,478,286,699</u>	<u>2,872,237,890,649</u>
Total assets		<u>₩ 5,747,573,160,594</u>	<u>₩ 5,652,438,366,206</u>
Liabilities			
Current liabilities			
Trade and other payables	4, 5, 6, 17	₩ 646,515,667,988	₩ 577,167,907,605
Borrowings and debentures	4, 5, 6, 7, 18	446,035,026,392	359,614,920,211
Derivative liabilities	5, 6, 11	11,527,523	326,388,903
Income tax payables	21	97,949,685,914	69,270,347,084
Other current liabilities	19	950,043,444,885	962,220,844,554
		<u>2,140,555,352,702</u>	<u>1,968,600,408,357</u>
Non-current liabilities			
Long-term trade and other payables	4, 5, 6, 17	102,319,679,611	99,573,427,240
Borrowings and debentures	4, 5, 6, 18	898,710,645,784	826,234,858,862
Employee benefits liabilities	20	332,377,726,594	323,714,267,755
Deferred tax liabilities	21	92,656,534,934	93,550,789,260
		<u>1,426,064,586,923</u>	<u>1,343,073,343,117</u>
Total liabilities		<u>3,566,619,939,625</u>	<u>3,311,673,751,474</u>
Equity			
Share capital	1, 22	265,650,000,000	265,650,000,000
Capital Surplus	22	186,818,584,055	188,459,109,780
Accumulated other comprehensive income	23	435,800,611,000	534,891,245,071
Retained earnings	24	1,291,117,994,467	1,350,027,353,930
		<u>2,179,387,189,522</u>	<u>2,339,027,708,781</u>
Non-controlling interest		<u>1,566,031,447</u>	<u>1,736,905,951</u>
Total equity		<u>2,180,953,220,969</u>	<u>2,340,764,614,732</u>
Total liabilities and equity		<u>₩ 5,747,573,160,594</u>	<u>₩ 5,652,438,366,206</u>

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

Hanwha Techwin Co., Ltd. and Subsidiaries
Consolidated Statements of Comprehensive Income
Years Ended December 31, 2017 and 2016

<i>(in Korean won)</i>	Notes	2017	2016
Revenue		₩ 4,215,471,442,145	₩ 3,518,876,664,698
Cost of sales	29	<u>3,447,049,987,324</u>	<u>2,802,450,654,703</u>
Gross profit		768,421,454,821	716,426,009,995
Selling and administrative expenses	28, 29	520,657,255,475	391,306,385,231
Research and development expenses		<u>164,855,627,532</u>	<u>174,393,208,535</u>
Operating profit		82,908,571,814	150,726,416,229
Other income	30	77,475,288,655	363,690,048,838
Other expenses	30	133,408,834,355	83,173,094,659
Finance income	31	23,442,697,434	16,731,826,057
Finance costs	31	40,401,919,511	36,664,362,596
Share of profit of associates	16	<u>7,735,648,255</u>	<u>7,192,443,898</u>
Profit before income tax		17,751,452,292	418,503,277,767
Income tax expenses	21	<u>65,499,530,967</u>	<u>72,634,008,707</u>
Profit (loss) for the year		<u>₩ (47,748,078,675)</u>	<u>₩ 345,869,269,060</u>
Other comprehensive income			
<i>Items that will not be reclassified to profit or loss</i>			
Remeasurements of net defined benefit liabilities	20	14,371,431,564	11,207,678,812
Remeasurements of net defined benefit liabilities of associates		-	(6,200,103,197)
<i>Items that may be subsequently reclassified to profit or loss</i>			
Changes in the fair value of available-for-sale financial assets	6, 9, 23	(86,704,508,205)	(234,380,227,423)
Cash flow hedges	6, 11, 23	636,687,409	135,900,800
Share of other comprehensive income of associates	16	(1,559,134,015)	-
Exchange differences		<u>(11,560,532,853)</u>	<u>(4,455,588,221)</u>
Other comprehensive income for the year		<u>(84,816,056,100)</u>	<u>(233,692,339,229)</u>
Total comprehensive income (loss) for the year		<u>₩ (132,564,134,775)</u>	<u>₩ 112,176,929,831</u>
Profit is attributable to:			
Owners of the Controlling Company		₩ (48,245,622,507)	₩ 345,222,769,701
Non-controlling interest		497,543,832	646,499,359
Total comprehensive income (loss) is attributable to:			
Owners of the Controlling Company		₩ (132,964,825,014)	₩ 111,605,839,093
Non-controlling interest		400,690,239	571,090,738
Earnings (loss) per share attributable to the equity holders of the Controlling Company	32		
Basic earnings (loss) per share		₩ (915)	₩ 6,498

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

Hanwha Techwin Co., Ltd. and Subsidiaries
Consolidated Statements of Changes in Equity
Years Ended December 31, 2017 and 2016

	Attributable to owners of the Controlling Company							Total Equity
	Share Capital	Capital Surplus	Other Components of Equity	Accumulated Other Comprehensive Income	Retained Earnings	Non-controlling Interest		
<i>(in Korean won)</i>								
Balance at January 1, 2016	₩ 265,650,000,000	₩ 188,459,109,780	₩ -	₩ 773,515,751,294	₩ 1,015,736,008,614	₩ 1,754,650,342	₩ 2,245,115,520,030	
Total comprehensive income (loss)								
Profit for the year	-	-	-	-	345,222,769,701	646,499,359	345,869,269,060	
Changes in the fair value of available-for-sale financial assets	-	-	-	(234,380,227,423)	-	-	(234,380,227,423)	
Cash flow hedges	-	-	-	135,900,800	-	-	135,900,800	
Remeasurements of net defined benefit liabilities	-	-	-	-	11,207,678,812	-	11,207,678,812	
Remeasurements of net defined benefit liabilities of associates	-	-	-	-	(6,200,103,197)	-	(6,200,103,197)	
Exchange differences	-	-	-	(4,380,179,600)	-	(75,408,621)	(4,455,588,221)	
Total comprehensive income (loss) for the year	-	-	-	(238,624,506,223)	350,230,345,316	571,090,738	112,176,929,831	
Transactions with owners								
Dividends paid	-	-	-	-	(15,939,000,000)	(558,521,382)	(16,497,521,382)	
Changes in consolidate	-	-	-	-	-	(30,313,747)	(30,313,747)	
Balance at December 31, 2016	₩ 265,650,000,000	₩ 188,459,109,780	₩ -	₩ 534,891,245,071	₩ 1,350,027,353,930	₩ 1,736,905,951	₩ 2,340,764,614,732	
Balance at January 1, 2017	₩ 265,650,000,000	₩ 188,459,109,780	₩ -	₩ 534,891,245,071	₩ 1,350,027,353,930	₩ 1,736,905,951	₩ 2,340,764,614,732	
Total comprehensive income (loss)								
Profit (loss) for the year	-	-	-	-	(48,245,622,507)	497,543,832	(47,748,078,675)	
Changes in the fair value of available-for-sale financial assets	-	-	-	(86,704,508,205)	-	-	(86,704,508,205)	
Cash flow hedges	-	-	-	636,687,409	-	-	636,687,409	
Remeasurements of net defined benefit liabilities	-	-	-	-	14,371,431,564	-	14,371,431,564	
Exchange differences	-	-	-	(11,463,679,260)	-	(96,853,593)	(11,560,532,853)	
Share of other comprehensive income of associates	-	-	-	(1,559,134,015)	-	-	(1,559,134,015)	
Total comprehensive income (loss) for the year	-	-	-	(99,090,634,071)	(33,874,190,943)	400,690,239	(132,564,134,775)	
Transactions with owners								
Dividends paid	-	-	-	-	-	(571,564,743)	(571,564,743)	
Acquisition of treasury shares	-	-	(25,035,168,520)	-	-	-	(25,035,168,520)	
Retirement of treasury shares	-	-	25,035,168,520	-	(25,035,168,520)	-	-	
Other changes in equity	-	(1,640,525,725)	-	-	-	-	(1,640,525,725)	
Balance at December 31, 2017	₩ 265,650,000,000	₩ 186,818,584,055	₩ -	₩ 435,800,611,000	₩ 1,291,117,994,467	₩ 1,566,031,447	₩ 2,180,953,220,969	

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

Hanwha Techwin Co., Ltd. and Subsidiaries
Consolidated Statements of Cash Flows
Years Ended December 31, 2017 and 2016

<i>(in Korean won)</i>	Notes	2017	2016
Cash flows from operating activities			
Cash generated from operations	35	₩ 90,527,735,891	₩ 262,094,911,942
Interest received		4,463,665,913	8,434,256,564
Interest paid		(31,658,414,314)	(15,726,438,982)
Income taxes paid		(73,074,462,683)	(58,747,547,683)
Net cash inflow (outflow) from operating activities		<u>(9,741,475,193)</u>	<u>196,055,181,841</u>
Cash flows from investing activities			
Collection of loans		5,987,367,613	1,476,271,917
Decrease in deposits		8,987,222,626	5,800,540,801
Decrease in financial assets at fair value through profit or loss		334,899,352,232	10,615,272,537
Decrease in available-for-sale financial assets		-	279,623,794,576
Proceeds from disposal of business		-	30,000,000,000
Dividends received		8,261,359,986	10,600,378,329
Proceeds from disposal of property, plant and equipment		1,577,365,351	1,205,338,604
Proceeds from disposal of intangible assets		116,360,000	1,554,636,363
Proceeds from disposal of non-current assets held for sale		-	52,220,417,532
Increase in loans		(5,247,036,019)	(437,127,646)
Increase in deposits		(9,227,672,497)	(3,611,902,255)
Increase in long-term financial instruments		(3,889,786,842)	(1,000,000,000)
Increase in other non-current assets		(18,776,035,777)	(36,983,232,568)
Acquisition of property, plant and equipment		(141,621,843,109)	(89,134,253,239)
Acquisition of intangible assets		(82,019,639,604)	(69,490,990,406)
Acquisitions of available-for-sale financial assets		(15,585,026,970)	(11,475,618,000)
Acquisitions of investments in associates		(9,563,648,442)	(892,092,262,081)
Acquisition of business		(1,287,850,461)	-
Increase in derivatives		-	(7,177,300,000)
Net cash inflow (outflow) from investing activities		<u>72,610,488,087</u>	<u>(718,306,035,536)</u>
Cash flows from financing activities			
Proceeds from short-term borrowings		1,183,869,080,000	465,427,616,990
Proceeds from long-term borrowings		166,169,070,738	382,235,278,000
Proceeds from debentures		29,906,420,000	318,841,700,000
Net increase in short-term borrowings (Nego)		17,945,816,469	11,338,615,649
Repayment of short-term borrowings		(1,198,999,920,000)	(371,579,195,173)
Repayment of current borrowings		(32,850,220,000)	(2,380,580,000)
Repayment of debentures		-	(150,000,000,000)
Acquisition of treasury shares		(25,035,168,520)	-
Dividends paid		-	(15,939,000,000)
Changes in non-controlling interests		(571,564,743)	-
Net cash inflow from financing activities		<u>140,433,513,944</u>	<u>637,944,435,466</u>
Net increase in cash and cash equivalents		203,302,526,838	115,693,581,771
Cash and cash equivalents at the beginning of the year		257,418,395,798	142,699,403,289
Effects of exchange rate changes on cash and cash equivalents		658,918,865	(974,589,262)
Cash and cash equivalents at the end of the year		<u>₩ 461,379,841,501</u>	<u>₩ 257,418,395,798</u>

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

Hanwha Techwin Co., Ltd. and Subsidiaries

Notes to the Consolidated Financial Statements

December 31, 2017 and 2016

1. General Information

1.1 Description of the Controlling Company

Hanwha Techwin Co., Ltd. (the Controlling Company) was incorporated in August, 1977 under its original name of Samsung Precision Co, Ltd. The Controlling Company changed its name to Samsung Aeronautics Co., Ltd. in February, 1987, to Samsung Techwin Co., Ltd., in March, 2000, and finally changed its name to Hanwha Techwin Co., Ltd. on June 29, 2015.

The Controlling Company listed its ordinary shares on the Korea Exchange on May 5, 1987 and it is domiciled in the Republic of Korea with its address at 1204 Changwon Daero, Sungsan-gu, Changwon, Gyeongsangnam-do. The Controlling Company is engaged in the manufacturing and selling of security solutions, various engines and turbo-machinery, and defense machinery, and provides aircraft engines and repair services. The factories of the Controlling Company are located in Changwon, Gyeongsangnam-do and manufacturing, sales, marketing and research and development subsidiaries are located in China, United States, Europe, Japan, Vietnam, Brazil and Iraq.

After several capital increases and reductions, the Controlling Company's share capital amounts to ₩ 265,650 million as at December 31, 2017 and its largest shareholder is Hanwha Co., Ltd. (32.68%).

1.2 Consolidated Subsidiaries

Details of the consolidated subsidiaries as at December 31, 2017 and 2016, are as follows:

Subsidiaries	Location	Main business	Ownership interest held by the Group (%)		Closing month
			2017	2016	
Hanwha Techwin America	U.S.A.	Sale of CCTV, etc	100.00%	100.00%	December
Hanwha Techwin (Tianjin) Co., Ltd.	China	Manufacture and sale of CCTV, etc	95.00%	95.00%	December
Hanwha Techwin Europe, Ltd.	U.K.	Sale of CCTV, etc	100.00%	100.00%	December
Hanwha Techwin (Shanghai) Co., Ltd.	China	Sale of turbo-machinery, IMS, etc.	100.00%	100.00%	December
Techwin Engineering Center	Japan	Research and development of IMS	100.00%	100.00%	December
Hanwha Techwin Do Brasil Equipamentos De Seguranca Ltda.	Brazil	Marketing for CCTV, etc.	100.00%	100.00%	December
Tawasul Al-Ezdihar Co., Ltd.	Iraq	Trade business and construction	100.00%	100.00%	December
Hanwha Defense Systems Corp.	Korea	Manufacture and sale of military equipment	100.00%	100.00%	December
Hanwha Systems Co., Ltd.	Korea	Manufacture and sale of military equipment	100.00%	100.00%	December
Hanwha Techwin Automation Americas, Inc.	U.S.A.	Sale of IMS	100.00%	100.00%	December
Hanwha Techwin Security Vietnam Company Limited	Vietnam	Manufacture of CCTV, etc	100.00%	-	December
Hanwha Techwin Middle East FZE	UAE	Sale of CCTV, etc	100.00%	-	December

Hanwha Techwin Co., Ltd. and Subsidiaries
Notes to the Consolidated Financial Statements
December 31, 2017 and 2016

Subsidiaries	Location	Main business	Ownership interest held by the Group (%)		Closing month
			2017	2016	
Hanwha Techwin Automation Vietnam Company Limited	Vietnam	Sale of IMS	100.00%	-	December
Hanwha Land Systems Co., Ltd.	Korea	Manufacture and sale of military equipment	100.00%	-	December
Hanwha Power Systems Co., Ltd.	Korea	Manufacture and sale of turbo-machinery	100.00%	-	December
Hanwha Precision Machinery Co., Ltd.	Korea	Manufacture and sale of IMS	100.00%	-	December
Hanwha Aero Engines Company Limited	Vietnam	Manufacture of engine	100.00%	-	December

1.3 Changes in Scope of Consolidation

Subsidiaries newly included in the consolidation for the year ended December 31, 2017, are as follows:

Subsidiaries	Reason
Hanwha Techwin Security Vietnam Company Limited	Newly acquired
Hanwha Techwin Middle East FZE	Newly acquired
Hanwha Techwin Automation Vietnam Company Limited	Newly acquired
Hanwha Land Systems Co., Ltd.	Split-off
Hanwha Power Systems Co., Ltd.	Split-off
Hanwha Precision Machinery Co., Ltd.	Split-off
Hanwha Aero Engines Company Limited	Newly acquired

1.4 Summarized Financial Information

Summarized financial information for consolidated subsidiaries as at and for the years ended December 31, 2017 and 2016, is as follows:

(in millions of Korean won)

Subsidiaries	2017					
	Assets	Liabilities	Equity	Revenue	Profit (loss) for the year	Total comprehensive income (loss)
Hanwha Techwin America	92,556	60,426	32,130	218,387	1,368	(2,792)
Hanwha Techwin (Tianjin) Co., Ltd.	57,272	23,993	33,279	278,082	10,605	8,668
Hanwha Techwin Europe Limited	43,243	19,136	24,107	88,082	575	(267)
Hanwha Techwin (Shanghai) Co., Ltd.	35,364	15,247	20,117	61,797	6,717	5,788
Techwin Engineering Center	1,138	205	933	3,161	82	(2)
Hanwha Techwin Do Brasil Equipamentos De Seguranca Ltda.	37	21	16	519	(60)	(65)
Tawasul Al-Ezdihar Co., Ltd.	1,698	1,000	698	898	(51)	(155)

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2017

Subsidiaries	Assets	Liabilities	Equity	Revenue	Profit (loss) for the year	Total comprehensive income (loss)
Hanwha Defense Systems Corp.	763,541	373,530	390,011	671,394	28,699	30,984
Hanwha Systems Co., Ltd.	901,038	584,250	316,788	858,640	14,073	13,258
Hanwha Techwin Automation Americas, Inc.	15,951	11,488	4,463	15,865	(234)	(847)
Hanwha Techwin Security Vietnam Company Limited	31,588	20,897	10,691	-	(50)	(451)
Hanwha Techwin Middle East FZE	3,276	2,315	961	4,236	(795)	(875)
Hanwha Techwin Automation Vietnam Company Limited	360	262	98	286	(122)	(127)
Hanwha Land Systems Co., Ltd.	1,258,925	720,275	538,650	473,210	35,980	37,864
Hanwha Power System Co., Ltd.	212,272	84,804	127,468	87,874	3,549	4,594
Hanwha Precision Machinery Co., Ltd.	156,861	57,425	99,436	121,634	3,525	4,178
Hanwha Aero Engines Company Limited	42,923	395	42,528	-	(317)	(2,716)

(in millions of Korean won)

2016

Subsidiaries	Assets	Liabilities	Equity	Revenue	Profit (loss) for the year	Total comprehensive income (loss)
Hanwha Techwin America	88,842	53,920	34,922	212,978	3,862	5,102
Hanwha Techwin (Tianjin) Co., Ltd.	89,419	53,084	36,335	268,878	11,649	10,140
Hanwha Techwin Europe Limited	54,173	29,798	24,375	88,503	705	(3,367)
Hanwha Techwin (Shanghai) Co., Ltd.	32,904	18,575	14,329	65,877	3,015	2,813
Techwin Engineering Center	1,152	217	935	3,311	(73)	(3)
Hanwha Techwin Do Brasil Equipamentos De Seguranca Ltda.	122	41	81	1,251	47	59
SVIC Fund XVII	-	-	-	-	(2)	(2)
Tawasul Al-Ezdihar Co., Ltd.	2,490	1,638	852	7,476	770	783
Hanwha Defense Systems Corp.	745,901	376,873	369,028	532,073	30,403	30,436
Hanwha Systems Co., Ltd.	796,621	394,251	402,370	243,680	15,997	20,710
Hanwha Techwin Automation Americas, Inc.	11,266	6,457	4,809	-	-	-

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2. Significant Accounting Policies

The principal accounting policies applied in the preparation of these consolidated financial statements are set out below. These policies have been consistently applied to all the years presented, unless otherwise stated.

2.1 Basis of Preparation

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

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

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

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

2.2 Changes in Accounting Policy and Disclosures

(a) New and amended standards adopted by the Group

The Group has applied the following standards and amendments for the first time for their annual reporting period commencing January 1, 2017. The adoption of these amendments did not have any material impact on the financial statements.

- Amendments to Korean IFRS 1007 Statement of Cash Flows

Amendments to Korean IFRS 1007 *Statement of Cash flows* require to provide disclosures that enable users of financial statements to evaluate changes in liabilities arising from financing activities, including both changes arising from cash flows and non-cash flows.

- Amendments to Korean IFRS 1012 Income Tax

Amendments to Korean IFRS 1012 clarify that if fair value of a debt instrument measured at fair value is below its tax base, temporary differences should be recognized for unrealized losses.

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- Amendments to Korean IFRS 1112 *Disclosures of Interests in Other Entities*

Amendments to Korean IFRS 1112 clarify when an entity's interest in a subsidiary, a joint venture or an associate is classified as held for sales or discontinued operations in accordance with Korean IFRS 1105, the entity is required to disclose other information except for summarized financial information in accordance with Korean IFRS 1112.

(b) New standards and interpretations not yet adopted by the Group

Certain new accounting standards and interpretations that have been published that are not mandatory for annual reporting period commencing January 1, 2017 and have not been early adopted by the Group are set out below:

- Amendments to Korean IFRS 1028 *Investments in Associates and Joint Ventures*

When an entity measures its investment in an associate or a joint venture that is held by an entity that is a venture capital organization, mutual fund or others, at fair value instead of applying equity method, the amendments clarify that the entity may make this election separately for each associate or joint venture at its initial recognition. The amendments will be effective for annual periods beginning on or after January 1, 2018, with early adoption permitted. The Group is not a venture capital organization, thus the above exemption rule is not applied, and the Group does not expect the amendments to have a significant impact on the financial statements.

- Amendment to Korean IFRS 1040 *Transfers of Investment Property*

Paragraph 57 of Korean IFRS 1040 clarifies that a transfer to, or from, investment property, including property under construction, can only be made if there has been a change in use that is supported by evidence, and provides a list of circumstances as examples. The amendment will be effective for annual periods beginning on or after January 1, 2018, with early adoption permitted. The Group does not expect the amendment to have a significant impact on the financial statements.

- Amendments to Korean IFRS 1102 *Share-based Payment*

Amendments to Korean IFRS 1102 clarify accounting for a modification to the terms and conditions of a share-based payment that changes the classification of the transaction from cash-settled to equity-settled. The amendments will be effective for annual periods beginning on or after January 1, 2018, with early adoption permitted. The Group does not expect the amendments to have a significant impact on the financial statements.

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- Enactment of Interpretation 2122 *Foreign Currency Transaction and Advance Consideration*

According to the enactment, the date of the transaction for the purpose of determining the exchange rate to use on initial recognition of the related asset, expense or income (or part of it) is the date on which an entity initially recognizes the non-monetary asset or non-monetary liability arising from the payment or receipt of advance consideration. If there are multiple payments or receipts in advance, the entity shall determine a date of the transaction for each payment or receipt of advance consideration. The enactment will be effective for annual periods beginning on or after January 1, 2018, with early adoption permitted. The Group is in the process of analyzing the effects of the enactment on the financial statements.

- Enactment of Korean IFRS 1116 *Leases*

Korean IFRS 1116 *Leases* issued on May 22, 2017 is effective for annual periods beginning on or after January 1, 2019, with early adoption permitted. This standard will replace Korean IFRS 1017 *Leases*, Interpretation 2104 *Determining whether an Arrangement contains a Lease*, Interpretation 2015 *Operating Leases-Incentives*, and Interpretation 2027 *Evaluating the Substance of Transactions Involving the Legal Form of a Lease*.

At inception of a contract, the entity shall assess whether the contract is, or contains, a lease. Also, at the date of initial application, the entity shall assess whether the contract is, or contains, a lease in accordance with the standard. However, the entity will not need to reassess all contracts with applying the practical expedient because the entity elected to apply the practical expedient only to contracts entered before the date of initial application.

For a contract that is, or contains, a lease, the entity shall account for each lease component within the contract as a lease separately from non-lease components of the contract. A lessee is required to recognize a right-of-use asset representing its right to use the underlying leased asset and a lease liability representing its obligation to make lease payments. The lessee may elect not to apply the requirements to short-term lease (a lease term of 12 months or less at the commencement date) and low value assets (e.g. underlying assets below \$ 5,000). In addition, as a practical expedient, the lessee may elect, by class of underlying asset, not to separate non-lease components from lease components, and instead account for each lease component and any associated non-lease components as a single lease component.

Lessee accounting

A lessee shall apply this standard to its leases either:

- retrospectively to each prior reporting period presented applying Korean IFRS 1008 *Accounting Policies, Changes in Accounting Estimates and Errors* (Full retrospective application); or
- retrospectively with the cumulative effect of initially applying the standard recognized at the date of initial application.

The Group has not yet elected the application method.

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The Group plans to perform an impact assessment to identify potential financial effects of applying Korean IFRS 1116 in 2018. It is difficult to provide reasonable estimates of financial effects until the analyses is complete.

Lessor accounting

The Group expects the effect on the financial statements applying the new standard will not be significant as accounting for the Group, as a lessor, will not significantly change.

- Enactment of Korean IFRS 1109 *Financial Instruments*

The new standard for financial instruments issued on September 25, 2015 is effective for annual periods beginning on or after January 1, 2018 with early application permitted. This standard will replace Korean IFRS 1039 *Financial Instruments: Recognition and Measurement*. The Group will apply the standard for annual periods beginning on or after January 1, 2018.

The standard requires retrospective application with some exceptions; for example, an entity is not required to restate prior period in relation to classification, measurement, and impairment of financial instruments. The standard requires prospective application of its hedge accounting requirements for all hedging relationships except the accounting for time value of options and other exceptions.

Korean IFRS 1109 *Financial Instruments* requires three main areas including: (a) classification and measurement of financial assets on the basis of the entity's business model for managing financial assets and the contractual cash flow characteristics of the financial assets, (b) a new impairment model of financial instruments based on the expected credit losses, and (c) hedge accounting including expansion of the range of eligible hedging instruments and hedged items that qualify for hedge accounting or change of a method of hedge effectiveness assessment.

An effective implementation of Korean IFRS 1109 requires preparation processes including financial impact assessment, accounting policy establishment, accounting system development and the system stabilization. The impact on the Group's financial statements due to the application of the standard is dependent on judgements made in applying the standard, financial instruments held by the Group and macroeconomic variables.

The Group is in the process of analyzing the financial effects of applying Korean IFRS 1109. The following areas are likely to be affected in general:

(a) Classification and Measurement of Financial Assets

When implementing Korean IFRS 1109, the classification of financial assets will be driven by the Group's business model for managing the financial assets and contractual terms of cash flow. The following table shows the classification of financial assets measured subsequently at amortized cost, at fair value through other comprehensive income and at fair value through profit or loss. If a hybrid contract contains a host that is a financial asset, the classification of the hybrid contract shall be determined for the entire contract without separating the embedded derivative.

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<i>Business model for the contractual cash flows characteristics</i>	Solely represent payments of principal and interest	All other
<i>Hold the financial asset for the collection of the contractual cash flows</i>	Measured at amortized cost ¹	
<i>Hold the financial asset for the collection of the contractual cash flows and sale</i>	Recognized at fair value through other comprehensive income ¹	Recognized at fair value through profit or loss ²
<i>Hold for sale</i>	Recognized at fair value through profit or loss	

¹ A designation at fair value through profit or loss is allowed only if such designation mitigates an accounting mismatch (irrevocable).

² Equity investments not held for trading can be recorded in other comprehensive income (irrevocable).

With the implementation of Korean IFRS 1109, the criteria to classify the financial assets at amortized cost or at fair value through other comprehensive income are more strictly applied than the criteria applied with Korean IFRS 1039. Accordingly, the financial assets at fair value through profit or loss may increase by implementing Korean IFRS 1109 and may result an extended fluctuation in profit or loss.

As at December 31, 2017, the Group owns loans and receivables of ₩ 1,620,089 million, financial assets available-for-sale of ₩ 329,639 million and financial assets at fair value through profit or loss of ₩ 7,177 million.

According to Korean IFRS 1109, a debt instrument is measured at amortized cost if: (a) the objective of the business model is to hold the financial asset for the collection of the contractual cash flows, and (b) the contractual cash flows under the instrument solely represent payments of principal and interest. As at December 31, 2017, the Group measured loans and receivables of ₩ 1,620,089 million at amortized costs.

According to Korean IFRS 1109, equity instruments that are not held for short-term trading, the Group can make an irrevocable election at initial recognition to classify the instruments as assets measured at fair value through other comprehensive income, which all subsequent changes in fair value being recognized in other comprehensive income and not recycled to profit or loss. As at December 31, 2017, the Group holds equity instruments of ₩ 329,639 million classified as financial assets available-for-sale and there is no recycled unrealized gain or loss of arose from the equity instruments to profit or loss.

According to Korean IFRS 1109, debt instruments those contractual cash flows do not represent solely payments of principal and interest and held for trading, and equity instruments that are not designated as instruments measured at fair value through other comprehensive income are measured at fair value through profit or loss. As at December 2017, the Group does not hold debt instruments classified as financial assets at fair value through profit or loss.

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(b) Classification and Measurement of Financial Liabilities

Korean IFRS 1109 requires the amount of the change in the liability's fair value attributable to changes in the credit risk to be recognized in other comprehensive income, unless this treatment of the credit risk component creates or enlarges a measurement mismatch. Amounts presented in other comprehensive income are not subsequently transferred to profit or loss.

Under Korean IFRS 1109, certain fair value movements will be recognized in other comprehensive income and as a result profit or loss from fair value movements may decrease.

(c) Impairment: Financial Assets and Contract Assets

The new impairment model requires the recognition of impairment provisions based on expected credit losses (ECL) rather than only incurred credit losses as is the case under Korean IFRS 1039. It applies to financial assets classified at amortized cost, debt instruments measured at fair value through other comprehensive income, lease receivables, contract assets, loan commitments and certain financial guarantee contracts.

Under Korean IFRS 1109 'expected loss' model, a credit event (or impairment 'trigger') no longer has to occur before credit losses are recognized. The Group will always recognize (at a minimum) 12-month expected credit losses in profit or loss. Lifetime expected losses will be recognized on assets for which there is a significant increase in credit risk after initial recognition.

Stage ¹	Loss allowance
1 No significant increase in credit risk after initial recognition ²	12-month expected credit losses (expected credit losses that result from those default events on the financial instrument that are possible within 12 months after the reporting date)
2 Significant increase in credit risk after initial recognition	Lifetime expected credit losses (expected credit losses that result from all possible default events over the life of the financial instrument)
3 Credit-impaired	

¹ A loss allowance for lifetime expected credit losses is required for a financial instrument if the credit risk on that financial instrument has increased significantly since initial recognition. It is also required for contract assets or trade receivables that are not, according to Korean IFRS 1115 *Revenue from Contracts with Customers*, considered to contain a significant financing component. Additionally, the Group can elect an accounting policy of recognizing lifetime expected credit losses for all contract assets and/or all trade receivables, including those that contain a significant financing component.

² If the financial instrument has low credit risk at the end of the reporting period, the Group may assume that the credit risk has not increased significantly since initial recognition.

Under Korean IFRS 1109, the asset that is credit-impaired at initial recognition would recognize all changes in lifetime expected credit losses since the initial recognition as a loss allowance with any changes recognized in profit or loss.

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As at December 31, 2017, the Group owns debt investment carried at amortized cost of ₩ 1,631,113 million (loans and receivables). And, the Group recognized loss allowance of ₩ 11,024 million for these assets.

(d) *Hedge Accounting*

Hedge accounting mechanics (fair value hedges, cash flow hedges and hedge of net investments in a foreign operations) required by Korean IFRS 1039 remains unchanged in Korean IFRS 1109; however, the new hedge accounting rules will align the accounting for hedging instruments more closely with the Group's risk management practices. As a general rule, more hedge relationships might be eligible for hedge accounting, as the standard introduces a more principles-based approach. Korean IFRS 1109 allows more hedging instruments and hedged items to qualify for hedge accounting, and relaxes the hedge accounting requirement by removing two hedge effectiveness tests that are a prospective test to ensure that the hedging relationship is expected to be highly effective and a quantitative retrospective test (within range of 80-125%) to ensure that the hedging relationship has been highly effective throughout the reporting period.

With implementation of Korean IFRS 1109, volatility in profit or loss may be reduced as some items that were not eligible as hedged items or hedging instruments under Korean IFRS 1039 are now eligible under Korean IFRS 1109.

As at December 31, 2017, the Group applies the hedge accounting to its assets and liabilities that amount to ₩ 12 million and ₩ 101,624 million, respectively.

Furthermore, when the Group first applies Korean IFRS 1109, it may choose as its accounting policy choice to continue to apply all of the hedge accounting requirements of Korean IFRS 1039 instead of the requirements of Korean IFRS 1109.

- Enactment of Korean IFRS 1115 *Revenue from Contracts with Customers*

Korean IFRS 1115 *Revenue from Contracts with Customers* issued on November 6, 2015 will be effective for annual reporting periods beginning on or after January 1, 2018 with early adoption permitted. This standard replaces Korean IFRS 1018 *Revenue*, Korean IFRS 1011 *Construction Contracts*, Interpretation 2031 *Revenue-Barter Transactions Involving Advertising Services*, Interpretation 2113 *Customer Loyalty Programs*, Interpretation 2115 *Agreements for the Construction of Real Estate* and Interpretation 2118 *Transfers of assets from customers*.

The Group will apply Korean IFRS 1115 *Revenue from Contracts with Customers* from the period beginning on January 1, 2018, and will elect the modified retrospective approach which will recognize the cumulative impact of initially applying the revenue standard as an adjustment to retained earnings as at January 1, 2018, the period of initial application.

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Korean IFRS 1018 and other current revenue standard identify revenue as income that arises in the course of ordinary activities of an entity and provides guidance on a variety of different types of revenue, such as, sale of goods, rendering of services, interest, dividends, royalties and construction contracts. The new standard, however, applies the below five-step process to all types of contract with customers to recognize revenue:

- Identify contracts with customers
- Identify the separate performance obligation
- Determine the transaction price of the contract
- Allocate the transaction price to each of the separate performance obligations, and
- Recognize the revenue as each performance obligation is satisfied.

As at December 31, 2017, the Group set out the processes of updating internal management and changing accounting system with the implementation of Korean IFRS 1115, and the Group is in the process of analyzing the financial effects of applying the standard. The Group identified the following areas are likely to be affected in general.

(a) Identify performance obligation

With the implementation of Korean IFRS 1115, the Group identifies performance obligations from contract with a customer. The timing of revenue recognition depends on a performance obligation is satisfied at a point in time or over time.

(b) A performance obligation is satisfied over time

In accordance with Korean IFRS 1115, the revenue is recognized over time by measuring progress if: (a) the Group's performance creates or enhances an asset that the customer controls as the asset is created or enhanced, (b) the Group's performance does not create an asset with an alternative use to the Group, and (c) Group has an enforceable right to payment for performance completed to date.

(c) Variable consideration

With implementation of Korean IFRS 1115, the Group estimates an amount of variable consideration by using the expected value which the Group expects to better predict the amount of consideration. The Group recognizes revenue at transaction price including variable consideration only to the extent that it is highly probable that a significant reversal in the amount of cumulative revenue recognized will not occur when the uncertainty has been resolved. The refund liability is measured at the amount of consideration received for which the Group does not expect to be entitled.

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2.3 Consolidation

The Group has prepared the consolidated financial statements in accordance with Korean IFRS 1110 *Consolidated Financial Statements*.

(a) Subsidiaries

Subsidiaries are all entities over which the Group has control. The Group controls an entity when the Group is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power to direct the activities of the entity. Subsidiaries are fully consolidated from the date on which control is transferred to the Group. They are deconsolidated from the date that control ceases.

The acquisition method of accounting is used to account for business combinations by the Group. The consideration transferred is measured at the fair values of the assets transferred, and identifiable assets acquired and liabilities and contingent liabilities assumed in a business combination are measured initially at their fair values at the acquisition date. The Group recognizes any non-controlling interest in the acquired entity on an acquisition-by-acquisition basis either at fair value or at the non-controlling interest's proportionate share of the acquired entity's net identifiable assets. All other non-controlling interests are measured at fair values, unless otherwise required by other standards. Acquisition-related costs are expensed as incurred.

The excess of the consideration transferred, amount of any non-controlling interest in the acquired entity and acquisition-date fair value of any previous equity interest in the acquired entity over the fair value of the net identifiable assets acquired is recorded as goodwill. If those amounts are less than the fair value of the net identifiable assets of the business acquired, the difference is recognized directly in the profit or loss as a bargain purchase.

Intercompany transactions, balances and unrealized gains on transactions between group companies are eliminated. Unrealized losses are also eliminated unless the transaction provides evidence of an impairment of the transferred asset. Accounting policies of subsidiaries have been changed where necessary to ensure consistency with the policies adopted by the Group.

(b) Associates

Associates are entities over which the Group has significant influence but not control or joint control. Investments in associates are accounted using the equity method, after initially being recognized at cost. Unrealized gains on transactions between the Group and its associates are eliminated to the extent of the Group's interest in the associates. If there is an objective evidence of impairment for the investment in the associate, the Group recognizes the difference between the recoverable amount of the associate and its carrying amount as impairment loss.

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(c) Joint Arrangements

A joint arrangement, wherein two or more parties have joint control, is classified as either a joint operation or a joint venture. A joint operator recognizes its direct right to the assets, liabilities, revenues and expenses of joint operations and its share of any jointly held or incurred assets, liabilities, revenues and expenses. Interests in joint ventures are accounted for using the equity method, after initially being recognized at cost in the consolidated statement of financial position.

2.4 Cash and Cash Equivalents

Cash and cash equivalents include cash on hand, deposits held at call with banks, and other short-term highly liquid investments with original maturities of three months or less.

2.5 Foreign Currency Translation

(a) Functional and presentation currency

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

(b) Transactions and balances

Foreign currency transactions are translated into the functional currency using the exchange rates prevailing at the dates of the transactions or valuation where items are re-measured. Foreign exchange gains and losses resulting from the settlement of such transactions and from the translation of monetary assets and liabilities denominated in foreign currencies at year end exchange rates are generally recognized in profit or loss.

2.6 Financial Assets

(a) Classification and measurement

The Group classifies its financial assets into the following categories: financial assets at fair value through profit or loss, available-for-sale financial assets, loans and receivables, and held-to-maturity financial assets. Regular purchases and sale of financial assets are recognized on trade-date, the date on which the Group commits to purchase or sell the asset.

At initial recognition, the Group measures a financial asset at its fair value plus, in the case of a financial asset not at fair value through profit or loss, transaction costs that are directly attributable to the acquisition of the financial asset. Transaction costs of financial assets carried at fair value through profit or loss are expensed in profit or loss. Available-for-sale financial assets and financial assets at fair value through profit or loss are subsequently carried at fair value. And, loans and receivables and held-to-maturity investments are subsequently carried at amortized cost using the effective interest method.

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Gains or losses arising from changes in the fair value of financial assets at fair value through profit or loss are recognized in profit or loss within other income or other expenses. Gains or losses arising from changes in the available-for-sale financial assets are recognized in other comprehensive income, and amounts are reclassified to profit or loss when the associated assets are sold or impaired.

(b) Impairment

The Group assesses at the end of each reporting period whether there is objective evidence that a financial asset or a group of financial assets is impaired. A financial asset or a group of financial assets is considered to be impaired and impairment losses are recognized, if there is an objective evidence of impairment as a result of one or more events occurred after the initial recognition of the asset (a 'loss event') and that loss event (or events) has an impact on the estimated future cash flows of the financial asset or a group of financial assets which can be reliably estimated.

Impairment of loans and receivables is presented as a deduction in an allowance account, and that of other financial assets is directly deducted from their carrying amount. The Group writes off financial assets when the assets are determined to be no longer recoverable.

The Group considers that there is objective evidence of impairment if significant financial difficulties of the debtor, prolonged delinquency in interest or principal, or the disappearance of an active market for that financial asset because of financial difficulties are indicated. Moreover, in the case of equity investments classified as available-for-sale, a significant decline in the fair value of the security below its cost significantly or prolonged decline is considered an objective evidence of impairment.

(c) Derecognition

If a transfer does not result in derecognition because the Group has retained substantially all the risks and rewards of ownership of the transferred asset, the Group continues to recognize the transferred asset in its entirety and recognizes a financial liability for the consideration received. The Group classified the financial liability as "borrowings" in the statement of financial position.

(d) Offsetting of financial instruments

Financial assets and liabilities are offset and the net amount reported in the consolidated statements of financial position where there is a legally enforceable right to offset the recognized amounts and there is an intention to settle on a net basis or realize the assets and settle the liability simultaneously. The legally enforceable right must not be contingent on future events and must be enforceable in the normal course of business and in the event of default, insolvency or bankruptcy of the Group or the counterparty.

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2.7 Derivatives

Derivatives are initially recognized at fair value on the date when a derivative contract is entered into and are subsequently remeasured at their fair value at the end of each reporting period. Changes in the fair value of any derivatives that does not qualify for hedge accounting are recognized immediately in profit or loss within 'other income (expenses)' based on the nature of transactions.

The Group applies cash flow hedge accounting to hedge the interest rate risk on its floating rate borrowings. The effective portion of changes in fair value of derivatives that are designated and qualify as cash flow hedges is recognized in other comprehensive income, and the ineffective portion is recognized in 'finance income (costs)'.

When the forecast transaction that is hedge results in the recognition of a non-financial asset, the gains and losses previously deferred in other comprehensive income are reclassified from other comprehensive income and included in the initial measurement of the cost of the assets. The deferred amounts are ultimately recognized in profit or loss as interest expenses. When a forecast transactions no longer to occur, the cumulative gain or loss that was reported in other comprehensive income is immediately reclassified to profit or loss within 'finance income (costs)'.

2.8 Inventories

Inventories are stated at the lower of cost and net realizable value, and the cost of inventory is determined by using the gross average method or moving-weighted average method, except for materials-in-transit, which is measured using the individual cost method.

2.9 Non-current Assets (or Disposal Group) Held for sale

Non-current assets (or disposal group) are classified as held for sale when their carrying amount is to recovered principally through a sale transaction rather than through continuing use and a sale is considered highly probable. The assets are measured at the lower amount between their carrying amount and the fair value less costs to sell.

2.10 Property, Plant and Equipment

Land is shown at fair value based on valuations by independent external appraisers. Valuations are performed with sufficient regularity to ensure that the fair value of a revalued asset does not differ materially from its carrying amount. When the Group carries out revaluation, it restates the net amount of the asset to the revalued amount of the asset, by eliminating accumulated depreciation at the date of revaluation against the gross carrying amount of the asset.

All other property, plant and equipment are stated at historical cost less accumulated depreciation and accumulated impairment losses, except for land. Historical cost includes expenditure that is directly attributable to the acquisition of the items.

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Increases in the carrying amount arising on revaluation of land are credited to other comprehensive income and shown as revaluation surplus in equity. Decreases that offset previous increases of the same asset are charged to other comprehensive income and debited against the revaluation surplus directly; all other decreases are charged to the statement of profit or loss. Each year the difference between depreciation based on the revalued carrying amount of the asset charged to the statement of profit or loss, and depreciation based on the asset's original cost, is transferred from 'revaluation surplus' to 'retained earnings'.

Land is not depreciated. Depreciation on other assets is measured using the straight-line method to allocate the difference between their cost and their residual values over their estimated useful lives, as follows:

	Useful life
Buildings	10 - 50 years
Structures	10 - 40
Machinery	5 - 15
Tools and furniture	2 - 6
Vehicles	4 - 6
Aircrafts	8 - 12

The depreciation method, residual values and useful lives of property, plant and equipment are reviewed, and adjusted if appropriate, at the end of each reporting period. An asset's carrying amount is adjusted to its recoverable amount if the asset's carrying amount is greater than its estimated recoverable amount. Gains and losses on disposals are determined by comparing the proceeds with the carrying amount and are recognized as 'other gains and losses' in the statement of profit or loss.

When revalued assets are sold, the amounts included in revaluation surplus are transferred to retained earnings.

2.11 Borrowing Costs

General and specific borrowing costs that are directly attributable to the acquisition, construction or production of a qualifying asset are capitalized during the period of time that is required to complete and prepare the asset for its 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. Other borrowing costs are expensed in the period in which they are incurred.

2.12 Government Grants

Grants from the government are recognized at their fair value where there is a reasonable assurance that the grant will be received and the Group will comply with all attached conditions. Government grants related to assets are presented in the statement of financial position either by deducting the grant in arriving at the carrying amount of the asset, and government grants related to costs are deferred and recognized in the profit or loss over the period necessary to match them with the costs that they are intended to compensate.

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2.13 Intangible Assets

Intangible assets, except for goodwill, are initially recognized at its historical cost, and carried at cost less accumulated amortization and accumulated impairment losses.

Development costs that are directly attributable to internally generated by the Group are recognized when the criteria; such as, technically feasible, generating probable future economic benefits and other, are met. This asset is amortized by the straight-line method using the table below and the unit of production method.

Business license for international joint venture that are the payments to join a development and manufacturing project of new product with foreign company are amortized during the expected sales periods.

Certain intangible assets that have an indefinite useful life are not subject to amortization because there is no foreseeable limit to the period over which the assets are expected to be utilized. The Group amortizes intangible assets with a limited useful life using the straight-line method over the following periods:

	Useful lives
Development cost	5 - 10 years
Industrial rights	5 - 10
Technical License	10
Customer relationships	6
Others	5 - 10

2.14 Impairment of Non-financial Assets

Intangible assets that have an indefinite useful life are not subject to amortization and are tested annually for impairment, or more frequently if events or changes in circumstances indicate that they might be impaired. Other assets are tested for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. An impairment loss is recognized for the amount by which the asset's carrying amount exceeds its recoverable amount, which is the higher of an asset's fair value less costs of disposal and value in use. Non-financial assets that suffered an impairment are reviewed for possible reversal of the impairment at the end of each reporting period.

2.15 Financial Liabilities

(a) Classification and measurement

The Group's financial liabilities at fair value through profit or loss are financial instruments held for trading. A financial liability is held for trading if it is incurred principally for the purpose of repurchasing in the near term. A derivative that is not a designated as hedging instruments and an embedded derivative that is separated are also classified as held for trading.

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The Group classifies all non-derivative liabilities, except for financial liabilities at fair value through profit or loss, financial guarantee contracts and financial liabilities that arise when a transfer of financial assets does not qualify for derecognition, as financial liabilities carried at amortized cost and present them as 'trade and other payables', 'borrowings' and 'other financial liabilities', in the statement of financial position.

(b) Derecognition

Financial liabilities are removed from the statement of financial position when the contractual obligation is extinguished due to discharging, cancellation, expiration, or when the terms of an existing financial liability are substantially modified.

2.16 Provisions

Provisions are measured at the present value of management's best estimate of the expenditure required to settle the present obligation at the end of the reporting period, and the increase in the provision due to the passage of time is recognized as interest expense.

2.17 Current and Deferred Income Tax

The tax expense for the period consists of current and deferred tax. Current and deferred tax is recognized in profit or loss, except to the extent that it relates to items recognized in other comprehensive income or directly in equity.

The tax expense is measured at the amount expected to be paid to the taxation authorities, using the tax rates (and tax laws) that have been enacted or substantively enacted by the end of the reporting period.

Deferred income tax is provided in full, using the liability method, on temporary differences arising between the tax bases of assets and liabilities and their carrying amounts in the consolidated financial statements. However, deferred income tax is not accounted for if it arises from initial recognition of an asset or liability in a transaction other than a business combination that at the time of the transaction affects neither accounting, nor taxable profit or loss.

Deferred tax assets are recognized only if it is probable that future taxable amounts will be available to utilize those temporary differences and losses.

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

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Deferred tax assets and liabilities are offset when there is a legally enforceable right to offset current tax assets and liabilities and when the deferred tax balances relate to the same taxation authority. Current tax assets and tax liabilities are offset where the entity has a legally enforceable right to offset and intends either to settle on a net basis.

2.18 Employee Benefits

(a) Post-employment benefits

The Group operates defined benefit pension plans. Generally, post-employment benefits are payable after the completion of employment, and the benefit amount depended on the employee's age, periods of service or salary levels. The liability recognized in the statement of financial position in respect of defined benefit pension plans is the present value of the defined benefit obligation at the end of the reporting period less the fair value of plan assets. The defined benefit obligation is calculated annually by independent actuaries using the projected unit credit method. The present value of the defined benefit obligation is determined by discounting the estimated future cash outflows using interest rates of high-quality corporate bonds that are denominated in the currency in which the benefits will be paid, and that have terms approximating to the terms of the related obligation. Remeasurement gains and losses arising from experience adjustments and changes in actuarial assumptions are recognized in the period in which they occur, directly in other comprehensive income.

Changes in the present value of the defined benefit obligation resulting from plan amendments or curtailments are recognized immediately in profit or loss as past service costs.

(b) Long-term employee benefits

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

2.19 Revenue Recognition

Revenue is measured at the fair value of the consideration received or receivable for the sale of goods or rendering of services arising from the normal activities of the Group. It is presented as net of value added taxes, returns, rebates and discounts.

The Group recognizes revenue when the amount of revenue can be reliably measured, it is probable that future economic benefits will flow to the Group and when specific criteria have been met for each of the Group's activities as described below. The Group bases its estimate on historical results, taking into consideration the type of customer, the type of transaction and the specifics of each arrangement.

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(a) Sale of goods

Revenue from the sale of goods shall be recognized when the Group has transferred to the buyer the significant risks and rewards of ownership of the goods, retains neither continuing managerial involvement to the degree usually associated with ownership nor effective control over the goods sold, it is probable that the economic benefits associated with the transaction will flow to the entity and can be measured the amount of revenue, costs and a possibility of return incurred or to be incurred in respect of the transaction reliably.

(b) Rendering of services

Revenue from rendering of services is recognized by reference to the stage of completion if the performance of rendering is reliably estimated. When the performance of rendering cannot be estimated reliably, revenue is recognized only to the extent of contract costs incurred that are likely to be recoverable.

(c) Interest income

Interest income is recognized using the effective interest method according to the time passed. When a loan and receivable is impaired, the Group reduces the carrying amount to its recoverable amount and continues unwinding the discount as interest income. Interest income on impaired loans and receivables is recognized using the original effective interest rate.

(d) Dividend income

Dividend income is recognized when the right to receive payment is established.

2.20 Construction Contracts

A construction contract is defined by Korean IFRS 1011 *Construction Contracts*, as a contract specifically negotiated for the construction of an asset.

When the outcome of a construction contract can be estimated reliably and it is probable that the contract will be profitable, contract revenue is recognized over the period of the contract by reference to the stage of completion. Contract costs are recognized as expenses by reference to the stage of completion of the contract activity at the end of the reporting period. When it is probable that total contract costs will exceed total contract revenue, the expected loss on the construction contract is immediately recognized as an expense.

When the outcome of a construction contract cannot be estimated reliably, contract revenue is recognized only to the extent of contract costs incurred that are likely to be recoverable. Change of contract are included in contract revenue only if it is probable that will be revenue and can be measured reliably.

The stage of completion is measured by reference to the contract costs incurred up to the end of the reporting period as a percentage of total estimated costs for each contract. Costs incurred during the year in connection with future activity on a contract are excluded from contract costs in determining the

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stage of completion.

On the statement of financial position, the Group reports the net contract position for each contract as either an asset or a liability. A contract represents an asset where costs incurred plus recognized profits (less recognized losses) exceed progress billings (due from customers for contract work); a contract represents a liability where the opposite is the case (due to customers for contract work).

2.21 Segment Reporting

Information of each operating segment is reported in a manner consistent with the internal business segment reporting provided to the chief operating decision-maker (Note 27). The chief operating decision-maker is responsible for allocating resources and assessing performance of the operating segments.

2.22 Approval of Issuance of the Financial Statements

The consolidated financial statements 2017 were approved for issue by the Board of Directors on February 23, 2018 and are subject to change with the approval at the annual shareholder's meeting.

3. Critical Accounting Estimates and Assumptions

The preparation of financial statements requires the Group to make estimates and assumptions concerning the future. Estimates and judgements are continually evaluated and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances. The resulting accounting estimates will, by definition, seldom equal the related actual results. The estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are discussed below:

(a) Estimated goodwill impairment

The Group tests whether goodwill has suffered any impairment on an annual basis. The recoverable amount of a cash generating unit (CGU) is determined based on value-in-use calculations.

(b) Income taxes

The Group's taxable income generated from these operations are subject to income taxes based on tax laws and interpretations of tax authorities in numerous jurisdictions. There are many transactions and calculations for which the ultimate tax determination is uncertain.

If certain portion of the taxable income is not used for investments or increase in wages, the Group is liable to pay additional income tax calculated based on the tax laws. Accordingly, the measurement of current and deferred income tax is affected by the tax effects from the new tax system. As the Group's income tax is dependent on the investments, increase in wages, there is an uncertainty measuring the final tax effects.

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(c) Fair value of financial instruments

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

(d) Net defined benefit liability

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

(e) Construction contracts

(i) Uncertainty of the estimated total contract revenue

Total contract revenue is measured based on contractual amount initially agreed. Yet the measurement of contract revenue is liable to various uncertainties of the future events, as the contract revenue can be increased by additional contract work, claims and incentive payments in the course of construction, or decreased by the penalty when the completion of contract is delayed due to the Group's fault. The change in contract revenue is recognized when it is probable that the customer will approve the increase in revenue due to the changes in contract work and the amount of changes can be measured reliably.

(ii) Estimated total contract costs

Total contract costs are estimated based on future estimates of material costs, labour costs and others. There is uncertainty in the estimated total contract costs, such as changes in order or contract period.

4. Financial Risk Management

4.1 Financial Risk Factors

The Group's activities expose it to a variety of financial risks: market risk (including foreign exchange risk, interest rate risk and others), credit risk and liquidity risk. The Group's overall risk management program focuses on the unpredictability of financial markets and seeks to minimize any adverse effects on the financial performance of the Group.

4.1.1 Market risk

(a) Foreign exchange risk

The Group operates internationally and is exposed to foreign exchange risk arising from foreign currency transactions, primarily with respect to the US dollar and the Euro. Foreign exchange risk arises from recognized assets and liabilities and net investments in foreign entities. Additionally, the Group evaluates, manages and reports the risks of exchange rate fluctuation periodically by the managing system of receivables and payables.

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The table below summarizes the impact of weakened/strengthened Korean won on the Group's profit before tax for the year. The analysis is based on the assumption that Korean won has weakened/strengthened by 10% with all other variables held constant.

<i>(in thousands of Korean won)</i>	2017	
	10% Weakened	10% Strengthened
USD	₩ 11,331,809	₩ (11,331,809)
EUR	(2,065,077)	2,065,077
CHF	(212,493)	212,493
JPY	(157,746)	157,746
GBP	(132,840)	132,840

(b) Interest rate risk

Interest rate risk is defined as the risk that the interest income or expenses arising from deposits and borrowings may fluctuate due to the changes in future market interest rate. The interest rate risk mainly arises from floating rate deposits and borrowings. The objective of interest rate risk management lies in maximizing corporate value by minimizing uncertainty in interest rates fluctuations and net interest expense.

As at December 31, 2017, the profit before income tax shall be increased/decreased by ₩ 3,795 million, if the interest rate on floating rate borrowings increases/decreases by 1% with all other variables held constant.

4.1.2 Credit Risk

The Group manages credit risk by establishing policies and procedures in order to reduce credit risks related to financial assets. The Group is provided collateral or guarantee from the customers when entering into a new contract. For the financial assets for which collections are overdue, status of overdue collection and collection plan are reported to management and the Group subsequently takes actions corresponding to reasons of overdue.

The maximum exposure to credit risk equals to the carrying amount and the maximum guaranteed amount of all financial assets (excluding equity securities), such as cash and cash equivalents deposited at the financial institutions and trade and other receivables.

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4.1.3 Liquidity Risk

Contractual maturities of the Group's financial liabilities as at December 31, 2017 and 2016, are as follows:

<i>(in thousands of Korean won)</i>	2017						
	Carrying amount	Contractual cash flows	Less than 6 months	Between 6 months and 1 year	Between 1 year and 2 years	Between 2 years and 5 years	Over 5 years
Trade and other payables	₩748,835,348	₩(760,584,004)	₩(646,990,583)	₩ -	₩(16,439,486)	₩(27,903,310)	₩(69,250,625)
Borrowings - NEGO	140,357,881	(140,357,881)	(140,357,881)	-	-	-	-
General facility loan	747,753,302	(780,388,064)	(151,645,197)	(97,418,112)	(277,807,079)	(253,517,676)	-
Defend industry fund	7,561,178	(7,771,771)	(1,899,414)	(1,558,630)	(2,333,269)	(1,980,458)	-
Publicly issued debentures	349,245,623	(364,676,950)	(3,830,500)	(73,830,500)	(214,856,250)	(72,159,700)	-
Privately issued debentures	99,827,688	(103,488,159)	(996,750)	(996,750)	(101,494,659)	-	-
	<u>₩2,093,581,020</u>	<u>₩(2,157,266,829)</u>	<u>₩(945,720,325)</u>	<u>₩(173,803,992)</u>	<u>₩(612,930,743)</u>	<u>₩(355,561,144)</u>	<u>₩(69,250,625)</u>

<i>(in thousands of Korean won)</i>	2016						
	Carrying amount	Contractual cash flows	Less than 6 months	Between 6 months and 1 year	Between 1 year and 2 years	Between 2 years and 5 years	Over 5 years
Trade and other payables	₩ 676,741,335	₩(692,208,721)	₩(578,703,975)	₩ (70,993)	₩(17,029,991)	₩(46,945,715)	₩ (49,458,047)
Borrowings - NEGO	128,305,200	(128,305,200)	(128,305,200)	-	-	-	-
General facility loan	628,459,500	(661,438,267)	(196,050,258)	(45,518,211)	(60,297,981)	(359,571,817)	-
Defend industry fund	10,411,398	(10,822,051)	(1,161,027)	(1,879,668)	(3,462,076)	(4,319,280)	-
Publicly issued debentures	348,817,407	(372,337,950)	(3,830,500)	(3,830,500)	(77,661,000)	(287,015,950)	-
Privately issued debentures	69,856,273	(73,609,375)	(656,250)	(656,250)	(1,312,500)	(70,984,375)	-
	<u>₩1,862,591,113</u>	<u>₩(1,938,721,564)</u>	<u>₩(908,707,210)</u>	<u>₩(51,955,622)</u>	<u>₩(159,763,548)</u>	<u>₩(768,837,137)</u>	<u>₩ (49,458,047)</u>

The above amounts include estimated interest payments.

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4.2 Capital Risk Management

The purpose of the Group's capital management is to maintain a sound capital structure and to maximize shareholder's profit. The Group monitors financial ratios such as debt ratio and net borrowings ratio to optimize capital structure and performs financial structure improvements as necessary.

<i>(in thousands of Korean won)</i>	2017		2016	
Liabilities (A)	₩	3,566,619,940	₩	3,311,673,751
Equity (B)		2,180,953,221		2,340,764,615
Debt ratio (A/B) (%)		163.50%		141.50%
Cash and cash equivalents (C)	₩	461,379,842	₩	257,418,396
Other current financial assets (D)		13,300,000		348,045,004
Borrowings and debentures (E)		1,344,745,672		1,185,849,779
Net borrowings ratio ((E-(C+D))/B) (%)		39.90%		24.80%

5. Fair Value

5.1 Financial Instruments Measured at Fair Value

Carrying amount and fair value of financial instruments by category as at December 31, 2017 and 2016, are as follows:

<i>(in thousands of Korean won)</i>	2017		2016	
	Carrying amount	Fair value	Carrying amount	Fair value
Financial assets				
Cash and cash equivalents	₩ 461,379,842	₩ 461,379,842	₩ 257,418,396	₩ 257,418,396
Financial assets at fair value through profit or loss	-	-	333,896,454	333,896,454
Short-term financial instruments	13,300,000	13,300,000	14,148,549	14,148,549
Trade and other receivables	1,113,994,833	1,113,994,833	926,168,439	926,168,439
Derivative assets	683,868	683,868	112,687	112,687
Available-for-sale financial assets ¹	289,079,926	289,079,926	403,465,821	403,465,821
Long-term financial instruments	4,904,385	4,904,385	1,028,000	1,028,000
Long-term trade and other payables	26,510,041	26,510,041	26,361,254	26,361,254
Non-current derivative assets ²	1,967,199	1,967,199	179,289	179,289
	<u>₩ 1,911,820,094</u>	<u>₩ 1,911,820,094</u>	<u>₩ 1,962,778,889</u>	<u>₩ 1,962,778,889</u>

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	2017		2016	
	Carrying amount	Fair value	Carrying amount	Fair value
Financial liabilities				
Trade and other payables	₩ 646,515,668	₩ 646,515,668	₩ 577,167,908	₩ 577,167,908
Current portion of borrowings and debentures	446,035,026	446,500,412	359,614,920	359,922,540
Derivative liabilities	11,528	11,528	326,389	326,389
Long-term trade and other payables	102,319,680	102,319,680	99,573,427	99,573,427
Long-term borrowings and debentures	898,710,646	900,779,970	826,234,859	832,270,626
	<u>₩ 2,093,592,548</u>	<u>₩ 2,096,127,258</u>	<u>₩ 1,862,917,503</u>	<u>₩ 1,869,260,890</u>

¹ Equity instruments that do not have a quoted price in an active market are measured at cost because their fair value cannot be measured reliably, and are excluded from the fair value disclosures.

² Derivatives that are linked to equity instruments that do not have a quoted price and fair value cannot be measured reliably, and are settled by delivery of the equity instruments, are measured at cost. Thus they are excluded from fair value disclosures.

5.2 Financial Instruments Measured at Cost

Details of financial instruments measured at cost as at December 31, 2017 and 2016, are as follows:

(in thousands of Korean won)

	2017	2016
Available-for-sale financial assets		
Unlisted equities	₩ 10,589,787	₩ 3,087,019
Equity investments	29,969,643	21,887,385
	<u>40,559,430</u>	<u>24,974,404</u>
Derivative assets		
Option	7,177,300	7,177,300
	<u>₩ 47,736,730</u>	<u>₩ 32,151,704</u>

The equity instruments above do not have quoted market prices in active market and fair value cannot be reliably measured; and the derivatives above are linked to the equity instruments, which do not have a quoted price and their fair value cannot be measured reliably, and are settled by delivery of the equity instruments. Therefore, these instruments are measured at cost. The Group does not have any plans to dispose the instruments above in the near future. These instruments will be measured at fair value when the Group is able to develop a reliable estimate of the fair value.

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5.3 Fair Value Hierarchy

Assets and liabilities that are measured at fair value or for which the fair value is disclosed are categorized by the fair value hierarchy, and the defined levels are as follows:

- Quoted prices (unadjusted) in active markets for identical assets or liabilities (Level 1).
- All inputs other than quoted prices included in level 1 that are observable for the asset or liability, either directly (that is, prices) or indirectly (that is, derived from prices) (Level 2).
- Unobservable inputs for the asset or liability (Level 3).

Fair value hierarchy classifications of the financial instruments that are measured at fair value at December 31, 2017 and 2016, are as follows:

(in thousands of Korean won)

	2017			
	Level 1	Level 2	Level 3	Total
Available-for-sale financial assets	₩ 277,464,397	₩ -	₩ 11,615,529	₩ 289,079,926
Derivative assets	-	2,651,067	-	2,651,067
Derivative liabilities	-	11,528	-	11,528

(in thousands of Korean won)

	2016			
	Level 1	Level 2	Level 3	Total
Financial assets at fair value through profit or loss	₩ -	₩ 333,896,454	₩ -	₩ 333,896,454
Available-for-sale financial assets	391,783,237	-	11,682,584	403,465,821
Derivative assets	-	291,976	-	291,976
Derivative liabilities	-	326,389	-	326,389

There have been no transfers between the levels of each fair value hierarchy of financial instruments during the years ended December 31, 2017 and 2016.

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5.4 Changes in Level 3 for Recurring Fair Value Measurements

Changes in level 3 for recurring fair value measurements for the years ended December 31, 2017 and 2016, are as follows:

(in thousands of Korean won)

	2017		2016	
	Available-for-sale financial assets	Available-for-sale financial assets	Available-for-sale financial assets	Derivative liabilities
Beginning balance	₩ 11,682,584	₩ -	₩ -	₩ 94,500
Acquisition	-	11,475,618	-	-
Disposal	-	-	-	(94,500)
Amount recognized in other comprehensive income	(67,055)	206,966	-	-
Ending balance	₩ 11,615,529	₩ 11,682,584	₩ -	₩ -

6. Financial Instruments by Category

6.1 Carrying Amounts of Financial Instruments by Category

Categorizations of financial assets and liabilities as at December 31, 2017 and 2016, are as follows:

(a) Financial assets

(in thousands of
Korean won)

	2017				
	Financial assets at fair value through profit or loss	Available-for- sale financial assets	Loans and receivables	Other ¹	Total
Cash and cash equivalents	₩ -	₩ -	₩ 461,379,842	₩ -	₩ 461,379,842
Other financial assets	-	-	13,300,000	-	13,300,000
Trade and other receivables	-	-	1,113,994,833	-	1,113,994,833
Derivative assets	-	-	-	683,868	683,868
Other non-current financial assets	-	329,639,356	4,904,385	-	334,543,741
Long-term trade and other receivables	-	-	26,510,041	-	26,510,041
Non-current derivative assets	7,177,300	-	-	1,967,199	9,144,499
	₩ 7,177,300	₩ 329,639,356	₩ 1,620,089,101	₩ 2,651,067	₩ 1,959,556,824

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(in thousands of
Korean won)

	2016				
	Financial assets at fair value through profit or loss	Available-for- sale financial assets	Loans and receivables	Other ¹	Total
Cash and cash equivalents	₩ -	₩ -	₩ 257,418,396	₩ -	₩ 257,418,396
Other financial assets	333,896,454	-	14,148,549	-	348,045,003
Trade and other receivables	-	-	926,168,439	-	926,168,439
Derivative assets	-	-	-	112,687	112,687
Other non-current financial assets	-	428,440,224	1,028,000	-	429,468,224
Long-term trade and other receivables	-	-	26,361,254	-	26,361,254
Non-current derivative assets	7,177,300	-	-	179,289	7,356,589
	<u>₩ 341,073,754</u>	<u>₩ 428,440,224</u>	<u>₩ 1,225,124,638</u>	<u>₩ 291,976</u>	<u>₩ 1,994,930,592</u>

¹ Others include derivatives designated as hedging instruments.

(b) *Financial liabilities*

(in thousands of Korean won)

	2017		
	Financial liabilities at amortized cost	Other ¹	Total
Trade and other payables	₩ 646,515,668	₩ -	₩ 646,515,668
Current portion of borrowings and debentures	305,677,145	140,357,881	446,035,026
Derivative liabilities	-	11,528	11,528
Long-term trade and other payables	102,319,680	-	102,319,680
Long-term borrowings and debentures	898,710,646	-	898,710,646
	<u>₩ 1,953,223,139</u>	<u>₩ 140,369,409</u>	<u>₩ 2,093,592,548</u>

(in thousands of Korean won)

	2016		
	Financial liabilities at amortized cost	Other ¹	Total
Trade and other payables	₩ 577,167,908	₩ -	₩ 577,167,908
Current portion of borrowings and debentures	231,309,720	128,305,200	359,614,920
Derivative liabilities	-	326,389	326,389
Long-term trade and other payables	99,573,427	-	99,573,427
Long-term borrowings and debentures	826,234,859	-	826,234,859
	<u>₩ 1,734,285,914</u>	<u>₩ 128,631,589</u>	<u>₩ 1,862,917,503</u>

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¹ Others include financial liabilities related to transfer transactions not qualified for derecognition.

6.2 Net Gains or Losses by Category of Financial Instruments

Net gain or net loss on each category of financial instruments for the years ended December 31, 2017 and 2016, is as follows:

(in thousands of Korean won)	2017					
	Financial instruments at fair value through profit or loss	Available-for- sale financial assets	Loans and receivables	Financial liabilities at amortized cost	Others ¹	Total
Profit or loss						
Impairment loss for trade receivables	₩ -	₩ -	₩ (2,297,289)	₩ -	₩ -	₩ (2,297,289)
Reversal of other bad debt expenses	-	-	33,075	-	-	33,075
Gain on foreign currency translation	-	-	7,532,843	18,113,078	5,237,698	30,883,619
Loss on foreign currency translation	-	-	(23,805,873)	(4,604,154)	(6,532)	(28,416,559)
Interest income (expense)	-	-	4,595,124	(31,661,070)	(3,326,270)	(30,392,216)
Loss on valuation of financial assets at fair value through profit or loss	(126,454)	-	-	-	-	(126,454)
Dividend income	-	5,326,778	-	-	-	5,326,778
Gain on valuation of derivatives	-	-	-	-	1,711,724	1,711,724
Gain on derivatives transactions	-	-	-	-	283,359	283,359
Loss on valuation of derivatives	-	-	-	-	(91,431)	(91,431)
Loss on derivatives transactions	-	-	-	-	(601,169)	(601,169)
	<u>(126,454)</u>	<u>5,326,778</u>	<u>(13,942,120)</u>	<u>(18,152,146)</u>	<u>3,207,379</u>	<u>(23,686,563)</u>
Other comprehensive income ²						
Cash flow hedge	-	-	-	-	839,957	839,957
Loss on valuation of available-for-sale financial assets	-	(114,385,895)	-	-	-	(114,385,895)
	<u>-</u>	<u>(114,385,895)</u>	<u>-</u>	<u>-</u>	<u>839,957</u>	<u>(113,545,938)</u>
	<u>₩ (126,454)</u>	<u>₩ (109,059,117)</u>	<u>₩ (13,942,120)</u>	<u>₩ (18,152,146)</u>	<u>₩ 4,047,336</u>	<u>₩ (137,232,501)</u>

¹ Others include gains or loss on financial liabilities designated as hedged items, financial liabilities related to transfer transactions not qualified for derecognition, and others.

² The amounts are before tax effect.

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(in thousands of Korean won)	2016					
	Financial instruments at fair value through profit or loss	Available-for- sale financial assets	Loans and receivables	Financial liabilities at amortized cost	Others ¹	Total
Profit or loss						
Impairment loss for trade receivables	₩ -	₩ -	₩ (2,106,679)	₩ -	₩ -	₩ (2,106,679)
Gain on foreign currency translation	-	-	15,953,567	1,719,846	-	17,673,413
Loss on foreign currency translation	-	-	(814,374)	(11,127,189)	(5,824,522)	(17,766,085)
Interest income (expense)	-	-	8,329,885	(19,609,033)	(1,659,327)	(12,938,475)
Gain on valuation of financial assets at fair value through profit or loss	15,425	-	-	-	-	15,425
Gain on derivatives transactions	94,500	-	-	-	3,943	98,443
Loss on derivatives transactions	-	-	-	-	(16,109)	(16,109)
Loss on valuation of derivatives	-	-	-	-	(168,015)	(168,015)
Dividend income	-	4,380,604	-	-	-	4,380,604
Gain on disposal of available-for-sale financial assets	-	217,318,268	-	-	-	217,318,268
	<u>109,925</u>	<u>221,698,872</u>	<u>21,362,399</u>	<u>(29,016,376)</u>	<u>(7,664,030)</u>	<u>206,490,790</u>
Other comprehensive income ²						
Cash flow hedge	-	-	-	-	179,289	179,289
Loss on valuation of available-for-sale financial assets	-	(2,573,916)	-	-	-	(2,573,916)
Reclassified to profit or loss	-	(309,246,581)	-	-	-	(309,246,581)
	<u>-</u>	<u>(311,820,497)</u>	<u>-</u>	<u>-</u>	<u>179,289</u>	<u>(311,641,208)</u>
	<u>₩ 109,925</u>	<u>₩ (90,121,625)</u>	<u>₩ 21,362,399</u>	<u>₩ (29,016,376)</u>	<u>₩ (7,484,741)</u>	<u>₩ (105,150,418)</u>

¹ Others include gains or loss on financial liabilities designated as hedged items, financial liabilities related to transfer transactions not qualified for derecognition, and others.

² The amounts are before tax effect.

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7. Transfer of Financial Assets

Details of transferred financial assets that are not derecognized in their entirety as at December 31, 2017 and 2016, are as follows:

<i>(in thousands of Korean won)</i>	2017		2016	
Loans and receivables (trade receivables)				
Carrying amount of assets	₩	140,357,881	₩	128,305,200
Carrying amount of the associated liabilities ¹		(140,357,881)		(128,305,200)
Net position	₩	-	₩	-

¹ The Group raised funds by providing the export trade receivables as collateral and bears recourse for bank until the maturity of the trade receivables.

8. Cash and Cash Equivalents

Cash and cash equivalents as at December 31, 2017 and 2016, are as follows:

<i>(in thousands of Korean won)</i>	2017		2016	
Cash on hand	₩	13,956	₩	8,383
Demand deposits		98,086,079		129,500,141
Other cash and cash equivalents		363,279,807		127,909,872
	₩	461,379,842	₩	257,418,396

Restricted financial instruments as at December 31, 2017 and 2016, are as follows:

<i>(in thousands of Korean won)</i>	2017		2016		Restriction
Cash and cash equivalents	₩	4,054,358	₩	10,372,214	Technology development business agreement and others
Other current financial assets (short-term financial assets)		13,300,000		13,300,000	Deposit for mutual growth of large and small business
Other non-current financial assets (long-term financial assets)		30,000		28,776	Overdraft
	₩	17,384,358	₩	23,700,990	

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9. Other Financial Assets

Details of other financial assets as at December 31, 2017 and 2016, are as follows:

<i>(in thousands of Korean won)</i>	2017		2016	
Current				
Financial assets at fair value through profit or loss	₩	-	₩	333,896,454
Short-term financial instruments		13,300,000		14,148,550
		<u>13,300,000</u>		<u>348,045,004</u>
Non-current				
Available-for-sale financial assets		329,639,356		428,440,224
Long-term financial instruments		4,904,385		1,028,000
		<u>334,543,741</u>		<u>429,468,224</u>
	₩	<u>347,843,741</u>	₩	<u>777,513,228</u>

Changes in available-for-sale financial assets for the years ended December 31, 2017 and 2016, are as follows:

<i>(in thousands of Korean won)</i>	2017		2016	
Beginning balance	₩	428,440,224	₩	772,602,325
Acquisitions		15,585,027		11,475,618
Disposals		-		(62,305,525)
Net gains (losses) reclassified to equity		(114,385,895)		(2,573,916)
Net gains (losses) reclassified from equity		-		(309,246,581)
Acquisition due to business combinations		-		15,401,284
Others		-		3,087,019
Ending balance	₩	<u>329,639,356</u>	₩	<u>428,440,224</u>

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Available-for-sale financial assets as at December 31, 2017 and 2016, consist of:

<i>(in thousands of Korean won)</i>	2017	2016
Listed equity securities ¹		
Korea Aerospace Industries. Ltd.	₩ 277,464,397	₩ 391,783,237
	<u>277,464,397</u>	<u>391,783,237</u>
Unlisted equity securities ²		
AMT Engineering Co. Ltd.	350,000	350,000
nLight	2,737,019	2,737,019
Air Innovation Korea	7,501,000	-
STX Offshore & Shipbuilding Co., Ltd.	1,768	-
	<u>10,589,787</u>	<u>3,087,019</u>
Equity investments ²		
Korea Defense Industry Association	29,522,775	21,522,775
Electric Contractors' Financial Cooperative	104,040	66,540
Information & Communication Financial Cooperative	48,769	48,769
Korea Facilities Construction Financial Cooperative	45,148	45,148
Machinery Financial Cooperative	203,152	203,152
Plant & Mechanical Contractors Financial Cooperative of Korea	44,759	-
Software Financial Cooperative	1,000	1,000
	<u>29,969,643</u>	<u>21,887,384</u>
Beneficiary certificates ³		
	<u>11,615,529</u>	<u>11,682,584</u>
	<u>₩ 329,639,356</u>	<u>₩ 428,440,224</u>

¹ The fair value of listed equity securities are measured using the market price available in an active market.

² Equity securities that do not have a quoted price in an active market are measured at acquisition costs because their fair value cannot be measured reliably.

³ The fair value was measured using the inputs for the asset or liability that are not based on observable market data (that is unobservable inputs).

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10. Trade and Other Receivables

Trade and other receivables as at December 31, 2017 and 2016, are as follows:

<i>(in thousands of Korean won)</i>	2017		2016	
	Current	Non-current	Current	Non-current
Trade receivables	₩ 1,070,672,685	₩ 182,212	₩ 906,637,590	₩ -
Provision for impairment	(10,842,234)	(182,212)	(12,712,365)	-
Non-trade receivables	52,322,167	-	30,373,101	-
Accrued income	79,080	-	19,133	-
Deposits	1,603,135	22,556,552	1,850,980	21,528,952
Loans	160,000	1,036,259	-	1,228,489
Employee loan	-	2,917,230	-	3,603,813
	<u>₩ 1,113,994,833</u>	<u>₩ 26,510,041</u>	<u>₩ 926,168,439</u>	<u>₩ 26,361,254</u>

The Group has transferred trade receivables amounting to ₩ 140,358 million to a bank in exchange for cash for the year ended December 31, 2017. The Group may retain an obligation to compensate a bank for debtors' failure to make payment when they become due; therefore, the transaction has been accounted for as a collateralized borrowing (Note 18).

Movements on the provision for impairment of trade and other receivables for the years ended December 31, 2017 and 2016, are as follows:

<i>(in thousands of Korean won)</i>	2017	2016
Beginning balance	₩ 12,712,365	₩ 8,426,431
Provision for impairment of receivables during the year	2,297,289	2,091,056
Receivables written off during the year as uncollectible	(3,650,729)	(1,464,381)
Changes in scope of consolidation	-	3,623,076
Others	(334,479)	36,183
Ending balance	<u>₩ 11,024,446</u>	<u>₩ 12,712,365</u>

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The aging analysis of the trade receivables as at December 31, 2017 and 2016, is as follows:

<i>(in thousands of Korean won)</i>	2017		2016	
	Gross amount	Provision for impairment	Gross amount	Provision for impairment
Receivables not past due	₩ 952,002,409	₩ (3,840,491)	₩ 757,411,295	₩ (4,070,079)
Less than 6 months	104,249,404	(2,218,941)	131,819,546	(5,494,107)
Between 6 months and 1 years	5,194,490	(1,193,978)	7,939,475	(914,772)
Over 1 years	9,408,594	(3,771,036)	9,467,274	(2,233,407)
	<u>₩ 1,070,854,897</u>	<u>₩ (11,024,446)</u>	<u>₩ 906,637,590</u>	<u>₩ (12,712,365)</u>

The receivables of affiliated company and receivables from military organizations have not been included. The Group has no significant credit risk concentrated to certain customers except for foreign trade receivables; the domestic customers of receivables are diversified.

11. Derivatives

Derivatives as at December 31, 2017 and 2016, consist of:

<i>(in thousands of Korean won)</i>	2017		2016	
	Current	Non-current	Current	Non-current
Derivative assets				
Option ¹	-	7,177,300	-	7,177,300
Interest rate swap-cash flow hedge	-	1,019,246	-	179,289
Currency forward-fair value hedge	683,868	947,953	112,687	-
	<u>₩ 683,868</u>	<u>₩ 9,144,499</u>	<u>₩ 112,687</u>	<u>₩ 7,356,589</u>
Derivatives liabilities				
Currency forward-fair value hedge	₩ 11,528	₩ -	₩ 326,389	₩ -
	<u>₩ 11,528</u>	<u>₩ -</u>	<u>₩ 326,389</u>	<u>₩ -</u>

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¹ Detail of option of derivative assets as at December 31, 2017 and 2016 is as follows:

	Details
Underlying assets	P&W NGPF Manufacturing Company Singapore. Ltd. (Remaining shares, 70%)
Call option exercise price	The price for 70% shares of P&W NGPF Manufacturing Company Singapore. Ltd. at the point of exercise plus \$11,800,000
Call option exercise period	December 1, 2022 ~ December 31, 2026
Owner of call option	Hanwha Techwin Co., Ltd.
Discount rate	Interest curve of treasury bond of Singapore government

Cash flow hedge

As at December 31, 2017, there is no ineffective portion of cash flow hedge recognized as profit or loss for the year.

Fair value hedge

The Group has entered into foreign exchange forward contracts to hedge the risk of volatility in foreign exchange rates between KRW and USD, and between KRW and EUR. The Group applied fair value hedge accounting, recognizing firm commitment assets of ₩ 11,528 thousand and firm commitment liabilities of ₩ 1,624,474 thousand as at December 31, 2017. In addition, the Group also recognized derivative assets of ₩ 1,631,821 thousand and derivative liabilities of ₩ 11,528 thousand as at December 31, 2017. The related valuation gain or loss from contracts was included in gain or loss on foreign currency translation in the statements of comprehensive income.

12. Inventories

Inventories as at December 31, 2017 and 2016, are as follows:

(in thousands of Korean won)

	2017		
	Acquisition cost	Valuation allowance	Carrying amount
Merchandise & finished goods	₩ 126,586,339	₩ (12,604,210)	₩ 113,982,129
Semi-finished goods	84,560,174	(1,542,531)	83,017,643
Work-in-progress	309,224,733	(2,975,061)	306,249,672
Raw materials	272,601,465	(16,485,358)	256,116,107
Supplies	6,478,815	-	6,478,815
Materials-in-transit	49,603,029	-	49,603,029
	<u>₩ 849,054,555</u>	<u>₩ (33,607,160)</u>	<u>₩ 815,447,395</u>

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(in thousands of Korean won)

	2016		
	Acquisition cost	Valuation allowance	Carrying amount
Merchandise & finished goods	₩ 126,037,371	₩ (14,095,583)	₩ 111,941,788
Semi-finished goods	58,246,510	(861,059)	57,385,451
Work-in-progress	319,865,582	(3,223,288)	316,642,294
Raw materials	255,422,449	(17,944,620)	237,477,829
Supplies	6,845,413	-	6,845,413
Materials-in-transit	38,498,661	-	38,498,661
	<u>₩ 804,915,986</u>	<u>₩ (36,124,550)</u>	<u>₩ 768,791,436</u>

Details of cost of inventories recognized as expense and inventory write-down (reversal) recognized in cost of sales as at December 31, 2017 and 2016, are as follows:

(in thousands of Korean won)

	2017	2016
Inventories recognized in cost	₩ 3,449,567,377	₩ 2,804,797,469
Loss on valuation of inventories (reversal)	(2,517,390)	(2,346,814)
	<u>₩ 3,447,049,987</u>	<u>₩ 2,802,450,655</u>

13. Other Assets

Details of other assets as at December 31, 2017 and 2016, are as follows:

(in thousands of Korean won)

	2017		2016	
	Current	Non-current	Current	Non-current
Advanced payments	₩ 363,973,831	₩ -	₩ 415,049,061	₩ -
Prepaid expenses	28,926,758	37,066,892	26,915,907	42,130,816
Firm commitment assets	11,528	-	322,728	-
	<u>₩ 392,912,117</u>	<u>₩ 37,066,892</u>	<u>₩ 442,287,696</u>	<u>₩ 42,130,816</u>

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14. Property, Plant and Equipment

Details of property, plant and equipment as at December 31, 2017 and 2016, are as follows:

	2017					
	Land	Buildings and structures	Machinery	Construction-in-progress and machinery-in-transit	Others	Total
Beginning balance	₩ 805,434,033	₩ 268,226,921	₩ 205,334,379	₩ 28,988,444	₩ 52,083,276	₩ 1,360,067,053
Acquisition	25,508	1,498,151	18,534,926	118,536,266	13,772,856	152,367,707
Disposal	(198,954)	(1,148,468)	(537,695)	(45,000)	(253,709)	(2,183,826)
Depreciation	-	(12,102,003)	(52,104,928)	-	(18,942,232)	(83,149,163)
Others ¹	-	9,185,295	27,013,750	(52,071,303)	15,383,874	(488,384)
Ending balance	₩ 805,260,587	₩ 265,659,896	₩ 198,240,432	₩ 95,408,407	₩ 62,044,065	₩ 1,426,613,387
Acquisition cost	₩ 805,260,587	₩ 406,229,214	₩ 676,638,531	₩ 95,408,407	₩ 229,919,446	₩ 2,213,456,185
Accumulated depreciation	-	(140,569,318)	(473,111,372)	-	(167,840,683)	(781,521,373)
Accumulated impairment loss	-	-	(5,286,727)	-	(34,698)	(5,321,425)

¹ Exchange differences are included.

	2016					
	Land	Buildings and structures	Machinery	Construction-in-progress and machinery-in-transit	Others	Total
Beginning balance	₩ 547,428,739	₩ 197,509,756	₩ 65,901,575	₩ 8,136,224	₩ 25,921,479	₩ 844,897,773
Acquisition	111,450	3,422,161	6,419,925	79,536,751	9,031,639	98,521,926
Disposal	-	(333,072)	(1,106,776)	-	(268,446)	(1,708,294)
Depreciation	-	(9,362,225)	(27,779,431)	-	(12,271,695)	(49,413,351)
Changes in scope of consolidation	257,768,278	50,246,595	126,943,328	12,726,535	21,291,259	468,975,995
Others ¹	125,566	26,743,706	34,955,758	(71,411,066)	8,379,040	(1,206,996)
Ending balance	₩ 805,434,033	₩ 268,226,921	₩ 205,334,379	₩ 28,988,444	₩ 52,083,276	₩ 1,360,067,053
Acquisition cost	₩ 805,434,033	₩ 397,414,100	₩ 643,599,481	₩ 28,988,444	₩ 208,543,063	₩ 2,083,979,121
Accumulated depreciation	-	(129,187,179)	(433,056,810)	-	(156,423,969)	(718,667,958)
Accumulated impairment loss	-	-	(5,208,292)	-	(35,818)	(5,244,110)

¹ Exchange differences are included.

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Line items including depreciation in the consolidated statements of comprehensive income for the years ended December 31, 2017 and 2016, are as follows:

<i>(in thousands of Korean won)</i>	2017		2016	
Cost of sales	₩	59,345,154	₩	37,280,276
Research and development		3,171,266		3,629,506
Selling and administrative expenses		20,632,743		8,503,569
	₩	<u>83,149,163</u>	₩	<u>49,413,351</u>

15. Intangible Assets

Details of intangible assets as at December 31, 2017 and 2016 are as follows:

<i>(in thousands of Korean won)</i>	2017							
	Development cost	Goodwill	Patents and trademarks	Business license for international joint projects	Technical license	Software	Others	Total
Beginning balance	₩ 138,195,144	₩ 461,839,725	₩ 8,914,634	₩ 178,854,068	₩ 30,664,617	₩ 60,945,387	₩ 47,356,349	₩ 926,769,924
Internally generated	55,263,354	-	-	-	-	-	-	55,263,354
Acquisition	-	-	1,998,656	586,342	-	2,950,332	11,565,012	17,100,342
Disposal	-	-	(35,704)	(116,360)	-	-	-	(152,064)
Amortization	(15,763,170)	-	(1,978,893)	(5,338,202)	(2,074,980)	(13,257,953)	(4,157,712)	(42,570,910)
Impairment loss	-	-	-	-	-	-	(736,429)	(736,429)
Others ¹	-	(383,880)	-	-	-	6,158,205	(7,514,990)	(1,740,665)
Ending balance	<u>₩ 177,695,328</u>	<u>₩ 461,455,845</u>	<u>₩ 8,898,693</u>	<u>₩ 173,985,848</u>	<u>₩ 28,589,637</u>	<u>₩ 56,795,971</u>	<u>₩ 46,512,230</u>	<u>₩ 953,933,552</u>
Acquisition cost	₩ 285,208,832	₩ 461,455,845	₩ 22,989,940	₩ 200,354,767	₩ 31,124,700	₩ 95,719,067	₩ 103,770,665	₩ 1,200,623,816
Accumulated amortization ²	(107,513,504)	-	(14,091,247)	(26,368,919)	(2,535,063)	(38,923,096)	(57,258,435)	(246,690,264)

¹ Exchange differences are included.

² Accumulated impairment losses are included.

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	2016							
	Development cost	Goodwill	Patents and trademarks	Business license for international joint projects	Technical license	Software	Others	Total
Beginning balance	₩ 36,497,320	₩ 57,043,889	₩ 8,252,052	₩ 59,573,565	₩ -	₩ 57,203,981	₩ 9,988,873	₩ 228,559,680
Internally generated	9,088,145	-	-	-	-	-	-	9,088,145
Acquisition	2,488,099	1,253,367	1,972,810	123,843,860	31,124,700	1,515,862	13,500,277	175,698,975
Disposal	-	-	(67,362)	-	-	(32,667)	(1,286,012)	(1,386,041)
Amortization	(16,434,659)	-	(1,756,428)	(4,563,357)	(460,083)	(11,424,067)	(2,248,728)	(36,887,322)
Impairment loss	-	-	-	-	-	-	(2,500)	(2,500)
Changes in scope of consolidation	106,573,852	403,408,209	523,282	-	-	1,587,018	38,459,934	550,552,295
Others ¹	(17,613)	134,260	(9,720)	-	-	12,095,260	(11,055,495)	1,146,692
Ending balance	₩ 138,195,144	₩ 461,839,725	₩ 8,914,634	₩ 178,854,068	₩ 30,664,617	₩ 60,945,387	₩ 47,356,349	₩ 926,769,924
Acquisition cost	₩ 229,788,002	₩ 461,839,725	₩ 21,560,916	₩ 199,884,786	₩ 31,124,700	₩ 86,930,923	₩ 100,226,621	₩ 1,131,355,673
Accumulated amortization ²	(91,592,858)	-	(12,646,282)	(21,030,718)	(460,083)	(25,985,537)	(52,870,271)	(204,585,749)

¹ Exchange differences are included.

² Accumulated impairment losses are included.

Intangible assets (excluding goodwill) that have indefinite useful lives as at December 31, 2017 and 2016, consist of:

(in thousands of Korean won)	2017	2016
Golf membership rights	₩ 17,323,721	₩ 17,343,721
Other membership rights	1,844,835	2,520,384
	₩ 19,168,556	₩ 19,864,105

Line items including amortization in the consolidated statements of comprehensive income for the years ended December 31, 2017 and 2016, are as follows:

(in thousands of Korean won)	2017	2016
Cost of sales	₩ 12,454,796	₩ 13,189,022
Research and development	2,875,652	2,343,182
Selling and administrative expenses	27,240,462	21,355,118
	₩ 42,570,910	₩ 36,887,322

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Goodwill is monitored by management at the operating segment level. The table below summarizes goodwill allocation for each operating segment (cash-generating unit).

<i>(in thousands of Korean won)</i>	2017		2016	
Hanwha Defense Systems Corp	₩	272,825,375	₩	272,825,375
Hanwha Systems Co., Ltd.		127,333,294		127,333,294
Goodwill related to Security Solution CGU		57,043,889		57,043,889
Others		4,253,287		4,637,167
	₩	<u>461,455,845</u>	₩	<u>461,839,725</u>

The recoverable amount of all CGUs has been determined based on value-in-use calculations estimated based on financial budgets approved by management covering a five years period of fair value less costs. Value-in-use was measured by discounting the expected future cash flows with appropriate discount rate and the Group used the valuation report by an independent external agency.

As at December 31, 2017, the carrying amount of cash generating units does not exceed the recoverable amount.

16. Investments in Associates

Details of investments in associates of the Group as at December 31, 2017 and 2016, are as follows:

<i>(in thousands of Korean won)</i>			2017		2016	
Name of entity	Location	Main business	Percentage of ownership (%)	Carrying amount	Percentage of ownership (%)	Carrying amount
P&W NGPF Manufacturing Company Singapore. Ltd. ¹	Singapore	Manufacturing Gas Turbine Engine for Aircrafts	30.00%	₩ 41,673,253	30.00%	₩ 28,773,750
Sermatech Korea Co., Ltd.	Korea	Welding of Prisma, etc.	49.00%	6,541,058	49.00%	6,928,091
				<u>₩ 48,214,311</u>		<u>₩ 35,701,841</u>

¹ On September 27, 2016, the Group entered into call option contract relating to 70% shares of P&W NGPF Manufacturing Company Singapore. Ltd. owned by United Technologies International Corporation- Asia Private Limited. Exercise period for the option is from January 1, 2022 to December 31, 2026. (Note 11).

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Movements of investments in associates that are accounted for using the equity method for the years ended December 31, 2017 and 2016, are as follows:

<i>(in thousands of Korean won)</i>	2017					
	Beginning balance	Acquisition	Share of profit of associates	Share of other comprehensive income of associates	Others ¹	Total
P&W NGPF Manufacturing Company Singapore. Ltd.	₩ 28,773,750	₩ 9,563,648	₩ 4,894,989	₩ (1,559,134)	₩ -	₩ 41,673,253
Sermatech Korea Co., Ltd.	6,928,091	-	2,840,659	-	(3,227,692)	6,541,058
	<u>₩ 35,701,841</u>	<u>₩ 9,563,648</u>	<u>₩ 7,735,648</u>	<u>₩ (1,559,134)</u>	<u>₩ (3,227,692)</u>	<u>₩ 48,214,311</u>

¹ Others include dividends.

<i>(in thousands of Korean won)</i>	2016				
	Beginning balance	Acquisition	Share of profit of associates	Others ¹	Total
P&W NGPF Manufacturing Company Singapore. Ltd.	₩ -	₩ 28,343,176	₩ 430,574	₩ -	₩ 28,773,750
Sermatech Korea Co., Ltd.	7,395,607	-	3,227,758	(3,695,274)	6,928,091
Hanwha Systems Co., Ltd. ²	222,292,056	-	3,534,112	(225,826,168)	-
	<u>₩ 229,687,663</u>	<u>₩ 28,343,176</u>	<u>₩ 7,192,444</u>	<u>₩ (229,521,442)</u>	<u>₩ 35,701,841</u>

¹ Others include dividends and remeasurements of defined benefits liabilities of associates.

² As the Group additionally acquired shares of Hanwha Systems Co., Ltd., it was reclassified to subsidiary, and included in the scope of consolidation.

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The tables below provide summarized financial information for those associates and dividends received from the associates.

	2017							
	Current assets	Non-current assets	Current liabilities	Non-current liabilities	Revenue	Profit for the year	Total comprehensive income	Dividends received from associates
P&W NGPF Manufacturing Company Singapore. Ltd.	₩ 63,205,169	₩ 93,090,559	₩ 18,945,465	₩ -	₩ 43,683,089	₩ 16,316,629	₩ 11,119,516	₩ -
Sermatech Korea Co., Ltd.	12,774,641	12,700,007	7,097,545	5,028,005	32,421,254	5,775,956	5,775,956	3,227,692

	2016							
	Current assets	Non-current assets	Current liabilities	Non-current liabilities	Revenue	Profit for the year	Total comprehensive income	Dividends received from associates
P&W NGPF Manufacturing Company Singapore. Ltd.	₩ 33,549,605	₩ 79,081,151	₩ 18,192,991	₩ -	₩ 9,911,680	₩ 1,435,247	₩ 1,435,247	₩ -
Sermatech Korea Co., Ltd.	15,080,256	10,347,758	6,783,533	4,505,519	30,805,277	6,565,820	6,565,820	3,695,274

Details of adjustments from financial information of associates to the carrying amount of investments in associates as at December 31, 2017 and 2016, are as follows:

	2017				
	Net asset	Ownership interests held by the Group	Interest in net asset	Difference between investment and interest in net asset	Carrying amount
P&W NGPF Manufacturing Company Singapore. Ltd.	₩ 137,350,263	30.00%	₩ 41,205,079	₩ 468,174	₩ 41,673,253
Sermatech Korea Co., Ltd.	13,349,098	49.00%	6,541,058	-	6,541,058

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	2016				
	Net asset	Ownership interests held by the Group	Interest in net asset	Difference between investment and interest in net asset	Carrying amount
P&W NGPF Manufacturing Company Singapore, Ltd.	₩ 94,437,765	30.00%	₩ 28,331,330	₩ 442,420	₩ 28,773,750
Sermatech Korea Co., Ltd.	14,138,962	49.00%	6,928,091	-	6,928,091

17. Trade and Other Payables

Trade and other payables as at December 31, 2017 and 2016, are as follows:

(in thousands of Korean won)

	2017		2016	
	Current	Non-current	Current	Non-current
Trade payables	₩ 408,860,808	₩ 36,408,646	₩ 371,154,184	₩ 17,733,852
Non-trade payables	100,438,510	62,469,657	77,998,043	78,878,034
Accrued expenses	122,156,801	-	115,314,798	-
Withholdings	15,059,549	-	12,700,883	-
Deposits received	-	3,441,377	-	2,961,541
	<u>₩ 646,515,668</u>	<u>₩ 102,319,680</u>	<u>₩ 577,167,908</u>	<u>₩ 99,573,427</u>

18. Borrowings and Debentures

Details of debentures as at December 31, 2017 and 2016, are as follows:

(in thousands of Korean won)

	Date of issuance	Date of maturity	Annual interest rate (%)	2016	
				2017	2016
The 115-1st non-guarantee debentures	2015.11.26	2018.11.26	2.49	₩ 70,000,000	₩ 70,000,000
The 115-2nd non-guarantee debentures	2015.11.26	2020.11.26	2.79	30,000,000	30,000,000
The 116-1st non-guarantee debentures	2016.06.22	2019.06.22	1.93	110,000,000	110,000,000
The 116-2nd non-guarantee debentures	2016.06.22	2021.06.22	2.20	40,000,000	40,000,000
The 117th private bonds	2016.08.30	2019.08.30	1.88	70,000,000	70,000,000
The 118th public bonds	2016.10.28	2019.10.28	2.07	100,000,000	100,000,000
The 1st non-guarantee private bonds	2017.09.28	2019.09.27	2.27	30,000,000	-
				<u>450,000,000</u>	<u>420,000,000</u>
Less: discount of debentures				(926,689)	(1,326,319)
Less: current portion of debentures				(69,910,408)	-
				<u>₩379,162,903</u>	<u>₩418,673,681</u>

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Details of short-term borrowings as at December 31, 2017 and 2016, are as follows:

(in thousands of Korean won)

Lender	Details	Annual interest rate (%)	Annual interest	
			2017	2016
Kookmin Bank	General operating fund	2.67~2.77	₩ 70,000,000	₩ 70,000,000
Korea Development Bank	General operating fund	2.62	50,000,000	100,000,000
Bank of China	General operating fund	2.40	20,000,000	20,000,000
Woori Bank	General operating fund	2.65	6,000,000	-
Shinhan Bank	General operating fund	2.69	30,000,000	8,459,500
Hanwha International LLC	General operating fund	3.48	2,142,800	-
Shinhan Bank New York Agency	General operating fund	2.84	4,285,600	-
			<u>₩182,428,400</u>	<u>₩198,459,500</u>

The Group sold trade receivables to Woori Bank and three other banks in accordance with foreign currency purchase agreement and other similar agreements. The amount of receivables which is not due in maturity is recorded as short-term borrowings. Related short-term borrowings as at December 31, 2017 and 2016 are ₩ 140,358 million and ₩ 128,305 million, respectively.

Details of long-term borrowings as at December 31, 2017 and 2016, are as follows:

(in thousands of Korean won)

Lender	Details	Annual interest rate (%)	Annual interest	
			2017	2016
NH National Agricultural Cooperative Federation	Munitions industry fund General operating fund	1.73~2.00 2.73	₩ 7,561,178 50,000,000	₩ 10,411,398 -
Woori Bank	General operating fund	2.77	50,000,000	50,000,000
Korea Development Bank ¹	Facility loans	2.61~2.76	200,000,000	150,000,000
Samsung fire & Marine Insurance Co., Ltd.	Facility loans	2.67	30,000,000	30,000,000
KH 3rd L.C.C.	Facility loans	2.69	70,000,000	100,000,000
Sunny Dream 5th Co., Ltd.	General operating fund	2.47	50,000,000	50,000,000
Kookmin Bank ²	Facility loans	2.83~2.85	100,000,000	50,000,000
Woori Bank Hong Kong	Facility loans	2.81~2.87	14,945,930	-
Woori Bank Vietnam	Facility loans	2.87	378,972	-
			<u>572,886,080</u>	<u>440,411,398</u>
Less: current portion of long-term liabilities			<u>(53,338,338)</u>	<u>(32,850,220)</u>
			<u>₩519,547,742</u>	<u>₩407,561,178</u>

¹ In relation to the borrowing, 10,200,000 shares in Hanwha Defense Systems Corp. are provided as collateral to Korea Development Bank (Note 34).

² The Group entered into interest rate swaps to hedge the cash flow interest rate risk in relation to borrowings (Note 11).

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19. Other Liabilities

Details of other liabilities as at December 31, 2017 and 2016, are as follows:

<i>(in thousands of Korean won)</i>	2017	2016
Advances	₩ 873,472,899	₩ 899,529,465
Provisions ¹	74,942,724	62,589,806
Unearned revenues	3,348	2,584
Firm commitment liabilities	1,624,474	98,990
	<u>₩ 950,043,445</u>	<u>₩ 962,220,845</u>

¹ Provisions include product warranty, construction warranty and legal claims

Changes in provisions for the years ended December 31, 2017 and 2016, are as follows:

<i>(in thousands of Korean won)</i>	2017	2016
Beginning balance	₩ 62,589,806	₩ 60,852,963
Changes in scope of consolidation	-	3,687,125
Increases	32,140,270	18,539,930
Decrease	(19,787,352)	(20,490,212)
Ending balance	<u>₩ 74,942,724</u>	<u>₩ 62,589,806</u>

20. Employee Benefits Liabilities

Details of employee benefits liabilities recognized in the statements of financial position as at December 31, 2017 and 2016, are as follows:

<i>(in thousands of Korean won)</i>	2017	2016
Net defined benefit liabilities	₩ 306,062,939	₩ 296,301,972
Other long-term employee benefits	26,314,788	27,412,296
	<u>₩ 332,377,727</u>	<u>₩ 323,714,268</u>

(a) Net defined benefit liabilities

Details of net defined benefit liabilities recognized as at December 31, 2017 and 2016, are as follows:

<i>(in thousands of Korean won)</i>	2017	2016
Present value of funded defined benefit obligations	₩ 413,418,440	₩ 403,154,099
Fair value of plan assets	(107,355,501)	(106,852,127)
Net defined benefit liabilities	<u>₩ 306,062,939</u>	<u>₩ 296,301,972</u>

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Movements in the defined benefit obligations for the years ended December 31, 2017 and 2016, are as follows:

<i>(in thousands of Korean won)</i>		2017		2016
Beginning balance	₩	403,154,099	₩	256,289,994
Current service cost		47,207,436		37,099,064
Interest expense		14,885,157		10,030,857
Remeasurements:				
Actuarial loss from change in demographic assumptions		476,924		7,380,057
Actuarial gain from change in financial assumptions		(13,835,814)		(37,683,814)
Actuarial loss (gain) from experience adjustments		(7,978,871)		14,478,060
Changes in scope of consolidation		-		137,805,760
Benefit payments		(29,985,191)		(27,926,643)
Others ¹		(505,300)		5,680,764
Ending balance	₩	<u>413,418,440</u>	₩	<u>403,154,099</u>

¹ Amounts transferred between affiliates are included.

Movements in the fair value of plan assets for the years ended December 31, 2017 and 2016, are as follows:

<i>(in thousands of Korean won)</i>		2017		2016
Beginning balance	₩	106,852,127	₩	38,733,376
Interest income		3,908,304		2,023,235
Remeasurements:				
Income of plan asset		(2,402,390)		(1,039,841)
Contributions		5,000,000		2,000,000
Changes in scope of consolidation		-		69,434,174
Benefit payments		(5,921,473)		(4,938,165)
Others ¹		(81,067)		639,348
Ending balance	₩	<u>107,355,501</u>	₩	<u>106,852,127</u>

¹ Amounts transferred between affiliates are included.

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Plan assets as at December 31, 2017 and 2016, consist of:

<i>(in thousands of Korean won)</i>	2017		2016	
Severance insurance bonds	₩	106,804,071	₩	106,273,932
Others ¹		551,430		578,195
	₩	<u>107,355,501</u>	₩	<u>106,852,127</u>

¹ Contributions to the National Pension Fund are included.

The expenses recognized as profit or loss for the years ended December 31, 2017 and 2016, are as follows:

<i>(in thousands of Korean won)</i>	2017		2016	
Current service cost	₩	47,207,436	₩	37,099,064
Net interest cost		10,976,853		8,007,622
	₩	<u>58,184,289</u>	₩	<u>45,106,686</u>

Line items including total expenses in the consolidated statements of comprehensive income the years ended December 31, 2017 and 2016, are as follows:

<i>(in thousands of Korean won)</i>	2017		2016	
Cost of sales	₩	36,020,209	₩	25,451,060
Selling and administrative expenses		14,029,344		11,265,110
Research and development		8,134,736		8,390,516
	₩	<u>58,184,289</u>	₩	<u>45,106,686</u>

The significant actuarial assumptions as at December 31, 2017 and 2016, are as follows:

	2017	2016
Discount rate	4.01~4.28%	3.67~4.09%
Salary growth rate	3.00~4.70%	3.00~4.68%

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The sensitivity analysis of the defined benefit obligation to changes in the principal assumptions is as follows:

<i>(in thousands of Korean won)</i>	Changes in assumption	Impact on defined benefit obligation	
		Increase in assumption	Decrease in assumption
Discount rate	1% Increase/Decrease	₩ (35,218,372)	₩ 40,953,689
Salary growth rate	1% Increase/Decrease	41,180,324	(36,030,570)

The above sensitivity analyses are based on change in an assumption while holding all other assumptions constant. The sensitivity of the defined benefit obligation to changes in principal actuarial assumptions is measured using the projected unit credit method, the same method applied when calculating the defined benefit obligations recognized in the statement of financial position.

The methods and types of assumptions used in preparing the sensitivity analysis has not changed compared to the prior period.

The Group reviews the funding level on an annual basis and has a policy of eliminating deficit from the fund.

Expected contributions to post-employment benefit plans for the year ending December 31, 2018, are ₩ 58,093,726 thousand.

The expected maturity analysis of undiscounted pension benefits as at December 31, 2017, is as follows:

<i>(in thousands of Korean won)</i>	Less than 1 year	Between 1 year and 2 years	Between 2 years and 5 years	Over 5 years	Total
Pension benefits	₩ 46,047,804	₩ 36,567,436	₩ 95,839,919	₩ 1,403,959,696	₩ 1,582,414,855

The weighted average duration of the defined benefit obligation is 10.42~11.51 years.

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21. Tax expense and Deferred tax

Income tax expense for the years ended December 31, 2017 and 2016, consists of:

<i>(in thousands of Korean won)</i>	2017	2016
Current tax:		
Current tax on profits for the year	₩ 34,777,134	₩ 87,356,129
Adjustments in respect of prior years	40,772,148	(6,432,792)
	<u>75,549,282</u>	<u>80,923,337</u>
Deferred tax:		
Origination and reversal of temporary differences	(10,049,751)	(8,289,329)
	<u>(10,049,751)</u>	<u>(8,289,329)</u>
Income tax expense	<u>₩ 65,499,531</u>	<u>₩ 72,634,008</u>

The tax on the Group's profit before tax differs from the theoretical amount that would arise using the weighted average tax rate applicable to profits of the consolidated entities as follows:

<i>(in thousands of Korean won)</i>	2017	2016
Profit before income tax expense	₩ 17,751,452	₩ 418,503,278
Tax at domestic tax rates applicable to profits in the respective countries	9,961,652	92,769,230
Tax effects of:		
Income not subject to tax	(6,304,888)	(2,184,468)
Expenses not deductible for tax purposes	2,589,490	1,512,684
Tax credit and tax cut	(4,046,931)	(19,811,835)
Income tax on effects of the tax refund	(4,529,489)	9,150,514
Adjustment in respect of prior years	40,772,148	(6,432,791)
Effect of unrecognized deferred tax	23,872,949	6,376,178
Others	3,184,600	(8,745,503)
Current adjustments	<u>55,537,879</u>	<u>(20,135,221)</u>
Income tax expense	<u>₩ 65,499,531</u>	<u>₩ 72,634,009</u>
Effective tax rate	369.0%	17.4%

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The aggregate current and deferred tax relating to items that are charged or credited directly to equity for the years ended December 31, 2017 and 2016, are as follows:

<i>(in thousands of Korean won)</i>	2017		
	Before tax	Tax effect	After tax
Remeasurements of net defined benefit liabilities	₩ 18,935,371	₩ (4,563,940)	₩ 14,371,431
Changes in the fair value of derivatives for cash flow hedge	839,957	(203,270)	636,687
Remeasurements of net defined benefit liabilities of associates	-	-	-
Share of other comprehensive income of associates and joint ventures	(1,559,134)	-	(1,559,134)
Exchange difference	(11,560,533)	-	(11,560,533)
Changes in the fair value of available-for-sale financial assets	(114,385,895)	27,681,387	(86,704,508)
	<u>₩ (107,730,234)</u>	<u>₩ 22,914,177</u>	<u>₩ (84,816,057)</u>

<i>(in thousands of Korean won)</i>	2016		
	Before tax	Tax effect	After tax
Remeasurements of net defined benefit liabilities	₩ 14,785,856	₩ (3,578,177)	₩ 11,207,679
Changes in the fair value of derivatives for cash flow hedge	179,289	(43,388)	135,901
Remeasurements of net defined benefit liabilities of associates	(5,559,410)	(640,694)	(6,200,104)
Share of other comprehensive income of associates and joint ventures	-	-	-
Exchange difference	(4,455,588)	-	(4,455,588)
Changes in the fair value of available-for-sale financial assets	(309,246,581)	74,866,354	(234,380,227)
	<u>₩ (304,296,434)</u>	<u>₩ 70,604,095</u>	<u>₩ (233,692,339)</u>

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The movement in deferred tax assets and liabilities during the year, without taking into consideration the offsetting of balances within the same tax jurisdiction, is as follows:

<i>(in thousands of Korean won)</i>	2017							
	Beginning balance		Statement of profit or loss		Equity	Ending balance		
Defined benefit obligations	₩	68,989,465	₩	6,662,233	₩	(4,563,940)	₩	71,087,758
Available-for-sale financial assets		(81,996,132)		-		27,681,387		(54,314,745)
Temporary differences and consolidation adjustments of subsidiaries		(33,453,373)		3,361,146		-		(30,092,227)
Depreciation		4,894,021		(1,669,154)		-		3,224,867
Provisions		16,041,775		549,353		-		16,591,128
Provision for impairment		914,169		52,866		-		967,035
Loss on valuation of inventories		5,705,134		(1,176,213)		-		4,528,921
Accrued expenses and others		24,859,130		(4,226,965)		-		20,632,165
Long-term employee benefits and others		4,655,705		(1,214,110)		-		3,441,595
Gain on revaluation		(116,718,942)		42,087,319		-		(74,631,623)
Deferred tax credit		41,994,336		(16,098,720)		-		25,895,616
Deferred tax losses		-		13,305,434		-		13,305,434
Others		14,946,114		(31,583,439)		(203,270)		(16,840,595)
	₩	(49,168,598)	₩	10,049,750	₩	22,914,177	₩	(16,204,671)

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<i>(in thousands of Korean won)</i>	2016					
	Beginning balance	Statement of profit or loss	Equity	Changes in scope of consolidation	Ending balance	
Defined benefit obligations	₩ 50,250,269	₩ 8,483,125	₩ (3,578,177)	₩ 13,834,248	₩ 68,989,465	
Available-for-sale financial assets	(162,796,458)	6,086,824	74,713,502	-	(81,996,132)	
Temporary differences and consolidation adjustments of subsidiaries	(4,351,387)	9,911,907	(487,842)	(38,526,051)	(33,453,373)	
Depreciation	4,825,802	68,219	-	-	4,894,021	
Provisions	2,812,876	5,807,415	-	7,421,484	16,041,775	
Provision for impairment	321,135	(3,766,180)	-	4,359,214	914,169	
Loss on valuation of inventories	3,976,085	(510,411)	-	2,239,460	5,705,134	
Accrued expenses and others	21,217,360	(586,726)	-	4,228,496	24,859,130	
Long-term employee benefits and others	12,893,514	(8,237,809)	-	-	4,655,705	
Gain on revaluation	(99,124,668)	-	-	(17,594,274)	(116,718,942)	
Deferred tax credit	44,820,176	(11,351,053)	-	8,525,213	41,994,336	
Others	10,558,679	2,384,018	(43,388)	2,046,805	14,946,114	
	<u>₩ (114,596,617)</u>	<u>₩ 8,289,329</u>	<u>₩ 70,604,095</u>	<u>₩ (13,465,405)</u>	<u>₩ (49,168,598)</u>	

The Group evaluates the realizability of deferred tax assets considering various factors such as performance of subsidiaries, outlook of overall economic circumstances and industry, specific plans of disposal and others. The Group reviews such matters periodically. As at December 31, 2017, the Group did not recognize ₩ 222,061 million of deductible temporary differences which are unrealizable and ₩ 25,297 of deferred tax credit as deferred tax assets. The amounts may change if estimation of future taxable income and plan of the Group changes.

The maturity of unused tax credit is as follows:

<i>(in thousands of Korean won)</i>	Amount
2020	₩ 3,426,133
2021	13,411,277
2022	8,459,703

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22. Share Capital and Capital Surplus

The Controlling Company's total number of authorized shares is 200,000,000 shares and the total number of ordinary shares issued is 53,130,000 shares with a par value of ₩ 5,000 per share. The Controlling Company retired 530,000 shares acquired at ₩ 25,035 million by offsetting these against retained earnings in 2017. As a result of these retirements, differences of ₩ 2,650 million occurred between the total par value of the shares issued and the share capital.

Details of capital surplus as at December 31, 2017 and 2016, are as follows:

<i>(in thousands of Korean won)</i>	2017	2016
Share premium	₩ 187,179,336	₩ 187,179,336
Other capital surplus	(360,752)	1,279,774
	<u>₩ 186,818,584</u>	<u>₩ 188,459,110</u>

23. Accumulated Other Comprehensive Income

Accumulated comprehensive income as at December 31, 2017 and 2016, are as follows:

<i>(in thousands of Korean won)</i>	2017	2016
Changes in the fair value of available-for-sale financial assets	₩ 141,721,659	₩ 228,426,167
Revaluation surplus	310,481,398	310,481,398
Cash flow hedge	772,588	135,901
Exchange differences	(15,615,900)	(4,152,221)
Share of other comprehensive income of associates	(1,559,134)	-
	<u>₩ 435,800,611</u>	<u>₩ 534,891,245</u>

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Changes in accumulated other comprehensive income for the years ended December 31, 2017 and 2016, are as follows:

(in thousands of Korean won)

	2017			
	Beginning balance	Increase (decrease)	Reclassification to profit or loss for the year	Ending balance
Changes in the fair value of available-for-sale financial assets	₩ 228,426,167	₩ (86,704,508)	₩ -	₩ 141,721,659
Revaluation surplus	310,481,398	-	-	310,481,398
Cash flow hedge	135,901	636,687	-	772,588
Exchange differences	(4,152,221)	(11,463,679)	-	(15,615,900)
Share of other comprehensive income of associates	-	(1,559,134)	-	(1,559,134)
	<u>₩ 534,891,245</u>	<u>₩ (99,090,634)</u>	<u>₩ -</u>	<u>₩ 435,800,611</u>

(in thousands of Korean won)

	2016			
	Beginning balance	Increase (decrease)	Reclassification to profit or loss for the year	Ending balance
Changes in the fair value of available-for-sale financial assets	₩ 462,806,395	₩ (49,609,610)	₩ (184,770,618)	₩ 228,426,167
Revaluation surplus	310,481,398	-	-	310,481,398
Cash flow hedge	-	135,901	-	135,901
Exchange differences	227,958	(4,380,179)	-	(4,152,221)
	<u>₩ 773,515,751</u>	<u>₩ (53,853,888)</u>	<u>₩ (184,770,618)</u>	<u>₩ 534,891,245</u>

Above changes in accumulated other comprehensive income are net of tax.

24. Retained Earnings

Retained earnings as at December 31, 2017 and 2016, consist of:

(in thousands of Korean won)

	2017		2016	
Legal reserves	₩	30,916,736	₩	30,916,736
Discretionary reserves		1,114,577,871		795,645,066
Retained earnings before appropriation		145,623,387		523,465,551
	<u>₩</u>	<u>1,291,117,994</u>	<u>₩</u>	<u>1,350,027,353</u>

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25. Construction Contracts

Changes in the remaining balance of construction contracts for the years ended December 31, 2017 and 2016 are as follows:

(in thousands of Korean won)

	2017			
	Beginning balance	Increase (Decrease)	Sales	Ending balance
Energy machinery	₩ 40,971,661	₩ 55,157,909	₩ (53,605,654)	₩ 42,523,916
Security	19,551,333	138,971	(8,833,889)	10,856,415
Defense	1,544,564,376	951,988,372	(769,006,089)	1,727,546,659

(in thousands of Korean won)

	2016			
	Beginning balance	Increase (Decrease)	Sales	Ending balance
Energy machinery	₩ 34,780,898	₩ 45,287,175	₩ (39,096,412)	₩ 40,971,661
Security	7,119,538	54,931,447	(42,499,652)	19,551,333
Defense	1,212,798,690	550,955,287	(219,189,601)	1,544,564,376

Details of recognized construction profit or loss for ongoing construction contracts as at December 31, 2017 and 2016, are as follows:

(in thousands of Korean won)

	2017				
	Accumulated contract revenue	Accumulated contract cost	Accumulated profit or loss	Advance received	Retention
Energy machinery	₩ 147,776,127	₩ 133,227,963	₩ 14,548,164	₩ 361,939	₩ -
Security	61,509,862	60,902,549	607,313	21,916	269,450
Defense	2,949,236,611	2,658,982,763	290,253,848	302,689,984	-

(in thousands of Korean won)

	2016			
	Accumulated contract revenue	Accumulated contract cost	Accumulated profit or loss	Advance received
Energy machinery	₩ 94,156,154	₩ 89,075,900	₩ 5,080,254	₩ 351,957
Security	59,584,474	48,880,540	10,703,934	10,361
Defense	2,677,179,779	2,476,851,450	200,328,329	243,484,246

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Amounts due from and due to customers for contract work as at December 31, 2017 and 2016, are as follows:

<i>(in thousands of Korean won)</i>	2017			2016		
	Due from customers ¹	Due to customers ²	Provisions for expected losses ³	Due from customers ¹	Due to customers ²	Provisions for expected losses ³
Energy machinery	₩ 45,444,205	₩ 361,939	₩ -	₩ 28,693,867	₩ 351,957	₩ 4,047,476
Security	10,996,692	21,916	2,256,462	23,988,489	10,361	-
Defense	251,165,977	174,398,305	12,573,980	225,753,742	135,638,057	23,624,121

¹ Amounts due from customers for contract work are recognized as trade receivables in the statement of financial position.

² Amounts due to customers for contract work are recognized as advance received in the statement of financial position.

³ Amounts provisions for expected losses are recognized as advance received in the statement of financial position.

Due to the factors causing the rise in costs in 2017, the estimated total revenue and estimated total costs for contracts in progress have changed. Details of changes in estimated total contract costs, profits or loss for the year and the succeeding year, and the impact on due from customers for contract work are as follows:

<i>(in thousands of Korean won)</i>	Changes in estimated total contract revenue	Changes in estimated total contract costs	Impact on profit or loss for the year	Impact on profit or loss for the succeeding year	Changes in due from customers for contract work
Energy machinery	₩ 795,592	₩ (220,153)	₩ 378,940	₩ 636,805	₩ 378,940
Security	(9,297,832)	4,618,523	(11,890,119)	(2,026,236)	(11,890,119)
Defense	21,895,493	9,863,172	6,132,508	5,899,813	6,132,508
	<u>₩ 13,393,253</u>	<u>₩ 14,261,542</u>	<u>₩ (5,378,671)</u>	<u>₩ 4,510,382</u>	<u>₩ (5,378,671)</u>

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As at December 31, 2017, the information on major contracts for which the contract revenue amount is 5% or more of the previous fiscal year sales is as follows.

(in thousands of Korean won)	Contract date	Construction due date	Progress rate	Due from customers		Due to customers	
				Gross amount	Provision for impairment	Gross amount	Provision for impairment
Contract A	2009.09.30	2020.10.31	77.61%	₩ 6,013,771	₩ -	₩ -	₩ -
Contract B	2011.12.26	2017.11.30	100%	-	-	-	-
Contract C	2012.12.28	2017.12.20	100%	-	-	-	-
Contract D	2012.12.28	2017.11.10	99.93%	-	-	-	-
Contract E	2014.12.26	2017.12.20	99.75%	-	-	-	-
Contract F	2014.12.31	2019.11.30	89.19%	-	-	7,184,616	-
Contract G	2015.01.28	2020.02.25	64.72%	77,789,917	-	48,102,948	-
Contract H	2015.12.31	2017.07.31	100%	-	-	-	-
Contract I	2016.07.25	2026.05.29	7.34%	-	-	-	-
Contract J	2017.12.29	2019.12.31	46.33%	22,849,296	-	-	-
				<u>₩ 106,652,984</u>	<u>₩ -</u>	<u>₩ 55,287,564</u>	<u>₩ -</u>

26. Non-current Assets and Liabilities Held for Sale

The Group plans to dispose the non-business purpose real estate in order to improve the asset quality.

(in thousands of Korean won)	2017	2016
Property, plant and equipment	₩ 37,376,819	₩ 37,376,819

In accordance with Korean IFRS 1105, the net fair value of the assets and liabilities held for sale were measured. The Group did not recognize impairment losses on the assets and liabilities held for sale since the net fair value exceeded the carrying amount.

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27. Operating Segment Information

The Group classifies its operating segments by nature of products. Revenue-generating goods and services, and major clients by operating segment are summarized as follows:

	Major products and services	Major customers
Aerospace engine	Manufacture of engine and components for aircraft	Ministry of Defense, Pratt and Whitney, General Electric and foreign others
Defense	Defense machinery and construction contracts	Defense Acquisition Program Administration and foreign others
Security	Manufacture and sale of CCTV, Lead frame and others, construction contracts	Samsung Electronics Co., Ltd. and foreign others
Energy machinery	Manufacture and sale of industrial energy machinery	Domestic and foreign others
Industrial machinery	Sale of SMT and others	Samsung Electronics Co., Ltd. and foreign others

Financial performance by each service provided for the years ended December 31, 2017 and 2016, are as follows:

<i>(in thousands of Korean won)</i>	2017					
	Aerospace engine	Defense	Security	Energy machinery	Industrial machinery	Total
Revenues	₩ 942,828,774	₩2,239,616,327	₩ 580,618,934	₩ 199,052,493	₩ 253,354,914	₩ 4,215,471,442
Operating profit (loss)	(17,558,069)	103,670,851	(21,276,039)	(3,205,859)	21,277,688	82,908,572
Reportable segment profit (loss) before tax	(36,047,855)	86,023,052	(40,285,947)	(6,975,226)	15,037,428	17,751,452
Reportable segment profit (loss) for the year	19,175,180	(65,067,608)	2,481,202	5,629,644	(9,966,497)	(47,748,079)
Reportable segment interest income	1,243,009	1,676,804	828,882	478,283	368,146	4,595,124
Reportable segment interest expenses	11,181,589	13,588,594	6,402,295	2,155,198	1,659,664	34,987,340
Reportable segment depreciation ¹	34,046,191	68,547,124	16,467,146	3,730,679	2,928,932	125,720,072
Reportable segment assets	2,273,802,320	2,742,432,044	382,429,817	214,026,196	134,882,784	5,747,573,161
Reportable segment liabilities	1,528,239,152	1,676,843,970	209,319,171	91,201,182	61,016,465	3,566,619,940

¹ Total amount of depreciation of property, plant and equipment and amortization of intangible assets.

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<i>(in thousands of Korean won)</i>	2016²					
	Aerospace engine	Defense	Security	Energy machinery	Industrial machinery	Total
Revenues	₩ 1,050,911,457	₩ 1,463,857,112	₩ 637,816,468	₩ 196,952,392	₩ 169,339,236	₩ 3,518,876,665
Operating profit (loss)	38,561,054	108,020,294	32,822,013	(12,968,622)	(15,708,323)	150,726,416
Reportable segment profit (loss) before tax	108,562,912	227,098,694	80,845,066	2,789,136	(792,530)	418,503,278
Reportable segment profit (loss) for the year	93,349,636	189,018,862	61,823,279	2,398,285	(720,793)	345,869,269
Reportable segment interest income	2,726,302	2,550,603	1,883,901	510,510	658,569	8,329,885
Reportable segment interest expenses	8,387,449	5,334,704	4,681,471	1,247,096	1,617,640	21,268,360
Reportable segment depreciation ¹	30,359,318	32,343,494	14,969,263	4,539,023	4,089,575	86,300,673
Reportable segment assets	2,542,020,330	2,462,590,885	405,252,666	139,507,689	103,066,796	5,652,438,366
Reportable segment liabilities	1,681,852,745	1,244,860,209	222,642,390	102,793,208	59,525,199	3,311,673,751

¹ Total amount of depreciation of property, plant and equipment and amortization of intangible assets.

² Amounts are stated based on categories of operating segment in 2017.

Financial performance by each region for the years ended December 31, 2017 and 2016, are as follows:

<i>(in thousands of Korean won)</i>	2017		2016	
	Sales	Non-current assets ¹	Sales	Non-current assets ¹
Domestic	₩ 3,803,003,429	₩ 2,339,098,449	₩ 3,147,131,217	₩ 1,715,516,433
America	234,218,935	5,482,050	212,829,365	5,855,572
Europe	88,080,035	736,193	88,455,443	788,502
Asia	90,169,043	35,230,247	70,460,640	3,782,577
	<u>₩ 4,215,471,442</u>	<u>₩ 2,380,546,939</u>	<u>₩ 3,518,876,665</u>	<u>₩ 1,725,943,084</u>

¹ Property, plant and equipment and intangible assets are included.

Revenues of approximately 41% (2016: 41%), over 10% of the Group's revenue, are derived from a single external customers.

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28. Selling and Administrative Expenses

Details of selling and administrative expenses for the years ended December 31, 2017 and 2016, are as follows:

<i>(in thousands of Korean won)</i>	2017	2016
Salaries and allowances	₩ 152,972,874	₩ 124,723,071
Bonuses	20,047,986	9,816,647
Post-employment benefits	14,029,344	11,559,376
Employee welfare benefits	21,393,872	18,739,683
Depreciation	20,632,743	8,503,569
Amortization	27,240,462	21,355,118
Samples	3,257,609	2,723,439
Advertising	26,730,411	16,172,992
Training	2,062,185	2,217,750
Social	2,455,513	2,521,011
Impairment loss for trade receivables	2,297,289	2,091,057
Publications	347,019	96,887
Document forwarding fee	157,952	131,206
Distribution	26,018,083	25,266,377
Insurance	6,427,821	5,747,000
Services	27,829,362	21,450,358
Taxes and dues	6,249,177	5,049,508
Supplies	1,998,932	2,474,507
Repairs and maintenance	2,658,312	2,882,080
Travel	17,096,201	14,310,718
Utility	1,275,668	1,262,513
Print	727,854	570,985
Rent	13,885,754	11,494,520
Electronic data processing	10,331,505	11,070,164
Research	599,226	801,058
Fees	83,918,970	44,357,279
Communication	2,045,227	1,948,167
Sales promotion	15,724,294	13,498,425
Event	7,917,858	6,098,556
Conference	2,327,752	2,372,364
	₩ 520,657,255	₩ 391,306,385

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29. Breakdown of Expenses by Nature

Details of breakdown of expenses by nature for the years ended December 31, 2017 and 2016, are as follows:

<i>(in thousands of Korean won)</i>	2017		2016	
Changes in inventories of finished goods, semi-finished goods and work in process	₩	(22,135,984)	₩	(11,858,955)
Purchase of merchandise		412,128,008		368,255,880
Raw materials and consumables used		2,099,787,307		1,668,012,518
Salary and wages ¹		715,247,790		535,518,609
Employee welfare benefits		96,170,463		63,226,674
Depreciation on property, plant and equipment		83,149,163		49,413,351
Amortization		42,570,910		36,887,322
Freight and custody charges		29,125,575		27,735,542
Taxes and dues		12,882,255		8,772,554
Repairs and maintenance		22,124,783		19,975,501
Utilities		15,321,065		12,033,729
Rent		27,447,695		16,943,991
Electronic data processing		42,783,346		38,533,130
Fees		147,140,203		77,854,207
Technical license fees		72,368,579		44,425,231
Outsourcing		274,620,539		208,136,525
Others		61,831,173		204,284,439
Total ²	₩	<u>4,132,562,870</u>	₩	<u>3,368,150,248</u>

¹ Salary and post-employment benefits are included.

² The amounts include cost of sales, selling and administrative expenses and research and development expenses in the consolidated statement of comprehensive income.

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30. Other Income and Expenses

Details of other income and expenses for the years ended December 31, 2017 and 2016, are as follows:

(in thousands of Korean won)

	2017	2016
Other income		
Fees income	₩ 88,169	₩ 271,998
Rental income	3,668,968	3,379,913
Gain on foreign currency transactions	33,550,241	36,968,576
Gain on foreign currency translations	25,645,921	17,673,413
Gain on disposal of available-for-sale financial assets	-	217,502,220
Gain on disposal of investments in subsidiaries and associates	-	70,765,229
Gain on disposal of property, plant and equipment	496,077	1,147,734
Gain on disposal of intangible assets	-	349,916
Miscellaneous income	8,649,163	11,250,446
Dividends income	5,326,778	4,380,604
Reversal of provision for impairment on other receivables	49,972	-
	<u>₩ 77,475,289</u>	<u>₩ 363,690,049</u>
Other expenses		
Fees	₩ 9,359	₩ 12,258,009
Loss on foreign currency transactions	45,294,234	42,397,571
Loss on foreign currency translations	28,410,027	11,941,563
Loss on disposal of available-for-sale financial assets	-	183,952
Loss on disposal of property, plant and equipment	1,020,341	1,215,763
Loss on disposal of intangible assets	22,766	181,321
Impairment loss of intangible assets	736,429	2,500
Impairment on other receivables	16,897	15,622
Donations	7,136,256	2,632,571
Miscellaneous expenses	50,762,525	12,344,222
	<u>₩ 133,408,834</u>	<u>₩ 83,173,094</u>

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31. Finance Income and Costs

Details of finance income and costs for the years ended December 31, 2017 and 2016, are as follows:

<i>(in thousands of Korean won)</i>	2017		2016	
Finance income				
Interest income	₩	4,595,124	₩	8,329,885
Gain on foreign currency transactions		11,614,793		8,288,073
Gain on foreign currency translations		5,237,697		-
Gain on valuation of financial assets at fair value through profit or loss		-		15,425
Gain on derivatives transactions		283,359		98,443
Gain on valuation of derivatives		1,711,724		-
	₩	<u>23,442,697</u>	₩	<u>16,731,826</u>
Finance costs				
Interest expenses	₩	34,987,340	₩	21,268,360
Loss on foreign currency transactions		4,588,994		9,387,357
Loss on foreign currency translations		6,532		5,824,522
Loss on valuation of derivatives		91,431		168,015
Loss on derivatives transactions		601,169		16,109
Loss on valuation of short-term financial instruments		126,454		-
	₩	<u>40,401,920</u>	₩	<u>36,664,363</u>

32. Earnings (Losses) per Share

Basic earnings (losses) per share for the years ended December 31, 2017 and 2016, are as follows:

<i>(in thousands of Korean won, except for earnings per share)</i>	2017		2016	
Profit (loss) attributable to the ordinary equity holders of the Controlling Company	₩	(48,245,623)	₩	345,222,770
Weighted average number of ordinary shares outstanding		<u>52,728,219</u>		<u>53,130,000</u>
Basic earnings (losses) per share	₩	<u>(915)</u>	₩	<u>6,498</u>

Weighted average number of ordinary shares for the years ended December 31, 2017 and 2016, are as follows:

<i>(in shares)</i>	2017		2016	
Beginning balance		53,130,000		53,130,000
Effect of treasury shares		<u>(401,781)</u>		<u>-</u>
Weighted average number of ordinary shares		<u>52,728,219</u>		<u>53,130,000</u>

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The Group did not issue any potential ordinary shares.

33. Related Party Transactions

Details of Controlling Company of the Group as at December 31, 2017 is as follows:

Type	2017
Controlling Company	Hanwha Co., Ltd.

Transactions with related parties including operating revenues and expenses for the years ended December 31, 2017 and 2016, are as follows:

<i>(in thousands of Korean won)</i>	2017				
	Sales and others	Disposal of property, plant and equipment	Purchase of raw materials	Acquisition of property, plant and equipment	Others
Controlling Company					
Hanwha Co., Ltd.	₩ 76,084,040	₩ 18,728	₩ 11,844,952	₩ 970,883	₩ 18,862,565
Associate					
Sermatech Korea Co., Ltd. ²	4,729,550	-	18,621,334	-	4,432
Others¹					
Hanwha Q CELLS Japan Co., Ltd.	141,469	-	-	-	-
Hanwha Europe GmbH	-	-	-	-	198,650
SIT	98	-	716,850	107,300	-
Kyongju Aerospace Electrical Systems Co., Ltd.	-	-	2,395,482	-	44,406
Hanwha 63 City Co., Ltd.	-	-	-	11,196	95,018
Hanwha Galleria Co., Ltd.	60,637	-	-	2,446,920	4,840,232
Hanwha Galleria Time World Co., Ltd.	1,082	-	-	-	-
Hanwha E&C Corp.	2,759,636	-	-	-	-
Hanwha B&B Co., Ltd.	-	-	-	-	53,177
Hanwha Estate Co., Ltd.	34,033	-	-	2,500,417	11,826,195
Hanwha Eagles Professional Baseball Club	-	-	-	-	1,707,464
H-Solution Corporation (formerly, Hanwha S&C Co., Ltd.)	339,774	-	-	6,501,950	47,940,500
Hanwha Life Insurance	1,444,783	-	-	-	8,688,504

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<i>(in thousands of Korean won)</i>	2017				
	Sales and others	Disposal of property, plant and equipment	Purchase of raw materials	Acquisition of property, plant and equipment	Others
Co., Ltd.					
Hanwha General Insurance Co., Ltd.	-	-	4,944	-	4,589,969
Hanwha Energy Corporation	61,800	-	-	-	-
Hanwha General Chemical Co., Ltd.	157,443	-	-	-	-
Hanwha Advanced Materials Corporation	328,200	-	-	36,364	-
Hanwha Chemical Corporation	298,141	-	-	-	907,088
Hanwha Q CELLS Corp.	89,703	-	-	-	3,883
Hanwha Q CELLS Korea Corp.	19,925,348	-	-	629,141	-
Hanwha Total Petrochemical Co., Ltd.	299,250	-	-	-	-
Hanwha Hotels & Resorts Co., Ltd.	-	-	-	729,320	10,674,572
Humanpower	-	-	-	884,318	240,404
	<u>₩ 106,754,987</u>	<u>₩ 18,728</u>	<u>₩ 33,583,562</u>	<u>₩ 14,817,809</u>	<u>₩ 110,677,059</u>

¹ Include certain entities that belong to a large enterprise group in accordance with the Monopoly Regulation and Fair Trade Act.

² The Group received dividends from Sermatech Korea Co., Ltd. and other related parties amounting to ₩ 3,228 million for the year ended December 31, 2017.

<i>(in thousands of Korean won)</i>	2016				
	Sales and others	Disposal of property, plant and equipment	Purchase of raw materials	Acquisition of property, plant and equipment	Others
Controlling Company					
Hanwha Co., Ltd.	₩ 73,751,861	₩ -	₩ 5,919,186	₩ 1,911,674	₩ 7,635,669
Associate					
Sermatech Korea Co., Ltd. ²	5,019,267	-	16,822,724	-	-
Joint venture					
Hanwha System Co. Ltd. ^{2,3}	3,939,567	-	77,767,684	-	-
Others ¹					
SIT	183,220	-	-	-	-
Kyongju Aerospace	-	-	2,286,155	-	-

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<i>(in thousands of Korean won)</i>	2016				
	Sales and others	Disposal of property, plant and equipment	Purchase of raw materials	Acquisition of property, plant and equipment	Others
Electrical Systems Co., Ltd.					
Hanwha Galleria Co., Ltd.	-	-	-	-	3,980,784
Hanwha Galleria Time World Co., Ltd.	-	-	-	-	1,058
Hanwha E&C Corp.	228,536	-	-	23,586,700	-
Hanwha B&B Co., Ltd.	-	-	-	-	37,287
Hanwha Estate Co., Ltd.	154,350	-	-	175,792	6,143,979
Hanwha Eagles Professional Baseball Club	-	-	-	-	1,010,592
H-Solution Corporation (formerly, Hanwha S&C Co., Ltd.)	67,581	2,689,542	-	1,781,410	35,121,485
Hanwha Life Insurance Co., Ltd.	1,063,458	-	-	-	7,239,450
Hanwha General Insurance Co., Ltd.	-	-	-	-	3,301,808
Hanwha Energy Corporation	30,500	-	-	-	-
Hanwha General Chemical Co., Ltd.	2,122,200	-	-	-	-
Hanwha Advanced Materials Corporation	-	7,848	-	-	-
Hanwha Chemical Corporation	-	-	-	-	698,491
Hanwha Total Petrochemical Co., Ltd.	444,250	-	-	-	-
Hanwha Investment & Securities Co., Ltd.	-	-	-	-	100,000
Hanwha Hotels & Resorts Co., Ltd.	-	-	-	3,364,578	8,047,280
Humanpower	-	-	-	124,000	425,905
	<u>₩ 87,004,790</u>	<u>₩ 2,697,390</u>	<u>₩ 102,795,749</u>	<u>₩ 30,944,154</u>	<u>₩ 73,743,788</u>

¹ Include certain entities that belong to a large enterprise group in accordance with the Monopoly Regulation and Fair Trade Act.

² The Group received dividends from Sermatech Korea Co., Ltd. and other related parties amounting to ₩ 6,220 million for the year ended December 31, 2016.

³ The entity was included in the scope of consolidation in 2016. The amounts represent transactions before included in scope of consolidation.

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Outstanding balances arising from sales/purchases of goods and services as at December 31, 2017 and 2016, are as follows:

(in thousands of Korean won)	2017					
	Receivables			Payables		
	Trade receivables	Non-trade receivables	Others	Trade payables	Non-trade payables	Others
Controlling Company						
Hanwha Co., Ltd.	₩ 38,935,994	₩ 50,704	₩ 2,633,855	₩ 16,998,041	₩ 1,304,337	₩ 3,298,599
Associate						
Sermatech Korea Co., Ltd.	-	11,194	-	3,134,476	4,875	-
Others ¹						
Hanwha Q CELLS Japan Co., Ltd.	1,802	-	-	-	-	-
Hanwha International LLC.	-	-	-	-	6,488	2,142,800
Hanwha Europe GmbH	-	-	-	-	5,457	-
SIT	-	108	-	62,480	472,120	-
Kyongju Aerospace Electrical Systems Co., Ltd.	-	-	2,016,366	29,284	14,419	61,820
Hanwha Galleria Co., Ltd.	-	-	-	-	443,771	69,493
Hanwha E&C Corp	1,747,445	-	-	-	-	-
Hanwha B&B Co., Ltd.	-	-	-	-	2,216	-
Hanwha Estate Co., Ltd.	13,200	-	-	-	4,082,169	1,560,900
Hanwha Eagles Professional Baseball Club	127,908	330,429	-	-	-	-
H-Solution Corporation (formerly, Hanwha S&C Co., Ltd.)	4,400	349	559,961	-	13,584,381	790,462
Hanwha Life Insurance Co., Ltd.	-	-	74,788,523	-	65,431	-
Hanwha General Insurance Co., Ltd.	-	-	-	-	8,058	-
Hanwha Energy Corporation	67,980	-	-	-	-	-

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<i>(in thousands of Korean won)</i>	2017					
	Receivables			Payables		
	Trade receivables	Non-trade receivables	Others	Trade payables	Non-trade payables	Others
Hanwha General Chemical Co., Ltd.	-	-	-	-	-	-
Hanwha Advanced Materials Corporation	10,120	-	-	-	-	-
Hanwha Chemical Corporation	92,400	-	-	-	87,621	-
Hanwha Q CELLS Korea Corp.	19,482,320	30	-	-	629,141	-
Hanwha Total Petrochemical Co., Ltd.	-	-	-	-	-	-
Hanwha Hotels & Resorts Co., Ltd.	-	-	15,965,497	-	509,775	-
Humanpower	-	-	-	-	67,250	-
	<u>₩ 60,483,569</u>	<u>₩ 392,814</u>	<u>₩ 95,964,202</u>	<u>₩ 20,224,281</u>	<u>₩ 21,287,509</u>	<u>₩ 7,924,074</u>

¹ Include certain entities that belong to a large enterprise group in accordance with the Monopoly Regulation and Fair Trade Act.

<i>(in thousands of Korean won)</i>	2016					
	Receivables			Payables		
	Trade receivables	Non-trade receivables	Others	Trade payables	Non-trade payables	Others
Controlling Company						
Hanwha Co., Ltd.	₩ 7,469,156	₩ 1,412,100	₩ 3,456,324	₩ 16,690,656	₩ 7,887,056	₩ 14,238,998
Associate						
Sermatech Korea Co., Ltd.	-	-	-	2,017,182	-	-
Others ¹						
Kyongju Aerospace Electrical Systems Co., Ltd.	-	-	1,112,575	678,897	-	-
Hanwha Galleria Co., Ltd.	-	-	-	-	3,368,920	-
Hanwha E&C Corp	-	-	-	-	3,628,570	-
Hanwha B&B Co., Ltd.	-	-	-	-	3,012	-

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(in thousands of Korean won)	2016					
	Receivables			Payables		
	Trade receivables	Non-trade receivables	Others	Trade payables	Non-trade payables	Others
Hanwha Estate Co., Ltd.	39,186	136	-	-	512,894	-
Hanwha Eagles Professional Baseball Club	-	476,723	-	-	504	-
H-Solution Corporation (formerly, Hanwha S&C Co., Ltd.)	-	-	-	-	9,395,001	-
Hanwha Life Insurance Co., Ltd.	-	-	76,181,883	-	18,748	-
Hanwha General Insurance Co., Ltd.	-	-	-	-	15,563	-
Hanwha Energy Corporation	33,550	-	-	-	-	-
Hanwha General Chemical Co., Ltd.	1,624,150	-	-	-	-	-
Hanwha Advanced Materials Corporation	-	8,633	-	-	-	-
Hanwha Chemical Corporation	-	-	-	-	61,382	-
Hanwha Total Petrochemical Co., Ltd.	329,175	-	-	-	-	-
Hanwha Hotels & Resorts Co., Ltd.	-	-	13,261,191	-	793,140	-
Humanpower	-	-	-	-	69,196	-
	<u>₩ 9,495,217</u>	<u>₩ 1,897,592</u>	<u>₩ 94,011,973</u>	<u>₩ 19,386,735</u>	<u>₩ 25,753,986</u>	<u>₩ 14,238,998</u>

¹ Include certain entities that belong to a large enterprise group in accordance with the Monopoly Regulation and Fair Trade Act.

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Fund transactions with related parties for the year ended December 31, 2017, are as follows:

(in millions of Korean won)

Type	Name of entity	2017					Capital increase
		Loan transactions		Borrowing transactions			
		Loans	Collections	Borrowings	Repayments		
Associate	P&W NGPF Manufacturing company Singapore. Ltd.	₩ -	₩ -	₩ -	₩ -	₩ 9,563,648	
Other	Hanwha International LLC	-	-	2,143,800	-	-	

As at December 31, 2017 and 2016, the Group provides home mortgage loans to its employees.

Key management includes executive directors. The compensation paid or payable to the key management for employee services for the years ended December 31, 2017 and 2016, consists of:

(in thousands of Korean won)

	2017		2016	
Short-term employee benefits	₩	3,727,420	₩	2,489,189
Post-employment benefits		638,034		379,238
	₩	<u>4,365,454</u>	₩	<u>2,868,427</u>

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34. Commitments and Contingencies

Details of agreements with financial institution, as at December 31, 2017, are as follows:

<i>(in thousands of Korean won, USD and CNY)</i>	KRW	USD	CNY
Korea Development Bank			
Import L/C	-	3,000,000	-
General purpose loans	50,000,000	-	-
Limit loans	50,000,000	-	-
KEB Hana Bank			
Purchasing card	60,000,000	-	-
Other payment guarantee	15,000,000	67,000,000	-
Overdraft	15,000,000	-	-
Selling trade receivables denominated in foreign currencies	-	30,000,000	-
Import L/C	-	11,000,000	-
Credit sales facility	15,000,000	-	-
General purpose loans (Working capital loans)	30,000,000	-	-
Kookmin Bank			
Selling trade receivables denominated in foreign currencies	-	29,000,000	-
Import L/C	-	8,500,000	-
Credit sales facility	13,000,000	-	-
Limit loans	10,000,000	20,000,000	-
Industrial Bank of Korea			
Purchasing card	2,500,000	-	-
Forward	-	2,000,000	-
Import L/C	-	14,000,000	-
Credit sales facility	40,000,000	-	-
General purpose loans (Other bill discount)	4,000,000	-	-
NH Nonghyup Bank			
Import L/C	-	10,000,000	-
Credit sales facility	10,000,000	-	-
Limit loans	45,000,000	-	-
Korea Export-Import Bank			
Limit loans	10,000,000	-	-
Shinhan Bank			
Other payment guarantee	-	36,514,000	-
Selling trade receivables denominated in foreign currencies	-	34,000,000	-
Credit sales facility	4,000,000	-	-
General purpose loans	30,000,000	-	-
Limit loans	10,000,000	-	-
Shinhan Bank (New York)			
Limit loans	-	10,000,000	-
Shinhan Bank (China)			
Other payment guarantee	-	-	6,114,387

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<i>(in thousands of Korean won, USD and CNY)</i>	KRW	USD	CNY
Selling trade receivables denominated in foreign currencies	-	15,000,000	100,000,000
Import L/C	-	100,000	-
Woori Bank			
Payment guarantee	-	500,000	-
Import L/C	-	2,000,000	-
Credit sales facility	13,000,000	-	-
Combined limits loan agreements	140,000,000	-	-
Limit loans	160,000,000	-	-
Woori Bank (Vietnam)			
Limit loans	-	10,000,000	-
Woori Bank (Hong Kong)			
Limit loans	-	20,000,000	-
Bank of China			
General purpose loans	20,000,000	-	-

Details of guarantee provided by the others, as at December 31, 2017, are as follows:

<i>(in thousands of Korean won, AED, ERU, QAR, USD, INR, and PHP)</i>	Details	Amount
Korea Development Bank	Payment guarantee in other foreign currencies	USD 3,200,000
		AED 1,755,790
		CNY 800,000
KEB Hana Bank	Performance guarantee	EUR 3,727,222
		KRW 1,680,800
		QAR 5,586,665
		USD 37,002,666
Seoul Guarantee Insurance Company	Contract, advance payments, and payment guarantee	KRW 10,397,267
	Performance guarantee	KRW 949,030,078
		USD 13,888,367
Korea Export-Import Bank	Deposit guarantee	KRW 205,200
	Performance guarantee	USD 151,721,805
	Bidding guarantee	INR 30,000,000
Shinhan Bank	Performance guarantee	PHP 363,524,944
		USD 27,665,037
Woori Bank	Performance guarantee	USD 2,939,790
Korea Federation of Small and Medium Business	Performance guarantee	KRW 179,780,883
Korea Defense Industry Association	Contract, government contribution, payment, warranty, and bidding guarantee	KRW 586,936,204
	Performance guarantee	KRW 2,186,010,443

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The Group provides its 10,200,000 shares in Hanwha Defense Systems Corp. as collateral against borrowings from Korea Development Bank (Note 18).

As at December 31, 2017, the Group has provided two blank promissory notes and two checks to Korea Defense Industry Association as collateral.

The Group has technical assistance agreements with General Electric Company, etc. to develop and manufacture new products.

During the year ended December 31, 2017, the Group entered into an agreement for mutual growth of large and small business with Woori Bank. In accordance with the agreement, the Woori Bank supports small business that cooperates with the Group, where Woori Bank sets up a special fund which amounts to twice the deposit of ₩ 9 billion from the Group.

Hanwha Defense Systems Corp. which was physically divided from Doosan Infracore Co., Ltd. on December 31, 2008, is responsible for repayment of corporate debts before the physical division based on the division plan. If a contingent liability arises after the physical division due to the cause prior to the division date, the entity newly established and the surviving entity are jointly and severally liable for the debt, and the burden ratio of the debt shall be the net asset value ratio at the time of the division. As at December 31, 2017, the Group has not established a provision for the amount of guarantees and guarantees that cannot be reliably estimated.

Korean Helicopter Development Project (KHP) had been completed in June 2012; however, the Defense Acquisition Program Agency (DAPA) did not compensate for the excess costs incurred due to inflation, rise of exchange rates, and change of layout and design. On January 29, 2014, Korea Aerospace Research Institute filed a lawsuit against DAPA claiming the payment of the excess charges. Five subcontractors of the Korea Aerospace Research Institute, including the Group attended the above case as intervenors on plaintiff's side on June 5, 2014. At the first trial, the Court acknowledged 80% of the claims of the plaintiff on January 30, 2015 and the plaintiff and the defendant both appealed to the Seoul High Court. As at December 31, 2017, the Seoul High Court reversed and remanded the case and the litigation is pending in the Seoul Administrative Court. The management is unable to predict the result of the cases.

On August 4, 2015, Defense Acquisition Program Administration (DAPA), restricted the Group from participating in bidding from August 11, 2015 to November 10, 2015 according to Act on contracts to which the state is a party article 76, paragraph 1. The Group appealed the decision and filed a lawsuit for suspension of application and cancellation of the bidding restriction in Seoul Administrative Court against DAPA as the Group determined that the bidding restriction is illegal and unfair. Accordingly, on August 10, 2015 the Court decided the suspension of execution of the restriction until the first trial, a decision to dismiss was filed against the Group for the cancellation of the lawsuit on October 21, 2016 and the Group filed an appeal with the Seoul High Court and filed an application for suspension. The Seoul High Court sentenced a decision of suspension on November 9, 2016. Depending on the outcome of this lawsuit, the Group may be restricted from participating in the bidding for a certain period of time.

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Regarding the fire that erupted near the generator no. 4 in the data center of Samsung SDS in Gwacheon, on April 20, 2014, Samsung fire & Marine Insurance Co., Ltd. filed a lawsuit against the Group claiming the amount for indemnity of ₩ 14.8 billion, which is equivalent to the amount Samsung fire & Marine Insurance Co., Ltd. paid to Samsung SDS as benefit of fire insurance. At the same time, Samsung SDS filed damage claim suit against the Group, demanding ₩ 68.3 billion which is the amount of damage that exceeds the insurance benefit from Samsung fire & Marine Insurance Co., Ltd. Both lawsuits are in the process of the first trial, and the management is unable to predict the result of the cases.

On the grounds that one of the reasons for the crash of Surion Helicopter in December, 2015 is defect of engine that was supplied by the Group, the government of the Republic of Korea filed a damage claim suit against the Group and Korea Aerospace Industries, Ltd. as co-defendant, claiming ₩ 17.1 billion which is equivalent to the cost of the crashed helicopter. Additionally, the government also filed a damage claim suit against the aforementioned co-defendants, claiming repair cost of engines that are suspected to have the same defects. The management is unable to predict the result of the cases.

On July 27, 2017, Defense Acquisition Program Administration cancelled the certification of the Group's defense cost management system, due to the fact that cooperative firm of the Group had submitted fabricated cost data. Accordingly, the Group applied for an injunction that confirms that the Group is not on the status of having certification of its cost management system cancelled, and the Court accepted the Group's injunction on December 22, 2017. Furthermore, the Group filed a lawsuit against the government of the Republic of Korea regarding the same agenda on January 19, 2018. The management is unable to predict the result of the case.

Defense Acquisition Program Administration requested for reduction of the Group's profit rate and modification of contract to reflect the reduced profit rate, on the grounds that the cooperative firm of the Group had submitted fabricated cost data. The Group thereupon applied for an injunction for prohibition of such disposition; however, the Group lost the case on December 29, 2017. Accordingly, the Group submitted a bill of complaint on February 27, 2018. The management is unable to predict the result of the cases.

In addition to the case discussed in Note 34, the Group is involved in eight cases as a plaintiff aggregating to ₩ 8,332 million, and involved in six cases as a defendant aggregating to ₩ 17,485 million. The management is unable to predict the result of the cases.

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35. Cash Generated from Operations

Details of cash generated from operations for the years ended December 31, 2017 and 2016, are as follows:

<i>(in thousands of Korean won)</i>	2017		2016	
Profit before income tax	₩	17,751,452	₩	418,503,278
Adjustments for:				
Depreciation		83,149,163		49,413,351
Technical license fees		16,970,859		4,209,878
Other long-term employee benefits		2,031,182		4,065,034
Loss on valuation of financial assets at fair value through profit or loss		126,454		-
Loss on disposal of available-for-sale financial assets		-		183,952
Amortization		42,570,910		36,887,322
Loss on disposal of intangible assets		22,766		181,321
Impairment loss of intangible assets		736,429		2,500
Loss on valuation of derivatives		91,431		168,015
Loss on foreign currency translations		28,416,559		17,766,085
Loss on disposal of property, plant and equipment		1,020,341		1,215,763
Interest expenses		34,987,340		21,268,360
Miscellaneous expenses		25,918,843		-
Post-employment benefits		58,184,289		45,106,686
Reversal of loss on valuation of inventories		(2,517,390)		(2,346,814)
Provisions		12,360,473		6,620,618
Gain on valuation of financial assets at fair value through profit or loss		-		(15,425)
Impairment loss on trade receivables		2,297,289		2,091,056
(Reversal of provision for) Impairment loss on other receivables		(33,075)		15,622
Gain on disposal of available-for-sale financial assets		-		(217,502,220)
Gain on disposal of investments in subsidiaries and associates		-		(70,765,229)
Gain on valuation of derivatives		(1,711,724)		-
Dividends income		(5,326,778)		(4,380,604)
Gain on foreign currency translations		(30,883,619)		(17,673,413)
Gain on disposal of property, plant and equipment		(496,077)		(1,147,734)
Gain on disposal of intangible assets		-		(349,916)
Interest income		(4,595,124)		(8,329,885)
Miscellaneous income		(648,535)		-

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<i>(in thousands of Korean won)</i>	2017	2016
Share of profit of associates	(7,735,648)	(7,192,444)
Change in operating assets and liabilities		
Trade receivables	(191,722,415)	(112,589,015)
Non-trade receivables	(26,417,631)	17,589,861
Prepaid value added tax	-	(350,593)
Inventories	(50,069,937)	106,004,748
Deposits received	(963,649)	(268,509)
Other current assets	48,647,038	135,532,516
Other non-current assets	5,977,017	(79,897)
Trade payables	78,789,540	(4,215,231)
Non-trade payables	(1,963,162)	29,982,322
Accrued expenses	12,701,696	(18,731,515)
Withholdings	1,101,302	(4,338,415)
Other current liabilities	(23,828,004)	(140,100,189)
Other long-term employee benefits liabilities	(3,617,470)	(4,325,620)
Payments of post-employment benefits	(24,063,718)	(22,988,478)
Net transferred post-employment benefits to (from) associates	(1,730,681)	4,977,771
Pension plan assets	(5,000,000)	(2,000,001)
Cash generated from operations	<u>₩ 90,527,736</u>	<u>₩ 262,094,912</u>

Changes in liabilities arising from financial activities for the years ended December 31, 2017 and 2016, are as follows:

<i>(in thousands of Korean won)</i>	Short-term borrowings	Current portion of borrowings	Long-term borrowings	Current portion of debentures	Debentures	Total
At January 1, 2017	₩ 326,764,700	₩ 32,850,220	₩ 407,561,178	₩ -	₩ 418,673,681	₩ 1,185,849,779
Cash flows	2,814,976	(32,850,220)	166,169,071	-	29,906,420	166,040,247
Gain (loss) on foreign currency translations	(5,244,230)	-	-	-	-	(5,244,230)
Amortization	-	-	-	16,309	476,901	493,210
Reclassification to current portion	-	53,338,338	(53,338,338)	69,894,099	(69,894,099)	-
Others ¹	(1,549,165)	-	(844,169)	-	-	(2,393,334)
At December 31, 2017	<u>₩ 322,786,281</u>	<u>₩ 53,338,338</u>	<u>₩ 519,547,742</u>	<u>₩ 69,910,408</u>	<u>₩ 379,162,903</u>	<u>₩ 1,344,745,672</u>

¹ Exchange differences are included.

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36. Business Combinations

On May 31, 2016, the Group acquired 100% of the issued share capital and obtained control of Hanwha Defense Systems Corp. And, on October 10, 2016, the Group acquired an additional 50% of the share capital and obtained control of Hanwha System Co. Ltd., a joint venture of the Group. As both Hanwha Defense Systems Corp. and Hanwha System Co. Ltd. are engaged in the manufacture defense machinery, the acquisition has significantly increased the Group's market shared in this industry expects cost reduction through economies of scale and synergy effect.

Details of the consideration transferred, the assets and liabilities recognized as a result of the acquisition, are as follows:

<i>(in thousands of Korean won)</i>	Hanwha Defense Systems Corp.	Hanwha System Co. Ltd.
Consideration transferred		
Cash	₩ 689,702,867	₩ 288,000,000
Fair value of equity interest before the business combination	-	288,000,000
Total consideration transferred	<u>689,702,867</u>	<u>576,000,000</u>
Indemnification asset	<u>(26,347,841)</u>	<u>-</u>
Total consideration transferred in business combination	<u>₩ 663,355,026</u>	<u>₩ 576,000,000</u>
Recognized amounts of identifiable assets acquired and liabilities assumed		
Cash and cash equivalents	₩ 82,843,001	₩ 9,571,754
Trade and other receivables	79,447,891	292,529,722
Other assets	125,120,135	139,110,245
Inventories	252,333,370	51,661,020
Other financial assets	7,400,284	12,301,000
Derivative assets	-	362,163
Property, plant and equipment	267,942,300	200,198,329
Intangibles	73,764,421	73,350,651
Deferred tax assets	-	30,361,977
Trade and other payables	157,330,013	123,738,683
Borrowings and debentures	-	4,000,000
Other liabilities	306,700,318	151,840,980
Current income tax liabilities	2,883,553	551,839
Derivative liabilities	-	342,528
Net defined benefit liabilities	9,457,460	58,914,126
Deferred tax liabilities	<u>21,950,407</u>	<u>21,391,999</u>
Net identifiable assets acquired	<u>390,529,651</u>	<u>448,666,706</u>
Goodwill	<u>272,825,375</u>	<u>127,333,294</u>
	<u>₩ 663,355,026</u>	<u>₩ 576,000,000</u>
Acquisition-related costs ¹	₩ 10,826,896	₩ 1,115,906

Hanwha Techwin Co., Ltd. and Subsidiaries
Notes to the Consolidated Financial Statements
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¹ Charged to other expenses in the consolidated statement of profit or loss for the year ended December 31, 2017.

The selling shareholders of Hanwha Defense Systems Corp. have contractually agreed to indemnify the Group for loss in relation to certain projects. An indemnification asset of ₩ 26,347 million, equivalent to the fair value of the indemnified liability, has been recognized by the Group, and deducted from the consideration transferred for the business combination. Such indemnification amount is subject to change.

37. Interests in Unconsolidated Structured Entities

The Group is engaged in the structured company through investment trusts (beneficiary certificates). The investment trust (beneficiary certificates) is a trust-type 'collective investment organization' that invests and trusts the trust assets in accordance with instructions of the trustors.

Details of scale of unconsolidated structured entities and nature of the risks associated with the Group's interests in unconsolidated structured entities as at December 31, 2017 and 2016, are as follows:

<i>(in thousands of Korean won)</i>	Trust
Total assets of unconsolidated structured entities	₩ 109,779,500
Assets recognized on the statement of financial position	
Available-for-sale financial assets	11,615,529
Maximum exposure to loss	11,615,529

38. Events after the Reporting Period

On February 23, 2018, the Group decided to acquire and retire treasury shares in order to improve the profit of shareholders. The amount of treasury shares to be retired is ₩ 15,764 million (560,000 shares).