



DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD.

**Separate Financial Statements
and Independent Auditor's Report**

**As of and for the year ended
December 31, 2016**

ATTACHMENT: INDEPENDENT ACCOUNTANTS' REVIEW REPORT

**DOOSAN HEAVY INDUSTRIES &
CONSTRUCTION CO., LTD.**

INDEPENDENT AUDITOR'S REPORT

English Translation of Independent Auditor's Report Originally Issued in Korean on March 23, 2017

**To the Shareholders and Board of Directors of
Doosan Heavy Industries & Construction Co., Ltd.:**

Report on the Separate Financial Statements

We have audited the accompanying separate financial statements of Doosan Heavy Industries & Construction Co., Ltd. (the "Company"), which comprise the separate statements of financial position as of December 31, 2016 and the separate statements of comprehensive income, separate statements of changes in shareholders' equity and separate statements of cash flows, for the years then ended, and a summary of significant accounting policies and other explanatory information.

Management's Responsibility for the Separate Financial Statements

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

Independent Auditors' responsibility

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

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditors' judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

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

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Opinion

In our opinion, the separate financial statements present fairly, in all material respects, the financial position of the Doosan Heavy Industries and Construction Co., Ltd. as of December 31, 2016 and its financial performance and its cash flows for the years then ended in accordance with K-IFRS.

Emphasis of matter

Although our opinion is not modified in respect of this matter, we draw attention to the note 23 to the financial statements on the following matters.

(1) Emphasis matters related to production to order industry and others

In accordance with ‘Auditing practice guidance 2016-1’ in the Republic of Korea, we noted this matter requires significant attention per our professional judgement and from communication with those charged with governance. These matters were addressed in respect to our review of the interim separate financial statements as a whole, and we do not provide a separate opinion on these matters.

In forming an audit opinion on the separate financial statements of Doosan Heavy Industries & Construction Co., Ltd., we incorporated the results of the audit procedures performed on the significant audit areas as follows:

1) General matters

The general matters applicable to order industry described in this report that requires significant attention are as follows.

The Company recognizes contract revenue and contract cost associated with the construction contract when the outcome of a contract can be reliably measured by stage of completion of the contract activity at the end of the reporting year. However, when the outcome of a construction contract cannot be estimated reliably, revenue is recognized only to the extent the contract costs have incurred that is probable that it will be recoverable and contract costs is recognized as expenses in the period in which they are incurred. When the uncertainties that prevented the outcome of the contract being estimated reliably no longer exist, revenue and expenses associated with the construction contract shall be recognized as revenue and expenses respectively by stage of completion of the contract activity at the end of the reporting period. When an uncertainty arises on the collectability of an amount already included in contract revenue, and already recognized in profit or loss, the uncollectible amount or the amount of which the is no longer probable is recognized as an expense rather than as an adjustment to the amount of contract revenue.

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In case the Company is able to estimate the outcome of a construction contract reliably, the Company shall determine the stage of completion of a contract. The Company uses the method that reliably measures the work performed, depending on the nature of the contract. As of December 31, 2016, the Company determined that using the rate of accumulated costs incurred until the end of the reporting period in comparison with total estimated costs per individual contract is the most reliable method to measure the work performed, and therefore the Company uses the stage of completion to calculate the contract costs incurred to date and recognizes contract revenue and contract cost accordingly.

When contract costs incurred to date plus recognized profits (less recognized losses) exceed the progress billing, the surplus is shown as amounts due from customers for contract work. For contracts where progress billings exceed contract the costs incurred to date plus recognized profits (less recognized losses), the surplus is shown as the amounts due to customers for contract work.

2) Adequacy of revenue recognition based on the stage of contract completion by input method

In case the Company recognizes revenues and costs based on the stage of contract completion when the outcome of a construction contract cannot be estimated reliably, there is a risk of misstatement on revenues and costs. Additionally, when the Company uses the method to measure stage of completion which does not reflect the work performed, there is a risk of material misstatement on revenues and costs. Therefore, we determined revenue recognition based on the stage of contract completion by input method to require significant attention.

We conducted the following main procedures to review the adequacy of revenue recognition based on the stage of contract completion by input method.

- We inquired and documented our inspection whether major projects meet all criteria to measure the outcome of a construction contract can be estimated reliably.
- We performed inquiries about whether the input method that the Group used is able to reliably measure the work performed.
- We performed inquiries whether the outcome of a construction contract can still be estimated reliably for delaying projects exist.
- We performed inquiries and analytical procedures to confirm whether the outcome of a construction contract can still be reliably estimate a project that the Company recognizes allowances of accounts receivable or due from the customers for contract work.

3) The uncertainty of the estimated total contract cost

As disclosed in notes 23 to the financial statements, the impact on current and future profit and loss due to changes in estimated total contract cost is KRW 96,915 million and KRW 91,254 million respectively and impact on the balance of due from (to) customers for contract work amounts to KRW 96,915 million. As such, in case the Company changes estimates of total contract cost, the stage of contract completion could be revised resulting in changes in current and future profit and loss and the balance of due from (to) the customers for contract work. As such, we determined that the uncertainty of the estimated total contract cost that reflects management's judgment requires significant attention.

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We performed the following main audit procedures in order to identify the impact on financial statements due to the uncertainty of estimate of the estimated total contract cost.

- We performed inspection about the summation logic of entity's system and procedures to measure the estimated total contract costs.
- We performed inspection about the interface by verifying whether the actual costs are equal to the estimated total contract costs which is calculated by Company's system or not.
- We performed inspection about the interface by comparing the Company's system with the contract party's system.
- We performed inquiries about reason for projects that the proportion that estimated total contract costs bear to the total contract revenue has been changed significantly compared to prior period.
- We performed inquiries about reason for significant change of the estimated total contract cost compared to prior period.
- We performed inquiries for a reason for projects that are finalized during current period and actual cost to revenue ratio is departed from estimated cost to revenue ratio.
- We have compared the estimated total contract costs at the end of this period against estimated total contract costs in the Company's system about major project.
- We have performed comparison and analytical procedures between estimated total contract costs at the end of this period and estimated total contract costs after the end of this period about major project.
- We performed comparison and analytical procedures between future estimated costs in the end of this period and the detail of awarding contract after the end of this period about a part of project.

4) Adequacy of the calculation of stage of contract completion.

As disclosed in notes 3 to the financial statements (significant accounting judgements and key sources of estimation uncertainties), there is a risk of misstatements that could adjust the future balance of assets and liabilities if the Company recognizes revenue based on the stage of contract completion. Additionally, when the Company measures the stage of completion of a contract based on the proportion that contract costs incurred for work performed to date bear to the estimated total contract costs, there is a risk of misstatements on revenue and cost if the Company includes costs those contract costs that does not reflect work performed when the Company measure the stage of contract completion resulting in inadequate calculation. Therefore we determined that adequacy of the calculation of stage of contract completion requires significant attention.

We performed the following main audit procedures to identify adequacy of the calculation of stage of contract completion.

- We performed recalculation of the stage of contract completion.
- We performed inquiries about whether contract costs reflect work performed were included in costs incurred to date and policies implemented to identify contract costs which should be excluded in calculation of stage of contract completion.
- We performed inquiries about projects that the stage of contract completion changed significantly compared to prior period.
- We performed comparative review between the stage of contract completion and the stage of progress completion about major projects.

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- We documented our inspection results about the sample extracted from major projects about contract cost incurred.

5) Collectability of amount due from customers for contract work

The amount due from customers is KRW 1,503,395 million and KRW 1,382,456 million, as of December 31, 2016 and 2015, respectively, which is increased by 9% compared to the end of prior period. We determined that the collectability of amount due from customers for contract work requires significant attention, given there are overstatement risks of misstatement on the amount of due from customers in case the Company fails to recognize appropriate amount of allowance resulting from inappropriate collectability valuation. Since there is an uncertainty over the estimation of collectable amount due from customers for contract work, we determined that collectability of amount due from customers for contract work requires significant attention.

We performed the following main audit procedures to identify the collectable amount due from customers for contract work.

- We performed inquiries and analytic procedures on slow-moving due from the customers for contract work.
- We documented our inspection results on long-term due from the customers for contract work.
- We performed inquiries and analytical procedures about collectability in case there are projects which the Company recognized allowances on the account receivable and have outstanding due from customers for contract work.
- We performed inquiries and analytical procedures about collectability of due from customers for contract work related to delaying projects.

6) Adequacy of accounting treatment of variations in contract work

The Company includes the impact of variations in contract work to contract revenue only if it is probable that the customer will approve the variation and the amount of revenue arising from the variation and the amount of revenue can be reliably measured. And the revenue could be increased by a claim that is an amount that the contractor seeks to collect from the customer or another party as reimbursement for costs not included in the contract price. The Company only includes the impact of a claim to the contract revenue when negotiations have reached an advanced stage such that it is probable that the customer will accept the claim and it is probable the amount will be accepted by the customer and such can be measured reliably. Additionally, the amount of contract revenue may decrease as a result of penalties arising from delays caused by the contractor in the completion of the contract when it is probable that the penalty will incur and the penalty can be reasonably measured.

Since there is a risk of misstatement of revenue when the Company reflects change orders, claims and penalty to the contract revenue inappropriately, we determined that the accounting treatment of variations in contract work requires significant attention.

We performed the following main audit procedures to identify adequacy of accounting treatment of variations in contract work

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- We performed inquiries about adequacy of accounting treatment of variations in contract work and penalties.
- We performed inquiries about reason for significant variation of the estimated total contract revenue.
- We performed inquiries about reason for projects that the proportion that estimated total contract costs bear to the total contract revenue has been changed significantly compared to prior period.
- We performed analytical procedure and document inspection for cut-off related significant variation of contract revenue after December 31, 2016.
- We performed inquiries and analytical procedures for projects that the Company recognizes penalties.
- We performed inquiries about whether there are any exposures to liquidated damages for late delivery of contract works.

Others

The accompanying separate statements of financial position as of December 31, 2015, and the separate statements of income, comprehensive income, changes in equity and cash flows for the year then ended December 31, 2015 were audited by other auditors in accordance with the KSAs and an unqualified opinion was expressed on March 17, 2016.

Deloitte Anjin LLC.

March 23, 2017

Notice to Readers

This report is effective as of March 23, 2017, the independent auditors' review report date. Certain subsequent events or circumstances may have occurred between the independent auditors' review report date and the time independent auditors' review report is read. Such events or circumstances could significantly affect the accompanying separate financial statements and may result in modifications to the independent auditors' review report.

**DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO.,
LTD. (the “Company”)**

**SEPARATE FINANCIAL STATEMENTS AS OF DECEMBER 31, 2016 AND 2015
FOR THE YEAR ENDED DECEMBER 31, 2016 AND 2015**

The accompanying separate financial statements, including all footnote disclosures, were prepared by, and are the responsibility of, the Company.

Ji Taik Chung

Chief Executive Officer

Doosan Heavy Industries & Construction Co., Ltd.

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD.
SEPARATE STATEMENTS OF FINANCIAL POSITION
AS OF DECEMBER 31, 2016 AND 2015

<u>ASSETS</u>	<u>Notes</u>	<u>December 31, 2016</u>	<u>December 31, 2015</u>
		(In Korean won)	
CURRENT ASSETS			
Cash and cash equivalents	4,5,10	₩344,209,445,119	₩754,506,961,500
Short-term financial instruments	4,5,10	55,632,507,201	65,207,026,775
Short-term investments in securities	6,10	2,294,000,000	-
Trade receivables	4,7,10,23,32	573,154,508,962	763,575,517,125
Other receivables	4,7,21,32	174,150,468,663	152,459,642,272
Due from customers for contract work	7,10,23,32	1,503,394,661,099	1,382,456,267,695
Prepayments	7	331,504,231,001	403,998,475,652
Prepaid expenses		14,922,677,249	12,066,591,164
Short-term loans	4,7,10,32	12,508,825,529	16,927,378,119
Derivative financial assets	4,9,10	10,449,227,167	8,355,116,563
Firm commitment assets	9	78,271,233,370	59,420,708,437
Inventories	8	255,885,401,844	307,231,584,236
Other current assets	4,7,10	<u>17,454,562,816</u>	<u>11,692,088,650</u>
Total Current Assets		<u>3,373,831,750,020</u>	<u>3,937,897,358,188</u>
NON-CURRENT ASSETS			
Long-term financial instruments	4,5,10	20,401,642,326	19,962,179,512
Long-term investments in securities	6,10,31	98,050,267,072	51,080,459,808
Investments in subsidiaries, associates and joint ventures	11,30,31	3,965,469,487,246	3,706,246,284,182
Long-term loans	4,7,10,32	169,751,341,069	60,516,350,000
Property, plant and equipment	12,31	3,117,755,485,966	3,052,376,158,609
Intangible assets	13	724,490,239,649	623,362,270,949
Derivative financial assets	9,10	76,872,166,368	55,939,683,148
Firm commitment assets	9	67,383,498,058	63,021,633,219
Deposits	4,5,7,10	90,227,585,011	66,676,697,298
Other non-current assets	4,7,10	<u>3,469,933,420</u>	<u>48,545,131,955</u>
Total Non-Current Assets		<u>8,333,871,646,185</u>	<u>7,747,726,848,680</u>
TOTAL ASSETS		<u>₩11,707,703,396,205</u>	<u>₩11,685,624,206,868</u>

(Continued)

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD.
SEPARATE STATEMENTS OF FINANCIAL POSITION
AS OF DECEMBER 31, 2016 AND 2015

LIABILITIES AND SHAREHOLDERS' EQUITY	Notes	December 31, 2016	December 31, 2015
		(In Korean won)	
CURRENT LIABILITIES			
Trade payables	4,10,32	₩1,262,369,377,282	₩1,023,863,182,473
Short-term borrowings	4,10,14,32	987,208,238,359	1,397,843,513,057
Asset-backed loans	4,14	126,976,613,711	32,879,881,289
Other payables	4,10,32	537,537,065,019	361,917,391,966
Advanced receipts		8,218,061,834	12,672,361,229
Due to customers for contract work	23	667,763,393,530	736,794,817,440
Withholdings		2,911,375,892	1,806,196,931
Accrued expenses	4, 10	102,547,722,165	78,496,432,457
Current tax liabilities	28	34,033,075,288	5,866,740,745
Current portion of long-term borrowings	4,10,14	842,913,900,225	819,490,332,731
Derivative financial liabilities	9,10	140,257,881,181	129,325,339,670
Firm commitment liabilities	9	2,401,482,528	4,052,311,007
Provisions	16	25,036,781,924	52,697,921,576
Other current liabilities	10	3,303,528,534	2,718,153,160
Total Current Liabilities		<u>4,743,478,497,472</u>	<u>4,660,424,575,731</u>
NON-CURRENT LIABILITIES			
Bonds	4,10,14	963,395,974,231	1,108,344,569,522
Long-term borrowings	4,10,14,31,32	949,465,190,000	540,001,000,000
Long-term asset-backed loans	14	98,421,299,308	130,708,700,625
Long-term other payables	4,10	21,316,407,707	18,412,515,411
Employee benefits liability	15	119,313,996,808	135,016,847,628
Deposits received	4,10	190,497,522,351	176,625,399,392
Derivative financial liabilities	9,10	120,747,639,424	136,688,168,399
Firm commitment liabilities	9	17,800,914,280	27,131,278,426
Deferred income tax liabilities	28	63,315,100,608	154,829,330,713
Provisions	16	99,904,287,725	113,560,510,097
Other non-current liabilities	10	28,003,866,211	9,889,690,497
		<u>2,672,182,198,653</u>	<u>2,551,208,010,710</u>
Total Liabilities		<u>7,415,660,696,125</u>	<u>7,211,632,586,441</u>
SHAREHOLDERS' EQUITY			
Issued capital	17	596,808,980,000	596,808,980,000
Capital surplus	18	1,313,375,117,731	1,258,336,538,553
Other components of equity	19	10,297,233,632	(78,272,893,123)
Accumulated other comprehensive income	6,9,10,12,20	758,604,092,918	750,277,502,157
Retained earnings	21	1,612,957,275,799	1,946,841,492,840
Total Shareholders' Equity		<u>4,292,042,700,080</u>	<u>4,473,991,620,427</u>
TOTAL LIABILITIES AND EQUITY		<u>₩11,707,703,396,205</u>	<u>₩11,685,624,206,868</u>
(Concluded)			

See Notes

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD.
SEPARATE STATEMENTS OF INCOME
FOR THE YEAR ENDED DECEMBER 31, 2016 AND 2015

	Notes	2016	2015
		(In Korean won)	
SALES	22,23,32	<u>₩4,705,320,587,970</u>	<u>₩5,146,293,601,154</u>
COST OF SALES	8,23,32	<u>3,962,595,699,737</u>	<u>4,442,024,458,289</u>
GROSS PROFIT		<u>742,724,888,233</u>	<u>704,269,142,865</u>
Selling and administrative expenses	24,25,32	459,287,192,642	476,041,797,217
OPERATING PROFIT		<u>283,437,695,591</u>	<u>228,227,345,648</u>
Finance income	26	601,038,055,502	793,829,373,842
Finance expenses	26	811,468,025,169	933,643,923,636
Other non-operating income	27	39,289,758,848	17,296,317,250
Other non-operating expenses	27	404,488,129,159	499,819,429,691
INCOME BEFORE TAX	28	<u>(292,190,644,387)</u>	<u>(394,110,316,587)</u>
INCOME TAX EXPENSE		(60,696,109,800)	57,035,746,974
NET INCOME		<u>₩(231,494,534,587)</u>	<u>₩(451,146,063,561)</u>
EARNINGS PER SHARE	29		
Basic earnings per common share		₩(2,367)	₩(4,689)
Diluted earnings per common share		(2,367)	(4,689)

(Concluded)

See Notes

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD.
SEPARATE STATEMENTS OF COMPREHENSIVE INCOME
FOR THE YEAR ENDED DECEMBER 31, 2016 AND 2015

	Notes	2016	2015
(In Korean won)			
NET INCOME		₩(231,494,534,587)	₩(451,146,063,561)
OTHER COMPREHENSIVE INCOME (LOSS)			
Items that will not be reclassified subsequently to profit or loss:			
Remeasurements of net defined benefit liabilities		(6,169,542,875)	216,180,202,070
Net gain (loss) on revaluation of land		(6,169,542,875)	(15,392,569,635)
		-	231,572,771,705
Items that may be reclassified subsequently to profit or loss:			
Net change in unrealized fair value of available-for-sale financial assets	6,10	8,434,339,695	53,827,421,693
Effective portion of changes in fair value of cash flow hedges	9,10	3,247,788,945	(55,785,078)
		5,186,550,750	53,883,206,771
Total other comprehensive income		2,264,796,820	270,007,623,763
TOTAL COMPREHENSIVE LOSS		₩(229,229,737,767)	₩(181,138,439,798)

(Concluded)

See Notes

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD.
SEPARATE STATEMENTS OF CHANGES IN SHAREHOLDERS' EQUITY
FOR THE YEAR ENDED DECEMBER 31, 2016 AND 2015

	Issued capital	Capital surplus	Other components of equity	Accumulated other comprehensive income	Retained earnings	Total equity
	(In Korean won)					
Balance at January 1, 2015	₩596,808,980,000	₩1,256,235,542,460	₩(77,156,735,344)	₩465,018,826,210	₩2,499,681,921,997	₩4,740,588,535,323
Total comprehensive income:						
Net income	-	-	-	-	(451,146,063,561)	(451,146,063,561)
Net change in fair value of AFS financial assets	-	-	-	(55,785,078)	-	(55,785,078)
Effective portion of changes in fair value of cash flow hedges	-	-	-	53,883,206,771	-	53,883,206,771
Remeasurements of net defined benefit liabilities	-	-	-	-	(15,392,569,635)	(15,392,569,635)
Revaluation of Assets_Land	-	-	-	231,431,254,254	141,517,451	231,572,771,705
Total comprehensive incomes	-	-	-	285,258,675,947	(466,397,115,745)	(181,138,439,798)
Dividends	-	-	-	-	(86,443,313,412)	(86,443,313,412)
Stock option	-	2,100,996,093	(1,116,157,779)	-	-	984,838,314
Balance at December 31, 2015	<u>₩596,808,980,000</u>	<u>₩1,258,336,538,553</u>	<u>₩(78,272,893,123)</u>	<u>₩750,277,502,157</u>	<u>₩1,946,841,492,840</u>	<u>₩4,473,991,620,427</u>

(Continued)

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD.
SEPARATE STATEMENTS OF CHANGES IN SHAREHOLDERS' EQUITY
FOR THE YEAR ENDED DECEMBER 31, 2016 AND 2015

	Share capital	Capital surplus	Other equity items	Accumulated other comprehensive income	Retained earnings	Total
	(In Korean won)					
Balance at January 1, 2016	₩596,808,980,000	₩1,258,336,538,553	₩(78,272,893,123)	₩750,277,502,157	₩1,946,841,492,840	₩4,473,991,620,427
Total comprehensive income:						
Net income	-	-	-	-	(231,494,534,587)	(231,494,534,587)
Net change in fair value of AFS financial assets	-	-	-	3,247,788,945	-	3,247,788,945
Effective portion of changes in fair value of cash flow hedges	-	-	-	5,186,550,750	-	5,186,550,750
Remeasurements of net defined benefit liabilities	-	-	-	-	(6,169,542,875)	(6,169,542,875)
Revaluation of Assets_Land	-	-	-	(107,748,934)	107,748,934	-
Total comprehensive incomes	-	-	-	8,326,590,761	(237,556,328,528)	(229,229,737,767)
Dividends	-	-	-	-	(96,327,888,513)	(96,327,888,513)
Disposals of treasury stock	-	53,023,096,674	90,260,916,283	-	-	143,284,012,957
Stock option	-	2,015,482,504	(1,690,789,528)	-	-	324,692,976
Balance at December 31, 2016	<u>₩596,808,980,000</u>	<u>₩1,313,375,117,731</u>	<u>₩10,297,233,632</u>	<u>₩758,604,092,918</u>	<u>₩1,612,957,275,799</u>	<u>₩4,292,042,700,080</u>

(Concluded)

See Notes

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD.
SEPARATE STATEMENTS OF CASH FLOWS
FOR THE YEAR ENDED DECEMBER 31, 2016 AND 2015

	Notes	2016	2015
		(In Korean won)	
CASH FLOWS FROM OPERATING ACTIVITIES			
Cash generated from operations:	33	₩687,103,610,686	₩(104,848,146,003)
Net income(loss)		(231,494,534,587)	(451,146,063,561)
Adjustments		720,031,926,869	873,626,541,606
Changes in operating assets and liabilities		198,566,218,404	(527,328,624,048)
Interest received		4,972,895,719	2,583,125,097
Interest paid		(127,507,513,976)	(105,986,137,086)
Dividends received		27,360,000	5,423,254,417
Income tax paid		(20,303,210,538)	(38,941,962,113)
Net cash provided by (used in) operating activities		<u>544,293,141,891</u>	<u>(241,769,865,688)</u>
 CASH FLOWS FROM INVESTING ACTIVITIES			
Cash inflows from investing activities:			
Decrease in short-term financial instruments		45,114,060,113	14,753,607,565
Disposal of short-term investments in securities		-	7,000,000,000
Collection of short-term loans		6,781,915,052	2,883,819,440
Decrease in long-term financial instruments		8,267,660,483	9,226,999,023
Disposal of long-term investments in securities		445,000,000	2,529,431,988
Collection of long-term loans		2,486,206,000	3,437,415,261
Disposal of property, plant and equipment		2,120,509,059	6,183,582,330
Disposal of intangible assets		-	756,910,345
Disposal of non-current assets classified as held for sale		18,841,422,600	-
Subtotal		<u>84,056,773,307</u>	<u>46,771,765,952</u>
 Cash outflows for investing activities:			
Increase in short-term financial instruments		(35,539,540,539)	(12,349,699,119)
Increase in short-term loans		(2,563,362,462)	(61,000,791,289)
Increase in long-term financial instruments		(8,257,201,843)	(751,248,991)
Acquisition of long-term investments in securities		(96,650,123,278)	(5,570,323,603)
Increase in long-term loans		(95,258,152,930)	(55,424,289,261)
Acquisition of investments in subsidiaries, associates and joint ventures		(492,826,309,798)	(6,318,365,903)
Acquisition of property, plant and equipment		(148,348,538,603)	(172,580,848,459)
Acquisition of intangible assets		(169,397,081,656)	(150,671,400,384)
Subtotal		<u>(1,048,840,311,109)</u>	<u>(464,666,967,009)</u>
Net cash used in investing activities		<u>₩(964,783,537,802)</u>	<u>₩(417,895,201,057)</u>

(Continued)

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD.
SEPARATE STATEMENTS OF CASH FLOWS
FOR THE YEAR ENDED DECEMBER 31, 2016 AND 2015

	2016	2015
	(In Korean won)	
CASH FLOWS FROM FINANCING ACTIVITIES		
Cash inflows from financing activities		
Net increase in short-term borrowings	₩-	₩754,937,594,636
Issuance of bonds	270,372,521,084	531,774,846,930
Increase in long-term borrowings	828,449,800,000	518,620,000,000
Increase in asset-backed loans	29,496,530,325	32,879,881,289
Increase in long-term asset-backed loans	104,595,491,045	130,708,700,625
Disposals of treasury stock	160,218,812,676	-
Subtotal	1,393,133,155,130	1,968,921,023,480
Cash outflows for financing activities		
Net decrease in short-term borrowings	(413,350,308,678)	-
Repayment of current portion of long-term debt	(852,687,415,928)	(761,627,963,604)
Repayment of long-term borrowings	-	(8,333,320,000)
Decrease in asset-backed loans	(23,000,000,000)	-
Dividend	(96,327,888,513)	(86,443,313,412)
Subtotal	(1,385,365,613,119)	(856,404,597,016)
Net cash provided by financing activities	7,767,542,011	1,112,516,426,464
EFFECT OF EXCHANGE RATE CHANGES IN CASH AND CASH EQUIVALENTS	2,425,337,519	6,483,029,440
NET INCREASE(DECREASE) IN CASH AND CASH EQUIVALENTS	(410,297,516,381)	459,334,389,159
CASH AND CASH EQUIVALENTS AT THE BEGINNING OF THE YEAR	754,506,961,500	295,172,572,341
CASH AND CASH EQUIVALENTS AT THE END OF THE YEAR	₩344,209,445,119	₩754,506,961,500

(Concluded)

See Notes.

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD.
NOTES TO SEPARATE FINANCIAL STATEMENTS
AS OF DECEMBER 31, 2016 2015 AND
FOR THE YEAR ENDED DECEMBER 31, 2016 AND 2015

1. CORPORATE INFORMATION:

Doosan Heavy Industries & Construction Co., Ltd. (the “Company”) was incorporated on September 20, 1962, with its headquarters in Changwon, Korea. As a power generation manufacturing company, the Company provides a variety of thermal and nuclear power generation equipment, including boilers, turbines, and generators. It also engages in engineering, procurement, and construction projects for thermal power plants. The Company also supplies seawater desalination and water treatment solutions to clients. In addition to the main domestic production facilities in Changwon, the Company operates a global network of production facilities including those in the United Kingdom, the Czech Republic, India, Romania, the USA and Vietnam.

The Company was listed on the Korea Exchange on October 25, 2000 and its major shareholder as of December 31, 2016 is Doosan Corporation (holding 36.82% equity ownership).

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES:

The Company maintains its official accounting records in Korean won and prepares separate financial statements in conformity with Korean International Financial Reporting Standards (“K-IFRS”), in the Korean language (Hangul).

(1) Basis of preparation

The Company’s financial statements are separate financial statements prepared in accordance with K-IFRS 1027, separated Financial Statements, in which the controlling company, investors of associates or participants of joint control company have stated as cost method.

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

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

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

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

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

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

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

Amendments to K-IFRS 1001—Disclosure Initiative

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

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

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

Amendments to K-IFRS 1038 – Intangible Assets

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

Amendments to K-IFRS 1016 – Property, plant and equipment & K-IFRS 1041 Agriculture: Bearer Plants

The amendments to K-IFRS 1016 'Property, Plant and Equipment' and K-IFRS 1041 'Agriculture' define a bearer plant and require biological assets that meet the definition of a bearer plant to be accounted for as property, plant and equipment in accordance with K-IFRS 1016, instead of K-IFRS 1041. The application of these amendments has no material impact on the disclosures or the amounts recognized in the Company's separate financial statements.

Annual Improvements to K-IFRS 2012-2014 Cycle

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

Amendments to K-IFRS 1027 – Separate Financial Statements

The following amendments discuss accounting for investment in subsidiaries, related parties, and joint ventures at cost basis and allow the selection of the application of K-IFRS 1039 Financial Instruments: Recognition and Measurement or the application of equity method accounting under K-IFRS 1028 Investment in Associates and Joint Ventures. The application of these amendments has no material impact on the disclosures or the amounts recognized in the Company's separate financial statements.

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

The Company has not applied the following new and revised standards and interpretations that have been issued, but are not yet effective:

Amendments to K-IFRS 1109 – Financial Instruments

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

With respect to the forthcoming implementation of K-IFRS 1109, in the first half year the Company's accounting team, through joint efforts with external accounting specialists, will likely perform a preliminary assessment of the impact of the K-IFRS 1109 on the Company's financial statements. In the second half year, the Company also plans to perform a detailed analysis to test the implementation of K-IFRS 1109 and, if necessary, modifies the existing internal control processes and accounting systems to fit for the purpose of K-IFRS 1109.

As part of the above process, the Company is in preliminarily assessing the potential impacts at the date of initial application of K-IFRS 1109 based on the Company's financial statements as at December 31, 2016 and the basis of the facts and circumstances that exist at that date. The Company, therefore, will provide disclosures in the financial statements as of and for the year ending December 31, 2017 for the estimated impacts in details.

General impacts per each major category under K-IFRS 1109 on the Company's separate financial statements are as follows:

- The classification of financial instruments by category and expected volatility in the carrying value of financial instruments (Note 10)
- Expected volatility in loss allowance for account receivables and other receivables (Note 7)

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

The core principle under K-IFRS 1115 is that an entity should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. The amendments introduce a five-step approach to revenue recognition and measurement: 1) Identify the contract with a customer, 2) Identify the

performance obligations in the contract, 3) Determine the transaction price, 4) Allocate the transaction price to the performance obligations in the contract and 5) Recognize revenue when (or as) the entity satisfies a performance obligation. This standard will supersede K-IFRS 1011 - Construction Contracts, K-IFRS 1018 - Revenue, K-IFRS 2113 - Customer Loyalty Programmes, K-IFRS 2115 - Agreements for the Construction of Real Estate, K-IFRS 2118 - Transfers of Assets from Customers and K-IFRS 2031 - Revenue-Barter Transactions Involving Advertising Services. The amendments are effective for annual periods beginning on or after January 1, 2018.

As part of the above process, the Company is in preliminarily assessing the potential impacts at the date of initial application of K-IFRS 1115 based on the Company's financial statements as at December 31, 2016 and the basis of the facts and circumstances that exist at that date. The Company, therefore, will provide disclosures in the financial statements as of and for the year ending December 31, 2017 for the estimated impacts in details.

General impact per each major category under K-IFRS 1115 on the Company's separate financial statements is as follows:

- The timing of revenue to be recognized and expected volatility in amount of revenue

As at December 31, 2016, meanwhile, sales revenue amounting KRW 4,705,321 million, due from customers for construction work amounting KRW 1,503,395 million, and due to customers for construction work amounting to KRW 667,763 million, respectively, would be affected by the implementation of K-IFRS 1115.

Amendments to K-IFRS 1102—Share-based Payment

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

Amendments to K-IFRS 1007 – Statement of Cash Flows

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

Amendments to K-IFRS 1012 – Income Taxes

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

The Company is under consideration for the effects of above mentioned enactments and amendments on the Company's separate financial statements.

(2) Investments in subsidiaries, joint ventures and associates

The Company has elected to use book value under previous generally accepted accounting principles as deemed cost for subsidiaries, joint ventures and associates at the date of transition to K-IFRS. After the date of transition, subsidiaries, joint ventures and associates are measured at cost. Dividend income from investments in subsidiaries, joint ventures and associates is recognized in profit or loss in the period when the shareholders' right to receive payment has been established

(3) Foreign currencies

The Company's financial statements are presented in the currency of the primary economic environment in which the entity operates (its functional currency). For the purpose of the separate financial statements, the results and financial position of each group entity are expressed in Korean Won, which is the functional currency of the entity and the presentation currency for the separate financial statements. Transactions in currencies other than the Company's functional currency are recognized at the rates of exchange prevailing at the dates of the transactions. Foreign currency gain (loss) from settlements of foreign currency transactions or translation of monetary items denominated in foreign currencies are recognized in profit or loss whereas the gain (loss) from qualified cash flow hedge and net investment hedge for foreign operations is deferred as an equity item.

(4) Cash and short-term deposits

Cash and cash equivalents include cash on hand, demand deposits, short-term, highly liquid investments with maturities (or date of redemption) of three months or less upon acquisition. Bank overdraft is classified as short-term borrowings on the separate statement of financial position.

(5) Financial assets

1) Initial recognition and measurement

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

- Financial assets at fair value through profit or loss

Financial assets at fair value through profit or loss includes financial assets classified as held for trading financial assets and financial assets designated at financial assets at fair value through profit or loss upon initial recognition. A financial asset is classified as held for trading financial assets, if it has been acquired principally for the purpose of selling or repurchasing in near term. All derivative assets including an embedded derivative separated from the host contract and accounted for as derivative are classified as held for trading financial assets unless they are designated as effective hedging instruments. These categories of assets are classified as current assets or non-current assets depending on the timing of settlement.

- Loans and receivables

Loans and receivables are non-derivative financial assets with fixed or determinable payments that are not quoted in an active market. Loans and receivables, with maturities of more than 12 months from the end of the reporting year, are classified as non-current assets. Otherwise they are classified as current assets.

- Available-for-sale financial investments

AFS financial investments are non-derivative financial assets that are designated as available for sale or are not classified as loans and receivables, held-to-maturity financial assets or financial assets at fair value through profit or loss. AFS financial investments are classified as non-current assets unless management has intention to sell them within 12 months from the end of the reporting year.

- Held-to-maturity financial assets

Held-to-maturity financial assets are non-derivative financial instruments with fixed or determinable payments and fixed maturity that the Company has the positive intention and ability to hold to maturity. Held-to-maturity financial assets, with maturities of more than 12 months from the end of the reporting year, are classified as non-current assets. Otherwise they are classified as current assets.

2) Subsequent measurement

Financial assets are generally recognized on the trade date, which is the date the Company becomes a party to a contract to purchase or sale of a financial asset. Except for financial assets at fair value through profit or loss, all financial assets are initially measured at fair value, plus transaction costs. In the case of financial assets at fair value through profit or loss, they are initially measured at fair value and related transaction costs are recognized as expense in the separate statement of profit or loss.

Financial assets at fair value through profit or loss and AFS financial investments are subsequently measured at fair value. Loans and receivables and held-to-maturity financial assets are measured at amortized cost using the effective interest method (“EIR”).

Gains or losses arising from changes in fair value of financial assets at fair value through profit or loss are recognized in the other non-operating income and expense line item in the separate statement of profit or loss. Dividends on financial assets at fair value through profit or loss are recognized in the finance income when the Company’s right to receive the dividends is established.

Changes in fair value of monetary and non-monetary financial assets which are classified as AFS financial investments are recognized in other comprehensive income (“OCI”) or loss. When the investment is disposed of or is determined to be impaired, the cumulative gain or loss previously accumulated in the equity is reclassified into other non-operating income and expense in the statement of profit or loss.

Interest from AFS financial investments calculated using the EIR is recognized in finance income in the statement of profit or loss. Dividends on AFS equity instruments are recognized in the finance income when the Company’s right to receive the dividends is established.

3) Impairment of financial assets

- Financial assets carried at amortized cost

The Company assesses at the end of each reporting year whether there is any objective evidence that a financial asset is impaired. Financial assets are considered to be impaired when there is objective evidence that, as a result of one or more events that occurred after the initial recognition of the financial asset, the estimated future cash flows of the investment have been affected.

Impairment loss is the difference between the asset's carrying amount and the present value of estimated future cash flows, discounted at the financial asset's original effective interest rate at initial recognition. The carrying amount of the financial asset is reduced by the impairment loss and the amount of the loss is recognized in profit or loss. The Company measures impairment loss based on fair value of financial assets from observable market data.

If, in a subsequent year, the amount of the impairment loss decreases and the decrease can be related objectively to an event occurring after the impairment was recognized, the previously recognized impairment loss is reversed and recognized in profit or loss.

- Available-for-sale financial investments

The Company assesses at the end of each reporting year whether there is any objective evidence that a financial asset or company of financial assets is impaired. For equity investments classified as AFS, a significant or prolonged decline in the fair value of the security below its cost is considered to be objective evidence of impairment. If there is objective evidence of impairment on AFS financial investments, the cumulative loss that has been recognized in other comprehensive income or loss less any impairment loss previously recognized in profit or loss is reclassified from equity to profit or loss. Impairment losses recognized in profit or loss for an investment in an equity instrument classified as AFS are not reversed through profit or loss. Meanwhile, if, in a subsequent year, the fair value of a debt instrument classified as AFS increases and the increase can be objectively related to an event occurring after the impairment loss was recognized in profit or loss, the impairment loss is reversed through profit or loss.

4) Derecognition

The Company derecognizes a financial asset only when the contractual rights to the cash flows from the financial asset expire, or when it transfers the rights to receive the contractual cash flows in a transaction in which all the risks and rewards of ownership of the financial asset are transferred. Offsetting of financial instruments financial assets and financial liabilities are offset as a net amount in the separate statement of financial position when the Company has a legally enforceable right to set off the recognized amounts of the assets and liabilities and intends to settle on a net basis, or to realize the assets and the liabilities simultaneously.

5) Offsetting of financial instruments

Financial assets and financial liabilities are offset as a net amount in the statement of financial position when the Group has a legally enforceable right to set off the recognized amounts of the assets and liabilities and intends to settle on a net basis, or to realize the assets and the liabilities simultaneously.

(6) Trade receivables

Trade receivables are amounts owed by customer for products and services provided in the ordinary course of business. Receivables expected to be collected within one year are classified as current assets. Otherwise they are classified as non-current assets. Trade receivables are initially measured at fair value and are presented as net of allowance for doubtful accounts, estimated on a individual basis based on past bad debt experience.

(7) Inventories

Inventories are stated at the lower of cost and net realizable value. Cost of inventories includes fixed and variable manufacturing overhead costs which are systematically allocated to inventories by appropriate methods based on each category of inventory. The cost of inventories is determined by the specific identification method for finished goods, work-in-process, and materials in transit, and gross average method for all other inventories.

The Company periodically reviews changes in net realizable value of inventories (current replacement cost for raw materials) due to damage, obsolescence, decline in selling prices and others and recognizes loss on inventory valuation. Loss on inventory valuation is charged to cost of sales when it is ordinary and to other non-operating expense when it is extraordinary. When the circumstances that previously caused inventories to be written down below cost no longer exist and the new market value of inventories subsequently recovers, the valuation loss is reversed to the extent of the original valuation loss and the reversal is deducted from cost of sales.

(8) Property, plant and equipment

Property, plant and equipment are stated at cost less subsequent accumulated depreciation and accumulated impairment losses. When parts of an item of property, plant and equipment have different useful lives, they are accounted for as separate items (major components) of property, plant and equipment. The cost of an item of property, plant and equipment includes expenditure that is directly attributable to the acquisition of the asset including the initial estimate of the costs of dismantling and removing the item and restoring the site on which it is located.

Subsequent costs incurred to replace part of previously recognized item of property, plant and equipment are added to the carrying amount of an asset, or recognized as a separate asset, if it is probable that future economic benefits associated with the assets will flow into the Company and the cost of an asset can be measured reliably. The carrying amount of what was replaced is derecognized. Routine maintenance and repairs are expensed as incurred.

Depreciation of property, plant and equipment is calculated to the cost of each asset less residual value using the straight-line method over the estimated useful lives of the assets as follows:

	Useful Lives		Useful Lives
Buildings	10~40 years	Machinery	5~20 years
Structures	10~40 years	Others	3~15 years

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

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

When the carrying amount of property, plant and equipment is higher than the recoverable amount, the carrying amount is adjusted to the recoverable amount and the difference is recognized as an impairment loss. Meanwhile, when the recoverable amount subsequently exceeds the carrying amount of the impaired asset, the excess is recorded as a reversal of impairment loss to the extent that the asset's carrying amount does not exceed the carrying amount that would have been determined, net of depreciation, if no impairment loss had been recognized. Upon the derecognition of a property, plant and equipment, the difference between the net disposal proceed and carrying amount of the item is recognized in other non-operating income (expense).

A revaluation surplus is recorded in OCI and credited to the asset revaluation reserve in equity. However, to the extent that it reverses a revaluation deficit of the same asset previously recognized in profit or loss, the increase is recognized in profit and loss. A revaluation deficit is recognized in the statement of profit or loss, except to the extent that it offsets an existing surplus on the same asset recognized in the asset revaluation reserve.

(9) Intangible assets

Intangible assets are initially measured at cost and are carried at cost less accumulated amortization and accumulated impairment losses. Subsequent expenditure on an intangible asset is capitalized only when it is probable that the expected future economic benefits that are attributable to the asset will increase. Intangible assets other than goodwill and intangibles with indefinite useful lives are amortized on a straight-line basis over their estimated useful lives from the date that they are available for use. The estimated useful lives of the assets are as follows:

	Useful Lives
Industrial property rights	5~10 years
Development costs	10~40 years
Others	5~20 years

However, useful lives of certain trademarks and memberships, which are determined to be indefinite since there is no foreseeable limit to the year over which the assets are expected to generate net cash inflows for the Company, are not amortized but tested for impairment once a year.

Expenditures relating to development activities are capitalized when the result of the development is for the development of new products or substantial improvement of functions of existing products; there is technical and commercial feasibility of completing the development; and the Company has the ability to measure reliably the expenditure attributable to the development. Capitalized development cost include expenditure on materials, salaries, wages and other employment-related costs of personnel directly engaged in generating assets and related overhead cost which is systematically allocated. Capitalized development costs are presented at the acquisition cost less accumulated amortization and accumulated impairment losses. Capitalized development costs are amortized using the straight-line method over the estimated useful life and amortization expenses are included in cost of goods manufactured and amortization in selling and administrative expenses. The expenditure on research and development which does not meet conditions noted above is recognized as an expense when it is incurred.

The estimated useful life and amortization method for intangible assets with finite useful lives are reviewed at the end of each reporting year and for the assets which have been assessed as having indefinite useful life, that assessment is revisited each year, with the effect of any changes in estimate being accounted for as a change in accounting estimate.

(10) Borrowing Costs

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

(11) Impairment of non-financial assets

Assets with indefinite useful lives such as goodwill are not amortized but tested for impairment annually. Assets which are amortized or depreciated are tested for impairment to determine whether events and circumstances indicating those assets have suffered impairment exist. Impairment loss is the excess of the carrying amount over recoverable amount. Recoverable amount is the higher of fair value less costs to sell and value in use. When it is not possible to estimate the recoverable amount of an individual asset, the Company estimates the recoverable amount of the cash-generating unit to which the asset belongs. When a reasonable and consistent basis of allocation can be identified, corporate assets are also allocated to individual cash-generating units, or otherwise they are allocated to the smallest company of cash-generating units for which a reasonable and consistent allocation basis can be identified. Except for goodwill, all non-financial assets that have incurred impairment are tested for reversal of impairment at the end of each reporting year.

(12) Borrowings

Borrowings are measured initially at fair value, net of transaction costs and subsequently at amortized cost using the effective interest method, with interest expense being recognized on an effective yield basis. The difference between the amount received and the redemption amount is amortized using the effective interest method and recognized in profit or loss. Borrowings are classified as non-current liabilities when the Company has an unconditional right to defer settlement of the liability for at least twelve months after the end of the reporting year. Otherwise borrowings are classified as current liabilities.

(13) Compound financial instruments

Compound financial instruments issued by the Company are classified as a financial liability or an equity instrument in accordance with the substance of the contractual arrangement and the definitions of a financial liability and an equity instrument. The conversion right of convertible bonds and stock warranties embedded in compound financial instrument issued by the Company which can, at the option of the holder, be converted into a fixed number of equity instruments in the Company, is classified as equity.

The liability component of a convertible bonds and bonds with stock warranties is recognized at the fair value of a similar liability on initial recognition and be measured in amortized cost by the (EIR) until it is extinguished. The equity component is measured by deducting the fair value of the financial liability from the fair value of the compound financial instrument as a whole on initial recognition. Any tax effect is reflected and the instrument is not remeasured afterward.

The conversion right that is an embedded derivative is recognized at the market value of a similar derivative or as the fair value derived from an appropriate valuation model. Subsequent changes in fair value of the conversion right are recognized as income or expense in profit or loss.

(14) Financial guarantee contracts

The Company has financial guarantee contract liabilities, which are obligations to pay specific amounts for indemnifying creditors' loss on insolvency of specific debtors according to initial and revised contract provisions of liabilities on the payment date. Financial guarantee contract liabilities are initially measured at their fair value less the direct transaction cost relating to the issuance. Subsequently, financial guarantee contract liabilities are measured at the higher of the amount of the obligations under the contract, as determined in accordance with KIFRS 1037 Provisions, Contingent Liabilities and Contingent Assets, and the amount initially recognized is less cumulative amortizations recognized in accordance with the KIFRS 1018 Revenue.

(15) Employee benefits liability

The Company operates a defined benefit plan, and generally makes contributions calculated based on periodic actuarial calculations to separately administered funds such as qualifying insurance companies or trust funds.

Defined benefit plans are post-employment benefit plans other than defined contribution plans. Generally, under the defined benefit plan, amounts to be paid as retirement benefits are determined by reference to a formula usually based on employees' earnings, years of service, ages and other considerations. The retirement benefit obligation recognized in the statement of financial position represents the present value of the defined benefit obligation, less fair value of plan assets and adjustments for unrecognized past service cost. The defined benefit obligation is calculated by an independent actuary using the projected unit credit method. The present value of the defined benefit obligation is denominated in the same currency in which the benefits are expected to be paid, and calculated at the discount rate which is the yield at the reporting date on high quality corporate bonds that have maturity dates approximating the terms of the Company's obligation.

Actuarial gain or loss from changes in actuarial assumptions or differences between actuarial assumptions and actual results is recognized in other comprehensive income or loss, which is immediately reflected in retained earnings. Past service cost is directly recognized in profit or loss in the year of the plan amendment or curtailment occurs.

(16) Provisions

Provisions are recognized when the Company has a present obligation (legal or constructive) as a result of a past event, it is probable that the Company will be required to settle the obligation, and a reliable estimate can be made of the amount of the obligation. A provision is measured using the present value of the cash flows estimated to settle the present obligation when the effect of the time value of money is material.

At the end of each reporting year, the remaining provision balance is reviewed and assessed to determine if the current best estimate is being recognized. The increase in provision due to passage of time is recognized as interest expense. If the existence of an obligation to transfer economic benefit is no longer probable, the related provision is reversed during the year. When some or all of the economic benefits required to settle a provision are expected to be recovered from a third party, a receivable is recognized as an asset if it is virtually certain that reimbursement will be received and the amount of the receivable can be measured reliably. In this case, any income arising from the third party reimbursement is netted off against the related expense to be recognized in the statement of profit or loss from the recognition of provisions.

(17) Leases

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

(18) Derivative financial instruments and hedge accounting

Derivatives are initially recognized at fair value at the date the derivative contract is entered into and are subsequently re-measured to their fair value at the end of each reporting year. The resulting gain or loss is generally recognized as profit or loss when it is incurred. However, the effective portion of changes in the fair value of derivatives that are designated and qualify as cash flow hedges is recognized in other comprehensive income or loss. The gain or loss relating to the ineffective portion is recognized immediately in profit or loss.

1) Hedge accounting

The Company operates fair value hedges to avoid the risk of fair value change, which is incurred from specific risk on assets, liabilities and firm contracts, and cash flow hedges to avoid the risk of future cash flow change, which is incurred from specific risk on expecting contracts. At the inception of the hedge relationship, the Company documents the relationship between the hedging instrument and the hedged item, along with its risk management objectives and its strategy for undertaking various hedge transactions. Furthermore, at the inception of the hedge and on an ongoing basis, the Company assesses whether the hedging instrument is highly effective in offsetting changes in fair values or cash flows of the hedged item.

- Fair value hedges

Changes in the fair value of derivatives that are designated and qualified as fair value hedges (or gain or loss on foreign currency translation, when a financial instrument, not derivative is designated as the hedging instrument) are recognized in profit or loss immediately, together with any changes in the fair value of the hedged asset or liability that are attributable to the hedged risk.

- Cash flow hedges

The effective portion of change in the fair value of derivatives that are designated and qualify as cash flow hedges for decreasing risk incurred from change of future cash flow on forecast transaction is recognized in other comprehensive income or loss. Amounts previously recognized in other comprehensive income or loss and accumulated in equity are reclassified to profit or loss in the years when the hedged item is recognized in profit or loss, or is reflected in the carrying amount of the associated asset or liability when the forecasted transaction occurs. Even when hedge accounting is discontinued due to the expiration, termination or exercise of hedging instrument, subsequent accounting treatment of amounts recognized in other comprehensive income or loss and accumulated in equity is the same. However, when hedge accounting is discontinued due to forecast transaction being no longer expected to occur, the gain or loss accumulated in equity is recognized immediately in profit or loss.

2) Separable embedded derivatives

Embedded derivatives are separated from the host contract and accounted for separately only if the following criteria has been met: (a) the economic characteristics and risks of the host contract and the embedded derivatives are not clearly and closely related to a separate instrument with the same terms as the embedded derivative that would meet the definition of a derivative, and (b) the hybrid (combined) instrument is not measured at fair value through profit or loss. Changes in the fair value of separable embedded derivatives are recognized immediately in profit or loss.

3) Other derivative financial instruments

Derivative financial instruments other than the effective portion of derivative financial instruments that are designated as the hedging instruments are measured at fair value. Gain or loss arising from changes in fair value is recognized in profit or loss.

(19) Dividend

Dividend payable is recognized as liability when declaration of the dividend is approved in the shareholders' meeting.

(20) Issued capital

Common shares are classified as equity and the incremental costs directly arising from capital transactions, net of tax are deducted from equity. Preferred shares are classified as equity only if the preferred shares are not redeemable or redeemable solely upon the Company's decision or the distribution of dividends is solely upon the Company's decision. For those preferred shares, once when the general meeting of shareholders meeting declares dividends, the Company recognizes the dividend liability accordingly.

The equity instruments that are reacquired by the Company (treasury shares) are recognized at cost and deducted from equity. No gain or loss is recognized in profit or loss on the purchase, sale, issue or cancellation of the Company's own equity instruments.

(21) Share-based payments

The Company measures the cost of share options granted to employees by reference to the estimated fair value of at the date at which they are granted. The share-based payment expenses are recognized on a straight-line basis over the vesting year reflecting expected forfeiture rate. The Company determines the fair value of share option using the Black-Scholes option pricing model.

(22) Revenue recognition

Revenue is measured at the fair value of the consideration received or receivable for the sale of goods and rendering of services arising in the course of the ordinary activities of the Company. Revenue is reduced for value added tax, estimated customer returns, rebates and trade discounts and is presented after eliminating intercompany transactions. The Company recognizes revenue when the amount of revenue can be measured reliably and it is probable that the economic benefits associated with the transaction will flow to the Company and when transaction meets the revenue recognition criteria specified by activity. When measuring revenue, the Company reliably estimates on contingencies related to sales based on historical data such as customer type, transaction type and trading terms.

1) Sale of goods

Revenue from the sale of goods is recognized when the Company has transferred to the buyer the significant risks and rewards of ownership of the goods. Revenue is recognized on initial delivery of the goods net of expected discounts and returns estimated based on historical data. The Company estimates and recognizes provision for warranty and sales return arising from sale of goods.

2) Rendering of services

If the outcome of a contract can be reliably measured, contract revenue and contract cost associated with the construction contract are recognized by reference to the stage of completion of the contract activity at the end of the reporting year. The stage of completion of the contract is assessed by reference to the proportion of the actual contract costs incurred to the costs to complete the contract. Should the construction contract expect to incur loss (total contract cost exceeds total contract revenue), such loss is immediately recognized in profit or loss. Revenue from service transactions other than a construction contract is recognized by using percentage of completion method.

3) Royalty Revenue

Royalty revenue is recognized on an accrual basis in accordance with the substance of the relevant agreement.

4) Revenues arising from dividends and Interest

Revenues arising from dividends are recognized when the right to receive the dividend payment is established.

Interest income from a financial asset is recognized when it is probable that the economic benefits will flow to the Company and the amount of income can be measured reliably. Interest income is recognized using the effective interest method.

5) Rental income

The Company's policy for recognition of revenue from rental income is recognized on a straight basis over term of the relevant lease.

(23) Construction contracts

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

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

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

(24) Government grants

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

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

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

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

(25) Taxes and deferred tax

Income tax expense is composed of current and deferred tax. Current and deferred tax are recognized in profit or loss, except when they relate to items that are recognized in other comprehensive income or loss or directly in equity, in which case, the current and deferred tax are also recognized in other comprehensive income or loss or directly in equity, respectively.

Income tax (current tax) expense is the sum of corporate tax for each fiscal year and tax added to corporate tax under corporate income tax law and other applicable laws. Additional income taxes or tax refunds for the prior years are included in income tax expense for the current year when recognized. The Company's liability for current tax is calculated using tax rates that have been enacted or substantively enacted by the end of the reporting year.

Deferred tax is recognized on temporary differences between the carrying amounts of assets and liabilities in the financial statements and the corresponding tax bases used in the computation of taxable income. Deferred tax assets and liabilities are not recognized if the temporary difference arises from the initial recognition (other than in a business combination) of other assets and liabilities in a transaction that affects neither the taxable income nor the accounting income. Deferred tax assets and liabilities are measured at the tax rates that are expected to apply in the year in which the liability is settled or the asset realized, based on tax rates (and tax laws) that have been enacted or substantively enacted by the end of the reporting year. A deferred tax liability for the temporary differences associated with investments in subsidiaries, associate and joint venture has not been recognized in the separate financial statements, since it is not expected to be realized.

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

(26) Non-current assets held for sale

Non-current assets and disposal companies are classified as held for sale if their carrying amount will be recovered principally through a sale transaction rather than through continuing use. Non-current assets (and disposal companies) classified as held for sale are measured at the lower of their previous carrying amount and fair value less costs to sell and are no longer depreciated or amortized.

(27) Greenhouse gas emissions

The Company receives free emission rights as a result of emission trading schemes. The rights are received on an annual basis and, in return, the Company is required to remit rights equal to its actual emissions. The Company has adopted the net liability approach to the emission rights granted. Therefore, a provision is recognized only when actual emissions exceed the emission rights granted and still held. The emission costs are recognized as other operating costs. Where emission rights are purchased from other parties, they are recorded at cost, and treated as a reimbursement right, whereby they are matched to the emission liabilities and re-measured to fair value. The changes in fair value are recognized in the statement of profit or loss and other comprehensive income.

3. SIGNIFICANT ACCOUNTING JUDGMENTS AND KEY SOURCES OF ESTIMATION UNCERTAINTIES:

The estimates and underlying assumptions are analyzed on an ongoing basis. The estimates and underlying assumptions are based on historical experiences and other factors including expectation on possible future events. Actual results may differ from these estimates. The following are critical assumptions and key sources of estimation uncertainty at the end of reporting year that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next fiscal year.

(1) Revenue recognition

Revenue for construction contracts is recognized using the percentage of completion method, which is recognized as work progresses in the ratio of actual costs incurred to estimated total costs. Any changes in the early stages of long-term projects, in the scope and costs of project implementation in the construction year, and in construction plans may have a significant effect on the amount of revenue recognized.

(2) Employee benefit liability

The Company operates a defined benefit plan. Defined benefit liability is calculated by annual actuarial valuations as at the reporting date. In order to perform the actuarial valuations, assumptions for discount rates, future salary increases and others are required to be estimated.

(3) Provisions

Provisions are recognized when the Company has a present obligation (legal or constructive) as a result of a past event, it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and a reliable estimate can be made of the amount of the obligation. In accordance with the relevant laws and practices, the estimated amounts may change to allow for additional provisions to be recognized in future years.

(4) Deferred tax

Recognition and measurement of deferred tax assets and liabilities requires judgment of the Company's management. Especially, the range of recognized and whether to be recognized are influenced by assumptions about future circumstances and judgment of management.

(5) Impairment of non-financial assets

Impairment exists when the carrying value of an asset or cash generating unit (CGU) exceeds its recoverable amount, which is the higher of its fair value less costs of disposal and its value in use. The fair value less costs of disposal calculation is based on available data from binding sales transactions, conducted at arm's length, for similar assets or observable market prices less incremental costs for disposing of the asset. The value in use calculation is based on a discounted cash flow (DCF) model. The cash flows are derived from the budget for the next five years and do not include restructuring activities that the Company is not yet committed to or significant future investments that will enhance the asset's performance of the CGU being tested. The recoverable amount is sensitive to the discount rate used for the DCF model as well as the expected future cash-inflows and the growth rate used for extrapolation purposes. The key assumptions used to determine the recoverable amount for the different CGUs.

4. FINANCIAL RISK MANAGEMENT:

The Company is exposed to various financial risks such as market risk, credit risk and liquidity risk relating to its operations. The objective of the Company's risk management policy is to improve financial structure and enhance the efficiency of treasury operations for sustainable business performance.

Financial risk management activities are performed by the Company's treasury department in accordance with risk management policies. In addition, the Company monitors financial risks regularly to minimize the effect from such relevant risks.

(1) Market risk

1) Foreign currency risk

The Company's exposure to the risk of changes in foreign exchange rates relates primarily to the Company's operating activities and net investments in foreign subsidiaries. The Company's objective of foreign currency risk management is to minimize uncertainty and volatility arising from fluctuations in foreign currency exchange rates. Foreign currency risk is managed in accordance to the Company's policy on foreign currencies, and currency trading for speculative purposes is prohibited.

The Company manages foreign currency risk by matching the inflow and the outflow of foreign currencies (natural hedges) and by using currency derivatives, such as currency forwards, for the remaining exposure.

The Company's book value of financial assets and liabilities denominated in foreign currencies which represents the maximum exposure to foreign currency risk as of December 31, 2016 and 2015, is as follows (in millions of Korean won):

	2016					
	USD	EUR	JPY	GBP	Others (*)	Total
Assets	₩536,324	₩10,643	₩2,968	₩9,595	₩112,838	₩672,368
Liabilities	618,688	86,678	23,200	10,949	52,876	792,391
Net assets (liabilities)	<u>₩(82,364)</u>	<u>₩(76,035)</u>	<u>₩(20,232)</u>	<u>₩(1,354)</u>	<u>₩59,962</u>	<u>₩(120,023)</u>

	2015					
	USD	EUR	JPY	GBP	Others (*)	Total
Assets	₩387,699	₩16,690	₩3,700	₩11,729	₩137,853	₩557,671
Liabilities	433,305	122,666	50,936	16,120	62,396	685,423
Net assets (liabilities)	<u>₩(45,606)</u>	<u>₩(105,976)</u>	<u>₩(47,236)</u>	<u>₩(4,391)</u>	<u>₩75,457</u>	<u>₩(127,752)</u>

(*1) Others are assets and liabilities denominated in foreign currencies other than USD, EUR, JPY and GBP.

A sensitivity analysis on the Company's income before tax for the period, assuming a 10% increase and decrease in currency exchange rates, for the years ended December 31, 2016 and 2015, is as follows (in millions of Korean won):

	2016		2015	
	10% increase	10% decrease	10% increase	10% decrease
Income before tax impact	₩(12,002)	₩12,002	₩(12,775)	₩12,775

The above-mentioned sensitivity analysis is based on monetary assets and liabilities denominated in foreign currencies other than the Company's functional currency as of December 31, 2016 and 2015.

2) Interest rate risk

Interest rate risk is related to borrowings and bank deposits with floating interest rates, and related interest income and expense are exposed to interest rate risk. The Company is exposed to interest rate risk mainly due to its borrowing or deposit with floating interest rates. The purpose of interest rate risk management is to minimize uncertainty and financial expense arising from interest rate fluctuation.

To manage its interest rate risk, the Company minimizes external borrowings using internal funds, reduces borrowings with high interest rates, maintains an appropriate balance between borrowings with floating interest rate, fixed-interest rate and improves system for short-term and long-term borrowings. The Company manages its interest rate risk preemptively through regular monitoring and adjustments to the changing domestic and overseas markets conditions and nature of its interest rates.

The book value of the Company's financial assets and liabilities with floating interest rates exposed to interest rate risk as of December 31, 2016 and 2015, is as follows (in millions of Korean won):

	<u>2016</u>	<u>2015</u>
Financial assets	₩39,500	₩509,200
Financial liabilities	<u>933,764</u>	<u>1,186,600</u>
Net liabilities	<u>₩(894,264)</u>	<u>₩(677,400)</u>

A sensitivity analysis on the Company's income before tax assuming a 1% increase and decrease in interest rates for the years ended December 31, 2016 and 2015, is as follows (in millions of Korean won):

	<u>2016</u>		<u>2015</u>	
	<u>1% increase</u>	<u>1% decrease</u>	<u>1% increase</u>	<u>1% decrease</u>
Income before tax impact	₩(8,943)	₩8,943	₩(6,774)	₩6,774

3) Price risk

The Company is exposed to equity price risks arising from its listed equity investments among AFS equity investments. The Company periodically measures the risk as the fair value or future cash flows of equity investments may fluctuate due to the changes in market prices. Important investments in the Company's portfolio are individually managed, and acquisition and disposal are approved by the Board of Directors.

(2) Credit risk

The credit risk refers to risk of financial losses to the Company when the counterparty defaults on the obligations of the contract. The credit risk arises from AFS financial assets, which are not equity securities, deposits in financial institution, financial derivatives and guarantee limit, as well as from the Company's normal transaction and investing activity.

To manage credit risk, the Company evaluates the credit worthiness of each customer or counterparty considering the financial status, past experience and other factors. The Company establishes credit limit for each customer and counterparty. The Company evaluates the credit worthiness using opened financial information and information provided by credit-rating institution when the Company contracts with new customers. The Company decides credit transaction limit and is provided with collateral and guarantee bond based on the evaluation. Also, the Company reevaluates customers' credit worthiness periodically, reassesses credit transaction limit and readjust level of collateral. The Company reports the present condition of delayed collection and collection measures periodically of these financial assets and prepares proper measures.

The maximum credit risk exposure for financial assets maintained by the Company and the book value for the financial assets as of December 31, 2016 and 2015, are as follows (in millions of Korean won):

	2016	2015
Loans and receivables:		
Cash and cash equivalents	₩344,209	₩754,507
Financial instruments	76,034	85,169
Trade and other receivables	941,236	1,004,458
Deposits	90,228	66,677
Held to maturity investment	2,294	3,100
AFS financial assets(Except equity security)	7	7
Derivative assets	87,321	64,295
	<u>₩1,541,329</u>	<u>₩1,978,213</u>
Total		

Apart from the above-mentioned financial assets, financial guarantee liabilities of the Company are explained in Note 30.

The Company's receivables' (Except deposits) aging analysis as of December 31, 2016 and 2015, is as follows (in millions of Korean won):

2016						
	Receivables assessed for impairment individually or on a collective basis					Total
	Before maturity	0-3 months	3-6 months	6-12 months	More than 12 months	
Trade receivables	₩216,085	₩45,169	₩72,612	₩78,830	₩337,346	₩750,042
Loans and other receivables	766,152	-	-	-	54,263	820,415
Accrued income	3,384	2,629	-	1,173	10,922	18,108
Total	₩985,621	₩47,798	₩72,612	₩80,003	₩402,531	₩1,588,565

2015						
	Receivables assessed for impairment individually or on a collective basis					Total
	Before maturity	0-3 months	3-6 months	6-12 months	More than 12 months	
Trade receivables	₩342,303	₩112,310	₩46,177	₩43,553	₩634,046	₩1,178,389
Loans and other receivables	455,718	-	-	-	37,624	493,342
Accrued income	3,272	-	-	1,698	12,550	17,520
Total	₩801,293	₩112,310	₩46,177	₩45,251	₩684,220	₩1,689,251

An allowance is recognized by applying appropriate allowance rates for receivables that can be assessed to be impaired individually due to insolvency, bankruptcy and others or an allowance can be estimated by assessing the cash flow of individual project. A group of financial assets that are not individually significant and have similar credit risk characteristics are assessed for impairment on a collective basis based on aging analysis and the Company's past experience of receivables collection. AFS financial assets, held-to-maturity financial assets, deposits in financial institutions and derivative instruments are individually assessed for impairment.

(3) Liquidity risk

The Company is exposed to liquidity risk, which is the risk that it will encounter difficulties in fulfilling the obligations associated with its financial liabilities that are settled by delivering cash or another financial asset.

The Company manages liquidity risk by matching the duration of financial assets and liabilities through estimating future cash flows from its operating, investing and financing activities, and securing moderate levels of liquidity in advance.

A summary of the Company's non-derivative liabilities' maturity as of December 31, 2016 and 2015, is as follows (in millions of Korean won):

	2016					
	Book value	Nominal cash flows according to contract				
		Total	Less than 1 year	1-2 years	2-5 years	More than 5 years
Principal	₩6,005,412	₩6,025,794	₩3,796,640	₩1,300,663	₩927,073	₩1,418
Interest	-	168,618	95,862	46,819	25,878	59
Total	<u>₩6,005,412</u>	<u>₩6,194,412</u>	<u>₩3,892,502</u>	<u>₩1,347,482</u>	<u>₩ 952,951</u>	<u>₩1,477</u>
	2015					
	Book value	Nominal cash flows according to contract				
		Total	Less than 1 year	1-2 years	2-5 years	More than 5 years
Principal	₩5,636,560	₩5,632,721	₩3,640,959	₩931,098	₩1,046,549	₩14,115
Interest	-	175,725	86,500	40,473	48,277	475
Total	<u>₩5,636,560</u>	<u>₩5,808,446</u>	<u>₩3,727,459</u>	<u>₩971,571</u>	<u>₩1,094,826</u>	<u>₩14,590</u>

The contractual amounts of financial liabilities in the above tables are calculated basis on non-discounted cash flows (including interest expense) and differ from its book values. Besides the above non-derivative liabilities, the maximum guarantee amounts based on financial guarantee contracts provided by the Company as of December 31, 2016 are described in Note 30.

(4) Capital risk

The Company performs capital risk management to maintain its ability to continuously provide profits to shareholders and parties in interest and to maintain optimum capital structure to reduce capital expenses. To achieve optimum capital structure, the Company uses debt-to-equity ratio as an index to manage the Company's capital similar to overall industry practice. Debt-to-equity ratio is calculated as total liabilities divided by equity and net borrowings-to-equity ratio is calculated as total net-borrowings divided by equity. Net borrowings are calculated by deducting cash and cash equivalents and financial instruments from total borrowings.

Debt-to-equity ratios as of December 31, 2016 and 2015, are as follows (in millions of Korean won):

	2016	2015
Total liabilities	₩7,415,661	₩7,211,633
Total equity	4,292,043	4,473,992
Debt-to-equity ratio	172.78%	161.19%
Cash and cash equivalents and short and long-term financial instruments	420,244	839,676
Total borrowings	3,988,635	4,025,300
Net borrowings	3,568,391	3,185,624
Net borrowings-to-equity ratio	83.14%	71.20%

5. RESTRICTED FINANCIAL ASSETS:

Details of restricted financial assets as of December 31, 2016 and 2015, are as follows (in millions of Korean won):

	2016	2015	Restrictions
Short-term financial instruments	₩5,233	₩9,686	Government R&D projects and others (*1)
	-	4,956	Advanced receipts from contractors (*2)
	50,400	50,444	Mutual Growth Fund
Long-term financial instruments	2	3	Deposits for maintenance of checking accounts
	-	10	Security deposits to Korea Securities Depository
Deposits	22,020	584	Reserves for repayments related to asset-backed loans
Total	₩77,655	₩65,683	

(*1) The amounts are restricted in use and may only be used for specific national R&D projects.

(*2) The amounts may only be used for designated construction contracts.

6. INVESTMENT SECURITIES:

(1) Investment securities as of December 31, 2016 and 2015, are summarized as follows (in millions of Korean won):

	Description	2016	2015
Short-term investments in securities	Held-to-maturity financial assets	₩2,294	₩-
Long-term investments in securities	AFS financial assets	98,050	47,980
	Held-to-maturity financial assets	-	3,100
Total		<u>₩100,344</u>	<u>₩51,080</u>

(2) AFS financial assets as of December 31, 2016 and 2015, are summarized as follows (in millions of Korean won):

	2016(*1)	2015
<u>Equity securities in listed company</u>		
HTC Pureenergy Inc	₩363	₩205
<u>Equity securities in non-listed company</u>		
Incheon-Kimpo Expressway Co., Ltd.	14,240	14,240
Hwaseong City Expressway Co., Ltd.	9,578	9,578
Gyeonggi East-West beltway Co., Ltd.	2,410	-
Others	348	713
Subtotal	<u>26,576</u>	<u>24,531</u>
<u>Investments in funds</u>		
Lanco Kondapalli Power Ltd.	12,050	12,050
Machinery Financial Cooperative	4,000	4,000
Construction Guarantee	2,138	2,138
Korea Finance Corporation Neoplux 2010-7	1,510	1,955
Others	6,605	3,094
Subtotal	<u>26,303</u>	<u>23,237</u>
<u>Beneficiary certificate</u>		
Wooribank Privatization fund	44,801	-
<u>Government and public bonds</u>		
Regional development bonds and others	7	7
Total	<u>₩98,050</u>	<u>₩47,980</u>

(*1) Parts of available-for-sale financial assets have been pledged as collateral for developers' project financing (See note 31).

Equity securities in non-listed company and investments in funds are carried at cost because there is no quoted market price and their fair value cannot be measured. When necessary, the entire carrying amount of the investments are tested for impairment.

- (3) Change in fair value of available-for-sale financial assets for the year ended December 31, 2016 and 2015 are as follows (in millions of Korean won):

	2016			2015		
	January 1, 2016	Valuation	December 31, 2016	January 1, 2015	Valuation	December 31, 2015
Equity securities in listed company	₩(5,033)	₩4,285	₩(748)	₩(4,959)	₩(74)	₩(5,033)
Corporate tax effect	1,218	(1,037)	181	1,200	18	1,218
Total	₩(3,815)	₩3,248	₩(567)	₩(3,759)	₩(56)	₩(3,815)

- (4) Held-to-maturity financial assets

Held-to-maturity financial assets as of December 31, 2016 and 2015 are as follows (in millions of Korean won):

	2016		2015	
	Current	Non-Current	Current	Non-Current
Other debt securities	₩2,294	₩-	₩-	₩3,100

7. TRADE AND OTHER RECEIVABLES:

- (1) Trade and other receivables as of December 31, 2016 and 2015, consist of the following (in millions of Korean won):

	2016			2015		
	Gross	Allowance for doubtful accounts	Book value	Gross	Allowance for doubtful accounts	Book value
<u>Current Asset</u>						
Trade receivables	₩746,572	₩(173,417)	₩573,155	₩1,175,024	₩(411,448)	₩763,576
Other receivables	208,816	(34,666)	174,150	199,337	(46,877)	152,460
Accrued income	18,107	(9,906)	8,201	17,520	(9,906)	7,614
Short-term loans	136,270	(123,761)	12,509	140,489	(123,562)	16,927
Subtotal	₩1,109,765	₩(341,750)	₩768,015	₩1,532,370	₩(591,793)	₩940,577
<u>Non-Current Asset</u>						
Long-term trade receivables	₩3,470	-	₩3,470	₩3,365	-	₩3,365
Long-term loans	475,328	(305,577)	169,751	153,516	(93,000)	60,516
Subtotal	₩478,798	₩(305,577)	₩ 173,221	₩156,881	₩ (93,000)	₩63,881
Total	₩1,588,563	₩(647,327)	₩941,236	₩1,689,251	₩(684,793)	₩1,004,458

- (2) The changes in allowance for doubtful accounts are as follows (in millions of Korean won):

	2016			
	January 1, 2016	Increase	Written off	December 31, 2016
<u>Trade and other receivables</u>				
Trade receivables	₩411,448	₩24,061	₩(262,092)	₩173,417
Other receivables	46,877	13,832	(26,043)	34,666
Accrued income	9,906	-	-	9,906
Loans	216,562	77,200	135,576	429,338
Subtotal	₩684,793	₩115,093	₩(152,559)	₩647,327
<u>Ohters</u>				
Due from customers for contract work	44,548	98	-	44,646
Deposits	277	1,162	-	1,439
Prepayments	331	3	(334)	-
Subtotal	₩45,156	₩1,263	₩(334)	₩46,085
Total	₩729,949	₩116,356	₩(152,893)	₩693,412

	2015			
	January 1, 2015	Increase	Written off	December 31, 2015
<u>Trade and other receivables</u>				
Trade receivables	₩360,446	₩51,002	₩-	₩411,448
Other receivables	39,464	7,444	(31)	46,877
Accrued income	-	9,906	-	9,906
Loans	110,804	105,758	-	216,562
Subtotal	₩510,714	₩174,110	₩(31)	₩684,793
<u>Ohters</u>				
Due from customers for contract work	42,638	1,910	-	44,548
Deposits	1,359	(182)	(900)	277
Prepayments	331	-	-	331
Other non-current assets	-	5,970	(5,970)	-
Subtotal	₩44,328	₩7,698	₩(6,870)	₩45,156
Total	₩555,042	₩181,808	₩(6,901)	₩729,949

Past due receivables are considered impaired. An allowance for doubtful accounts is individually recognized for receivables that can be assessed individually for impairment. An allowance for doubtful accounts is recognized based on the aging analysis and the Company's past collection experience of receivables for the group of receivables that are not individually significant and have similar characteristics.

8. INVENTORIES:

Inventories as of December 31, 2016 and 2015, are summarized as follows (in millions of Korean won):

	2016			2015		
	Acquisition cost	Valuation allowance	Book value	Acquisition cost	Valuation allowance	Book value
Finished goods	₩14,984	₩(10,010)	₩4,974	₩17,871	₩(6,547)	₩11,324
Work-in-process	171,867	-	171,867	194,348	-	194,348
Raw materials	33,054	(1,064)	31,990	29,018	(823)	28,195
Supplies	19,063	-	19,063	19,618	-	19,618
Materials-in-transit	27,991	-	27,991	53,747	-	53,747
Total	₩266,959	₩(11,074)	₩255,885	₩314,602	₩(7,370)	₩307,232

Losses on inventory valuation charged to the cost of sales amounted to ₩3,704 million and ₩1,720 million for the years ended December 31, 2016 and 2015, respectively.

9. DERIVATIVES:

Details of gain and loss on valuation of derivatives as of December 31, 2016 and 2015, are as follows (in thousands of foreign currencies and millions of Korean won):

Buy		Sell		Derivative financial assets (liabilities)	2016	Accumulated other comprehensive income (loss) (*1)	Firm commitment asset (liabilities) (*2)
Currency	Amount	Currency	Amount		Gain (loss) on valuation of derivative financial instruments		
Foreign currency forwards:							
KRW	4,531,452	USD	3,985,862	(254,417)	(135,651)	(13,525)	139,126
KRW	68,569	EUR	51,936	2,069	1,658	1,048	76
KRW	211,493	JPY	19,279,568	1,163	(5,724)	(635)	(2,049)
KRW	102,930	Others		(1,215)	(2,258)	682	1,570
USD	2,400,231	KRW	2,750,577	116,432	57,413	44,853	(16,191)
EUR	253,883	KRW	335,603	(8,781)	(3,007)	(3,121)	-
JPY	25,268,718	KRW	304,509	(28,043)	(216)	(2,882)	(348)
Others		KRW	137,725	(1,023)	(1,358)	(13)	-
Long-term borrowing denominated in foreign currencies (*3)							
KRW	-	USD	-	-	-	-	3,268
Embedded derivatives and others				131	447	131	-
Subtotal				₩(173,684)	₩(88,696)	₩26,538	₩125,452
Tax effect				-	-	(6,422)	-
Total				₩(173,684)	₩(88,696)	₩20,116	₩125,452

(*1) In consideration of the amounts adjusted in revenue and cost of sales, the effective portion of changes in fair value of cash flow hedges amounting to ₩20,116 million, net of tax, was recognized in accumulated other comprehensive income or loss.

(*2) In consideration of the amounts adjusted in revenue, firm commitment assets of ₩145,654 million and firm commitment liabilities of ₩20,202 million were recognized in the separate statements of financial position by applying a fair value hedge accounting.

(*3) The Company designated its long-term borrowings denominated in foreign currencies as hedging instruments to hedge the fair value change of firm commitments.

Buy		Sell		2015			
Currency	Amount	Currency	Amount	Derivative financial assets (liabilities)	Gain (loss) on valuation of derivative financial instruments	Accumulated other comprehensive income (loss) (*1)	Firm commitment asset (liabilities) (*2)
Foreign currency forwards:							
KRW	4,731,493	USD	4,248,441	₩(239,696)	₩(221,352)	₩(14,193)	₩90,354
KRW	109,836	EUR	83,624	1,341	672	3,523	(76)
KRW	257,857	JPY	24,461,934	6,051	(7,848)	(177)	(3,885)
KRW	57,458	Others		(1,482)	(242)	(1,239)	142
USD	2,271,565	KRW	2,563,584	80,163	78,084	42,702	(19,061)
EUR	344,648	KRW	464,024	(14,287)	(4,455)	(4,999)	114
JPY	29,201,574	KRW	337,724	(35,143)	2,295	(8,735)	(19)
Others		KRW	146,187	1,781	(923)	2,815	-
Long-term borrowing denominated in foreign currencies (*3)							
KRW	210,710	USD	200,000	-	-	-	23,690
Embedded derivatives and others (*4)				(447)	39,412	-	-
Subtotal				₩(201,719)	₩(114,357)	₩19,697	₩91,259
Tax effect				-	-	(4,767)	-
Total				₩(201,719)	₩(114,357)	₩14,930	₩91,259

(*1) In consideration of the amounts adjusted in revenue and cost of sale, the effective portion of changes in fair value of cash flow hedges amounting to ₩14,930 million, net of tax, was recognized in accumulated other comprehensive income or loss.

(*2) In consideration of the amounts adjusted in revenue, firm commitment assets of ₩122,442 million and firm commitment liabilities of ₩31,183 million were recognized in the separate statements of financial position by applying a fair value hedge accounting.

(*3) The Company designated its long-term borrowings denominated in foreign currencies as hedging instruments to hedge the fair value change of firm commitments.

(*4) Represents amounts related to exchange rights on exchangeable bonds issued by the Company and valuation of the share purchase contract between the Company and the investor of redeemable convertible preferred stock issued by Doosan Engineering & Construction Co., Ltd. ("DEC").

10. FINANCIAL INSTRUMENTS:

(1) Financial assets as of December, 31 2016 and 2015, are as follows (in millions of Korean won):

	2016						
	Financial assets at fair value through profit or loss	Loans and receivables	AFS financial assets	Held-to-maturity financial assets	Derivatives designated as hedging instruments	Carrying amount	Fair value
Cash and cash equivalents	W-	W344,209	W-	W-	W-	W344,209	W344,209
Short and long-term financial instruments	-	76,034	-	-	-	76,034	76,034
Short and long-term investments in securities	-	-	98,050	2,294	-	100,344	100,344
Derivative financial assets	62,977	-	-	-	24,344	87,321	87,321
Trade and other receivables	-	941,236	-	-	-	941,236	941,236
Deposits	-	90,228	-	-	-	90,228	90,228
Total	W62,977	W1,451,707	W98,050	W2,294	W24,344	W1,639,372	W1,639,372

	2015						
	Financial assets at fair value through profit or loss	Loans and receivables	AFS financial assets	Held-to-maturity financial assets	Derivatives designated as hedging instruments	Carrying amount	Fair value
Cash and cash equivalents	W-	W754,507	W-	W-	W-	W754,507	W754,507
Short and long-term financial instruments	-	85,169	-	-	-	85,169	85,169
Short and long-term investments in securities	-	-	47,980	3,100	-	51,080	51,080
Derivative financial assets	32,870	-	-	-	31,425	64,295	64,295
Trade and other receivables	-	1,004,458	-	-	-	1,004,458	1,004,458
Deposits	-	66,677	-	-	-	66,677	66,677
Total	W32,870	W1,910,811	W47,980	W3,100	W31,425	W2,026,186	W2,026,186

- (2) Financial liabilities as of December 31, 2016 and 2015, are as follows (in millions of Korean won):

	2016				
	Financial liabilities at fair value through profit or loss	Financial liabilities measured at amortized cost	Derivatives designated as hedging instruments	Carrying amount	Fair value
Trade and other payables	₩-	₩1,821,223	₩-	₩1,821,223	₩1,821,223
Borrowings and bonds	-	3,968,381	-	3,968,381	3,968,381
Derivative financial liabilities	39,702	-	221,303	261,005	261,005
Financial guarantee liabilities	-	3,304	-	3,304	3,304
Others	-	215,807	-	215,807	215,807
Total	₩39,702	₩6,008,715	₩221,303	₩6,269,720	₩6,269,720

	2015				
	Financial liabilities at fair value through profit or loss	Financial liabilities measured at amortized cost	Derivatives designated as hedging instruments	Carrying amount	Fair value
Trade and other payables	₩-	₩1,404,193	₩-	₩1,404,193	₩1,404,193
Borrowings and bonds	-	4,029,268	-	4,029,268	4,029,268
Derivative financial liabilities	29,283	-	236,731	266,014	266,014
Financial guarantee liabilities	-	2,718	-	2,718	2,718
Others	-	203,099	-	203,099	203,099
Total	₩29,283	₩5,639,278	₩236,731	₩5,905,292	₩5,905,292

- (3) As of December 31, 2016, the Company uses the following hierarchy for determining and disclosing the fair value of financial instruments by valuation technique. The level of hierarchy of fair value is as follows:

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

Level 2: Inputs other than quoted prices that are observable for the asset or liability either directly or indirectly.

Level 3: Inputs that are not based on observable market data (unobservable inputs).

The fair value of financial instruments traded in active markets is based on quoted market prices at the dates of the separate statements of financial position. These instruments are included in Level 1. Instruments included in level 1 primarily comprise listed equity investments classified as trading securities or AFS securities.

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

If one or more of the significant inputs are not based on observable market data, the instrument is included in level 3.

Specific valuation techniques used to value financial instruments include:

- Quoted or dealer price of similar instruments.
- The fair value of forward foreign exchange contracts determined by using forward exchange rates at the reporting date, with the resulting value discounted to present value.
- Other financial techniques such as discounted cash flow analysis.

As for trade and other receivables, the book value approximates reasonable estimates of fair value.

The level of fair value measurements of financial instruments as of December 31, 2016 and 2015, are as follows (in millions of Korean won):

	2016			
	Level 1	Level 2	Level 3	Total
<u>Financial assets measured at fair value:</u>				
Financial assets at fair value through profit or loss	W-	₩62,977	W-	₩62,977
AFS financial assets	45,163	341	-	45,504
Derivatives designated as hedging instruments	-	24,344	-	24,344
Total	₩ 45,163	₩87,662	W-	₩132,825
<u>Financial liabilities measured at fair value:</u>				
Financial liabilities at fair value through profit or loss	-	39,702	-	39,702
Derivatives designated as hedging instruments	-	221,303	-	221,303
Total	W-	₩ 261,005	W-	₩261,005

	2015			
	Level 1	Level 2	Level 3	Total
<u>Financial assets measured at fair value::</u>				
Financial assets at fair value through profit or loss	W-	W32,870	W-	W32,870
AFS financial assets	205	-	-	205
Derivatives designated as hedging instruments	-	31,425	-	31,425
Total	W205	W64,295	-	W64,500
<u>Financial liabilities measured at fair value:</u>				
Financial liabilities at fair value through profit or loss	-	29,283	-	29,283
Derivatives designated as hedging instruments	-	236,731	-	236,731
Total	W-	W266,014	W-	W266,014

The above tables exclude financial assets and financial liabilities which are not measured at fair value as differences between the carrying amounts and fair values are not significant.

During the years ended December 31, 2016 and 2015, there were no transfers between different levels of fair value measurements hierarchy.

- (4) Gains or losses on financial instruments for the years ended December 31, 2016 and 2015, are as follows (in millions of Korean won):

	For the years ended December 31, 2016						
	Profit or loss						Other comprehensive income (loss)(*1)
	Interest income (expense)	Dividend	(Reversal of) allowance for doubtful accounts	Impairment loss on financial instrument	Gain or loss on disposal	Gain or loss on financial guarantee	Net change in fair value of AFS financial assets
<u>Financial assets:</u>							
Loans and receivables	W12,366	W-	W(116,256)	W-	W(2,508)	W-	W-
AFS financial assets	-	27	-	(420)	-	-	4,285
Held-to-maturity financial assets	332	-	-	(806)	-	-	-
Total	W12,698	W27	W(116,256)	W(1,226)	W(2,508)	W-	W4,285
<u>Financial liabilities:</u>							
Financial liabilities at amortized cost	W(133,614)	W-	W-	W-	W-	W(4,303)	W-

(*1) Amounts in other comprehensive income or loss exclude deferred tax effect.

For the years ended December 31, 2015

	Profit or loss						Other comprehensive income (*1)
	Interest income (expense)	Dividend	(Reversal of) allowance for doubtful accounts	Impairment loss on financial instruments	Gain or loss on disposal	Gain or loss on financial guarantee	Net change in fair value of AFS financial assets
Financial assets:							
Loans and receivables	₩8,484	₩-	₩(173,928)	₩-	₩(4,973)	₩-	₩-
AFS financial assets	-	841	-	(587)	(906)	-	(74)
Held-to-maturity financial assets	172	-	-	-	-	-	-
Total	₩8,656	₩841	₩(173,928)	₩(587)	₩(5,879)	₩-	₩(74)
Financial liabilities:							
Financial liabilities at amortized cost	₩(124,061)	₩-	₩-	₩-	₩(350)	₩(3,919)	₩-

(*1) Amounts in other comprehensive income or loss exclude deferred tax effect.

Gains or losses on translation or transaction of foreign currencies arising from foreign currency transactions except for derivative financial instruments have been mostly incurred from financial assets classified as loans and receivables and financial liabilities measured at amortized cost.

Details of gains or losses on valuation and settlement of derivative financial instruments for the years ended December 31, 2016 and 2015 are as follows (in millions of Korean won):

	For the years ended December 31, 2016			For the years ended December 31, 2015		
	Profit or loss		Other comprehensive income (*)	Profit or loss		Other comprehensive income (*)
	Valuation	Settlement		Valuation	Settlement	
Derivatives held for trading	₩16,295	₩(16,468)	₩-	₩65,310	₩(10,432)	₩-
Fair value hedge derivatives	(98,728)	-	-	(172,033)	-	-
Cash flow hedge derivatives	(6,263)	(4,845)	6,842	(7,634)	(9,290)	71,086
Total	₩(88,696)	₩(21,313)	₩6,842	₩(114,357)	₩(19,722)	₩71,086

(*) Amounts in other comprehensive income or loss exclude deferred tax effect

Above gains or losses on financial instruments include amount in selling and administrative expenses, finance income or expenses and other comprehensive income or loss.

- (5) Financial assets and financial liabilities subject to an enforceable master netting arrangement or similar agreement as of December 31, 2016 are as follows (in millions of Korean won):

	Eligible for legal right to offset		
	Total assets (liabilities)	Offset amount	Amount after offset
Derivative financial instrument assets	₩141,875	₩(54,685)	₩87,190
Derivative financial instrument liabilities	(315,691)	54,685	(261,006)
Long-term investment securities	40,000	(40,000)	-
Asset-backed loans	(40,000)	40,000	-

11. SUBSIDIARIES, ASSOCIATES AND JOINT VENTURES:

- (1) Details of share of investments in subsidiaries, associates and joint ventures as of December 31, 2016 and 2015, are as follows (in millions of Korean won):

	Location of incorporation	Percentage of ownership (%)	2016	2015
<u>Subsidiaries:</u>				
DEC(*1)	Korea	80.41	1,539,976	1,334,435
Doosan Infracore Co., Ltd. ("DI")(*1,3)	Korea	36.40	1,483,471	1,483,471
Doosan Engine Co., Ltd. ("DE")(*1,3)	Korea	42.66	6,958	6,958
Doosan Cuvex Co., Ltd.(*4)	Korea	26.28	36,480	-
Doosan Asset Management Company Co., Ltd.	Korea	100.00	729	-
Doosan Power Systems S.A.	Luxembourg	100.00	404,074	404,074
Doosan Enpure Ltd.	UK	100.00	4,951	4,951
S.C. Doosan IMGB S.A.	Romania	99.86	55,290	47,809
Doosan Heavy Industries Vietnam Co., Ltd.	Vietnam	75.24	126,886	126,886
Doosan Heavy Industries Japan Corp.	Japan	100.00	1,993	1,993
Doosan Heavy Industries America Holdings Ltd.	USA	100.00	124,691	159,133
HF Controls Corp.	USA	100.00	5,642	5,642
Doosan Power Systems India Private Ltd.	India	99.48	104,925	104,925
Doosan Construction Site Solutions Vietnam Co., Ltd.	Vietnam	100.00	12,455	12,455
Doosan Heavy Industries Muscat LLC	Oman	70.00	319	319
Doosan Power System Arabia Company Limited	Saudi Arabia	51.00	3,968	2,039
Doosan GridTech Inc.	USA	100.00	40,772	-
Azul Torre Construction, Inc.(*4)	Philippines	40.00	9	-
Subtotal			<u>3,953,589</u>	<u>3,695,090</u>
<u>Associate:</u>				
Tamra Offshore Wind Power Co., Ltd.	Korea	36.00	<u>₩11,880</u>	<u>₩9,864</u>
<u>Joint venture:</u>				
Haman Industrial Complex Company(*2)	Korea	53.33	<u>₩-</u>	<u>₩1,292</u>
Total			<u><u>₩3,965,469</u></u>	<u><u>₩3,706,246</u></u>

- (*1) As of December 31, 2016 Investments in the investee have been provided as collateral for DEC's liabilities and hybrid instruments issued by Doosan Power Systems S.A. (See Note 31).
- (*2) Although the Company's equity interest in the investee is more than 50%, the investee is classified as a joint venture considering the agreement between the shareholders.
- (*3) Although the Company's ownership interest in the investee is less than a majority, the Company assessed that it exercises control over the investee based on its holdings relative to the size and dispersion of ownership interests held by other equity holders and the voting patterns in previous shareholders' meetings.
- (*4) Although the Company's equity interest in the investee is less than 50%, the investee is controlled by the Company considering the exercise of voting rights in the board of directors and others.

(2) The impairment of investments in subsidiaries, associates and joint ventures

Impairment loss is recognized in the amount of ₩196,469 million based on the impairment test of DEC for the year ended December 31, 2016 as the carrying amount exceeds the aggregate recoverable amount of DEC. It is classified non-operating expenses. Recoverable amounts of DEC is calculated based on value-in-use calculated by the valuation expert. The details of value-in-use assumption are as follows (in millions of Korean won):

	2016
I . The Carrying amount of DEC before impairment loss	₩1,334,435
The value of operation	1,826,313
Non-business assets(*1)	829,548
Enterprise value	2,655,861
Net Liabilities(*1)	(1,240,657)
The value of interest	1,415,204
II . The value of the investments in DEC owned by the Company (percentage of ownership: 80.41%)	1,137,966
III . Impairment loss(I - II)	₩196,469

- (*1) Non-business assets and Net liabilities is based on the financial statement of DEC as of December 31, 2016

Impairment loss is recognized in the amount of ₩34,442 million based on the impairment test of Doosan Heavy Industries America Holdings LLC for the year ended December 31, 2016 as the carrying amount exceeds the aggregate recoverable amount of Doosan Heavy Industries America Holdings LLC. It is classified non-operating expenses. Recoverable amounts of Doosan Heavy Industries America Holdings LLC is calculated based on value-in-use calculated by the valuation expert. The details of value-in-use assumption are as follows (in millions of Korean won):

	<u>2016</u>
I. The Carrying amount of Doosan Heavy Industries	
America Holdings LLC before impairment loss	₩159,133
The value of operation	65,690
Non-business assets(*1)	130,130
Enterprise value	<u>195,820</u>
Net Liabilities(*1)	<u>(71,129)</u>
The value of interest	<u>124,691</u>
II. The value of the investments in of Doosan Heavy Industries	
America Holdings LLC owned by the Company (percentage of ownership: 100%)	<u>124,691</u>
III. Impairment loss(I - II)	<u><u>₩34,442</u></u>

(*1) Non-business assets and Net liabilities is based on the financial statement of Doosan Heavy Industries America Holdings LLC as of December 31, 2016

The value in use is determined based on the present value of the future cash flows expected to be derived from an asset. The key assumptions used in the value in use calculations are as follows.

- ① Cash flows are projected using the future cash flows expected to be generated from business over a 5-year period. The cash flow projections are based on historical experience, actual business performance, backlog of orders, and an order plan for a 5-year period.
- ② Permanent growth rate

	<u>DEC</u>	<u>Doosan Heavy Industries America Holdings, LLC.</u>
Permanent growth rate	1.00%	2.00%
- ③ Discount rates for determining the recoverable amounts of DEC or Doosan Heavy Industries America Holdings LLC are based on industrial average and market rates as of December 31, 2016.
- ④ The primary assumptions used in the calculation of value-in-use are reflecting the management's forecast of future trends of construction and generation business, determined by the consideration of internal and external information.

12. PROPERTY, PLANT AND EQUIPMENT:

(1) Changes in property, plant and equipment for the years ended December 31, 2016 and 2015 consist of the following (in millions of Korean won):

	2016					Total
	Land	Buildings and structures	Machinery	Others	Construction in progress	
As of January 1	₩2,263,420	₩265,014	₩292,667	₩71,385	₩159,890	₩3,052,376
Acquisitions/ capital expenditures	-	-	78	483	166,575	167,136
Transfer	28,053	17,468	31,421	7,434	(79,366)	5,010
Disposals	(357)	(302)	(595)	(618)	-	(1,872)
Depreciation	-	(27,197)	(56,633)	(19,592)	-	(103,422)
Impairment	-	(713)	-	(760)	-	(1,473)
As of December 31	₩2,291,116	₩254,270	₩266,938	₩58,332	₩247,099	₩3,117,755
Acquisition cost	1,316,741	647,008	1,045,415	233,807	247,099	3,490,070
Accumulated depreciation (*1)	-	(392,738)	(778,477)	(175,475)	-	(1,346,690)
Accumulated gain on revaluation of land	974,375	-	-	-	-	974,375

(*1) Includes the accumulated impairment losses

	2015					Total
	Land	Buildings and structures	Machinery	Others	Construction in progress	
As of January 1	₩1,881,381	₩281,040	₩279,978	₩74,256	₩119,524	₩2,636,179
Acquisitions/ capital expenditures	77,021	238	155	632	153,456	231,502
Transfer	375	12,289	72,958	17,896	(111,816)	(8,298)
Net increase by revaluation	305,444	-	-	-	-	305,444
Others	-	(16)	76	646	(1,274)	(568)
Disposals	(801)	(1,254)	(5,111)	(322)	-	(7,488)
Depreciation	-	(27,283)	(55,389)	(21,723)	-	(104,395)
As of December 31	₩2,263,420	₩265,014	₩292,667	₩71,385	₩159,890	₩3,052,376
Acquisition cost	1,288,903	631,697	1,019,424	232,104	159,890	3,332,018
Accumulated depreciation (*1)	-	(366,683)	(726,757)	(160,719)	-	(1,254,159)
Accumulated gain on revaluation of land	974,517	-	-	-	-	974,517

(*1) Includes the accumulated impairment losses

As of December 31, 2016, certain property, plant and equipment have been pledged as collateral for borrowings (See Note 31)

- (2) The capitalized borrowing costs and capitalization interest rate for the years ended December 31, 2016 and 2015, are summarized as follows:

	<u>2016</u>	<u>2015</u>
Capitalized borrowing costs(in millions of Korean won):	₩5,393	₩1,044
Capitalization interest rate	3.58%	3.88%

- (3) Classification of depreciation expense for the years ended December 31, 2016 and 2015, is as follows (in millions of Korean won):

	<u>2016</u>	<u>2015</u>
Cost of sales	₩96,193	₩97,382
Selling, general and administrative expenses	7,229	7,013
Total	₩103,422	₩104,395

- (4) The Company engaged an accredited independent valuation specialist 'Pacific appraisal Co., Ltd.' to determine the fair value of its land and the date of the revaluation was October 31, 2015. As of December 31, 2016, there is no significant difference compared to the fair value of land measured as of December 31, 2015.

Fair value of the land was determined based on Officially Assessed Reference Land Price (OARLP) and the final appraised value was determined by the following procedures; i) remark a sales comparable, which is identical or similar to the subject property, in accordance with principles of marketability and replacement, ii) calculate the reference land price by using the sales comparison approach, and iii) review whether the valuation based on OARLP is appropriate.

The OARLP approach is one of valuation methods, which assess the price of property by modifying the time in line with the fluctuation rate of land price based on the comparable OARLP of nearby area and considering all elements of valuation factors such as locations, conditions of nearby land price, accessibility, shape and scale of parcel, road and traffic conditions, restrictions under public law, general demand, marketability and others. Other elements such as the rates of difference between the subject property and precedential appraisals, land price in nearby area and real estate business trends are also considered.

The carrying amount of land measured using the cost model is ₩1,316,741 million as of December 31, 2016. Changes in other comprehensive income from revaluation of land are as follows (in millions of Korean won):

	For the year ended December 31, 2016	For the year ended December 31, 2015
Beginning of the year	₩739,163	₩507,731
The increase of other comprehensive income by revaluation	-	305,505
The tax effect of other comprehensive income by revaluation	-	(73,932)
Transfer to retained earnings by disposal of land	(108)	(141)
End of the year	739,055	739,163

Loss on the revaluation of land which is reflected in the profit for the last year is ₩61 million.

13. INTANGIBLE ASSETS:

(1) Changes in intangible assets for the years ended December 31, 2016 and 2015, are as follows (in millions of Korean won):

	2016				
	Goodwill	Industrial rights	Development costs	Other intangible assets	Total
As of January 1	₩3,014	₩223	₩532,202	₩87,923	₩623,362
Acquisitions / capital expenditures	-	-	169,310	86	169,396
Transfer	-	-	(1,777)	12,244	10,467
Amortization	-	(49)	(53,638)	(18,818)	(72,505)
Impairment	-	-	(5,057)	(1,173)	(6,230)
As of December 31	₩3,014	₩174	₩641,040	₩80,262	₩724,490

	2015				
	Goodwill	Industrial rights	Development costs	Other intangible assets	Total
As of January 1	₩3,014	₩280	₩492,549	₩96,282	₩592,125
Acquisitions/ capital expenditures	-	-	150,669	2	150,671
Transfer	-	-	(7,596)	23,183	15,587
Disposals	-	-	-	(878)	(878)
Amortization	-	(57)	(47,738)	(19,675)	(67,470)
Impairment	-	-	(55,612)	(12,032)	(67,644)
Others	-	-	(70)	1,041	971
As of December 31	₩3,014	₩223	₩532,202	₩87,923	₩623,362

The carrying amounts of intangible assets with indefinite useful lives as of December 31, 2016 and 2015 amounted to ₩41,005 million and ₩42,178 million, respectively.

(2) Expenditure on research and development

Expenditure on research and development, which was recognized as an expense, amounted to ₩26,709 million and ₩19,723 million for the year ended December 31, 2016 and 2015, respectively..

(3) The capitalized borrowing costs and capitalization interest rate for the years ended December 31, 2016 and 2015, are summarized as follows:

	<u>2016</u>	<u>2015</u>
Capitalized borrowing costs(in millions of Korean won):	₩10,083	₩6,278
Capitalization interest rate	3.58%	3.88%

(4) Classification of amortization expense for the years ended December 31, 2016 and 2015, is as follows (in millions of Korean won):

	<u>2016</u>	<u>2015</u>
Cost of sales	₩57,762	₩55,274
Selling, general and administrative expenses	14,743	12,196
Total	₩72,505	₩67,470

14. BONDS AND BORROWINGS:

- (1) Short-term borrowings as of December 31, 2016 and 2015, are as follows (in millions of Korean won):

Type	Lender	Annual interest rate (%) as of December 31, 2016	2016	, 2015
Denominated in KRW	Korea Development Bank("KDB") and others	2.77~4.80	₩725,000	₩1,168,081
Denominated in foreign currencies	Woori Bank and others	0.10~4.03	262,208	229,762
Total			₩987,208	₩1,397,843

- (2) Details of bonds as of December 31, 2016 and 2015, are as follows (in millions of Korean won):

Type	Series	Maturity	Annual interest rate (%) as of December 31, 2015	2016	2015
Public subscription bonds in KRW	39	-	-	₩-	₩150,000
	42	2017.06.07	4.40	200,000	200,000
	43-2	2017.11.27	3.85	40,000	40,000
	43-3	2019.11.27	4.25	100,000	100,000
Public subscription bond in foreign currencies(*1)	-	2020.04.27	2.13	604,250	586,000
Private subscription bond	44	2017.05.15	4.11	90,000	90,000
	45	2017.07.31	3.90	100,000	100,000
	46-1	2018.06.20	3.11	40,000	-
	46-2	2018.06.20	4.15	30,000	-
	47-1	2018.06.20	5.50	50,000	-
Private subscription bond in foreign currencies	47-2	2018.06.20	5.50	30,000	-
	-	2019.10.12	3.80	96,680	-
Exchangeable bond	-	2019.11.18	3.80	36,255	-
	40	-	-	-	115,656
Subtotal				₩1,417,185	₩1,381,656
Less current portion				(444,623)	(265,656)
Less discount on bonds payable				(9,166)	(7,655)
Total				₩963,396	₩1,108,345

- (*1) The bonds denominated in foreign currencies are guaranteed by Korea Exim Bank (See Note 30).

- (3) Long-term borrowings as of December 31, 2016 and 2015, are as follows (in millions of Korean won):

Type	Lender	Maturity	Annual interest rate (%) as of December 31, 2016	2016	2015
Denominated in KRW	KDB and others(*1)	2017.03.15 ~ 2023.03.15	3.00 ~ 5.02	₩1,075,903	₩787,801
Denominated in foreign currencies	Arab Bank and others	-	-	-	175,800
	National Bank of Abu Dhabi and others	2018.09.28 ~ 2019.06.27	2.91~3.68	281,339	117,200
	Subtotal			₩1,357,242	₩1,080,801
	Less current portion			(407,777)	(540,800)
	TOTAL			₩949,465	₩540,001

- (*1) The Company's PP&E and others have been pledged as collateral for borrowings (See Note 31).

- (4) Asset-backed Loans

The Company transferred revenue from construction contracts to a special purpose entity, and the special purpose entity issued asset backed securities backed by transferred assets. As of December 31, 2016, the details of asset backed loans are as follows (in millions of Korean won):

Type	Maturity	Annual interest rate (%) as of December 31, 2016	2016
KDPP 1st Co., Ltd.	2017.03.16~ 2018.12.16	3.87	₩92,000
KDPP 2nd Co., Ltd.	2017.01.27~ 2018.04.27	4.21	135,000
	Subtotal		₩227,000
Less current portion			(128,350)
Less discounts			(229)
	Total		₩98,421

15. RETIREMENT BENEFIT OBLIGATION:

The Company operates a defined benefit plan for employees, and the actuarial valuation of plan assets and the defined benefit liability is performed by a reputable actuary using the projected unit credit method.

- (1) Details of retirement benefit obligation as of December 31, 2016 and 2015, are as follows (in millions of Korean won):

	<u>2016</u>	<u>2015</u>
Present value of defined benefit obligations	₩422,845	₩377,911
Fair value of plan assets (*1)	<u>(303,531)</u>	<u>(242,894)</u>
Retirement benefit obligation	<u>₩119,314</u>	<u>₩135,017</u>

- (*1) Includes employer contributions amounting to ₩1,098 million and ₩1,103 million to the National Pension Service as of December 31, 2016 and 2015, respectively.

- (2) Expenses incurred in relation to the employee benefit liability, which are reflected in the statement of income, for the years ended December 31, 2016 and 2015 are as follows (in millions of Korean won):

	<u>2016</u>	<u>2015</u>
Current service cost	₩41,626	₩38,439
Net interest cost	<u>4,521</u>	<u>4,812</u>
Total	<u>₩46,147</u>	<u>₩43,251</u>

- (3) Classification of the expenses related to the retirement benefit obligation recognized in the separate statements of income for the years ended December 31, 2016 and 2015, is as follows (in millions of Korean won):

	<u>2016</u>	<u>2015</u>
Cost of sales	₩39,007	₩34,776
Selling, general and administrative expenses	<u>7,140</u>	<u>8,475</u>
Total	<u>₩46,147</u>	<u>₩43,251</u>

- (4) Changes in defined benefit obligations for the year ended December 31, 2016 and 2015, are as follows (in millions of Korean won):

	<u>2016</u>	<u>2015</u>
As of January 1, 2016	₩377,911	₩359,214
Current service cost	41,626	38,439
Transfer in	958	526
Transfer out	(1,069)	(748)
Interest cost	11,235	10,591
Remeasurements of defined benefit liabilities:		
- Changes in demographic assumptions	(41)	(19,331)
- Changes in financial assumptions	11,118	24,347
- Others	(6,303)	12,900
Benefit payment	<u>(12,590)</u>	<u>(48,027)</u>
As of December 31, 2016	<u>₩422,845</u>	<u>₩377,911</u>

- (5) Changes in plan assets for the year ended December 31, 2016 and 2015, are as follows (in millions of Korean won):

	<u>2016</u>	<u>2015</u>
As of January 1, 2016	₩242,894	₩187,969
Expected return on plan assets	6,714	5,779
Transfer in	593	141
Transfer out	(242)	(203)
Remeasurements of plan assets	(3,365)	(2,391)
Contributions by employer directly to plan assets	61,200	64,900
Benefit payment	(4,263)	(13,301)
As of December 31, 2016	₩303,531	₩242,894

The plan asset is consists of term deposits. The actual returns on plan assets for the year ended 2016 and 2015 are ₩ 3,844 million and ₩3,804 million, respectively. In relation to defined benefit plan, the reasonable estimate of future employer contributions for the year ended December 31, 2017 amounts to ₩39,942 million.

- (6) Assumptions used on actuarial valuation as of December 31, 2016 and 2015, are as follows:

	<u>2016</u>	<u>2015</u>
Discount rate	2.90%	3.10%
Expected rate of salary increase	Employee 3.00% Director 3.20%	Employee 2.80% Director 2.80%

(7) The sensitivity analysis for the significant actuarial assumptions as of December 31, 2016 is as follows (in millions of Korean won):

	<u>2016</u>	<u>2015</u>
Discount rate	₩(28,507)	₩32,803
Salary increase rate	27,124	(24,267)

(8) Information about the maturity profile of the defined benefit obligation as of December 31, 2016, is as follows (in millions of Korean won):

	<u>0-1 year</u>	<u>1 year- 2 years</u>	<u>2-5 years</u>	<u>5-10 years</u>	<u>Total</u>
Expected payment	₩31,010	₩67,746	₩127,500	₩209,285	₩435,541

16. PROVISIONS:

Changes in provisions for the years ended December 31, 2016 and 2015, are as follows (in millions of Korean won):

	<u>2016</u>				<u>December 31, 2016</u>
	<u>January 1, 2016</u>	<u>Accrual</u>	<u>Reversal</u>	<u>Use</u>	
Provisions for warranties	₩113,561	₩13,372	₩(2,992)	₩(24,037)	₩99,904
Other provisions	52,698	710	(26,200)	(2,171)	25,037
Total	<u>₩166,259</u>	<u>₩14,082</u>	<u>₩(29,192)</u>	<u>₩(26,208)</u>	<u>₩124,941</u>
	<u>2015</u>				
	<u>January 1, 2016</u>	<u>Accrual</u>	<u>Reversal</u>	<u>Use</u>	<u>December 31, 2016</u>
Provisions for warranties	₩126,852	₩13,829	₩(4,336)	₩(22,784)	₩113,561
Other provisions	26,121	35,177	(8,600)	-	52,698
Total	<u>₩152,973</u>	<u>₩49,006</u>	<u>₩(12,936)</u>	<u>₩(22,784)</u>	<u>₩166,259</u>

The Company estimates expenditure required to settle the Company's obligations from product warranty, refund, related after service and others based on warranty period, historical claim rate and recognition of provision.

17. ISSUED CAPITAL:

The Company is authorized to issue 400,000,000 shares, with a par value of ₩5,000 per share and the number of ordinary stock issued as of December 31, 2016 and 2015 is 106,158,256. The number of redeemable convertible preferred stock (RCPS) issued as of December 31, 2016 and 2015 is 13,203,540. The number of shares with limited voting rights under the Korean Commercial Code as of December 31, 2016 and 2015 is nil and 7,312,505, respectively.

Changes in share capital and share premium for the years ended December 31, 2016 and 2015, are as follows (in millions of Korean won and number of shares):

	Number of shares		Share capital			Share premium		
	Common shares	Preferred shares(*1)	Common shares	Preferred shares(*1)	Total	Common shares	Preferred shares(*1)	Total
Balance at December 31, 2015	106,158,256	13,203,540	₩530,791	₩66,018	₩596,809	₩73,011	₩306,662	₩379,673
Balance at December 31, 2016	106,158,256	13,203,540	₩530,791	₩66,018	₩596,809	₩73,011	₩306,662	₩379,673

(*1) On December 6, 2014, the Company issued RCPS under the resolution of the Board of Directors on November 25, 2014 and the details are as follows:

	Descriptions
Purpose of issuance	Improve the Company's capital structure
Issued shares	Cumulative non-participating preferred stock
Number of issued shares	13,203,540 shares
Value of issued shares	₩28,250 per share
Voting right	Preferred stock has one voting right per share, same as common stock, and when a resolution of shareholders' meeting is unfavorable to the preferred stock, such resolution must be also approved at the preferred stockholders' meeting.
Dividend right	Based on the issue price, 3.3% per year (after 5 years, 0.75% will be added annually on the index of 5-year average rate of returns posted by the private bond value appraisal institutions)
Redeemable right	① 1 ~ 5 years: early redemption is available to the extent of 10% of total preferred stock with 10% plus issuance price. ② Redemption at year 5: redeemable all or some portion of preferred stock 5 years after the payment date. (At issue price plus 5.48% per annum less prepaid dividends) ③ 5 ~ 10 years: redeemable with adjusted amount based on the rate of returns posted by the private bond value appraisal institutions.
Convertible right	① Convertible all or some portion of preferred stocks ② Conversion period: 1~10 years after the payment date ③ Conversion ratio: 1 common stock to 1 preferred stock

The Company has the redeemable right in connection with the above RCPS and there are no contractual obligations for the Company to pay in cash and/or other financial assets. Therefore, the Company classified the RCPS as equity.

18. CAPITAL SURPLUS:

Other capital surplus as of December 31, 2016 and 2015, is summarized as follows (in millions of Korean won):

	<u>2016</u>	<u>2015</u>
Share premium	₩379,673	₩379,673
Asset revaluation reserve	594,262	594,262
Other capital surplus	<u>339,440</u>	<u>284,402</u>
Total	<u>₩1,313,375</u>	<u>₩1,258,337</u>

19. OTHER COMPONENTS OF EQUITY:

(1) Other components of equity as of December 31, 2016 and 2015, are summarized as follows (in millions of Korean won):

	<u>2016</u>	<u>2015</u>
Treasury stock	₩-	₩(90,261)
Share options	<u>10,297</u>	<u>11,988</u>
Total	<u>₩10,297</u>	<u>₩(78,273)</u>

The company disposed 7,312,505 shares of treasury stocks in 2016, and gain on disposal of treasury stocks amounting to ₩53,023 million (deducted by corporate tax effect amounting to ₩16,928 million) was recognized as other capital surplus.

(2) Share options

The Company granted share options to its directors several times. Share options are settled based on the Board of Directors' decision by issuance of new stock, treasury stock or cash settlement. Vesting condition offers two-year service after the resolution at the shareholders' meeting.

1) The number of granted options as of December 31, 2016, is as follows (in Korean won, except for share data):

Date of grant	Number of granted options	Exercisable period	Exercisable price	Expected fair value at the date of grant
2007.3.16	6,800	2010.3.17–2017.3.16	₩50,200	₩22,564
2008.3.21	13,400	2011.3.21–2018.3.20	121,200	49,565
2009.3.27	10,900	2012.3.27–2019.3.26	73,000	32,595
2010.3.26	26,800	2013.3.26–2020.3.25	90,100	41,077
2011.3.25	50,500	2015.3.25–2021.3.24	65,700	24,642
2012.3.30	114,800	2016.3.30–2022.3.29	66,800	16,337
2013.3.29	201,000	2016.3.29–2023.3.28	44,900	10,860
2014.3.28	342,300	2017.3.28–2024.3.27	34,550	7,948
Total	766,500			

2) Changes in share options for the year ended December 31, 2016, are as follows:

- Number of common shares to be issued:

Date of grant	January 1, 2016	Granted	Forfeited	December 31, 2016
2006.2.27	2,600	-	(2,600)	-
2007.3.16	8,600	-	(1,800)	6,800
2008.3.21	17,400	-	(4,000)	13,400
2009.3.27	13,200	-	(2,300)	10,900
2010.3.26	29,600	-	(2,800)	26,800
2011.3.25	59,900	-	(9,400)	50,500
2012.3.30	143,200	-	(28,400)	114,800
2013.3.29	279,900	-	(78,900)	201,000
2014.3.28	342,300	-	-	342,300
Total	896,700	-	(130,200)	766,500

- Valuation amount (in millions of Korean won):

Date of grant	January 1, 2016	Granted	Forfeited	December 31, 2016
2006.2.27	33	-	(33)	-
2007.3.16	194	-	(41)	153
2008.3.21	863	-	(198)	665
2009.3.27	430	-	(75)	355
2010.3.26	1,216	-	(115)	1,101
2011.3.25	1,477	-	(232)	1,245
2012.3.30	2,339	-	(464)	1,875
2013.3.29	3,040	-	(857)	2,183
2014.3.28	2,396	324	-	2,720
Total	11,988	324	(2,015)	10,297

The weighted-average price of shares on their respective exercise dates for the year ended December 31, 2016 and 2015 are ₩23,568 and ₩24,195, respectively. The weighted-average remaining contractual period of share options for December 31, 2016 and 2015 are 0.15 years and 0.8 years, respectively.

Compensation expense recognized related to the share option grant for the year ended December 31, 2016 and 2015 are ₩324 million and ₩985 million, respectively, and there is no compensation expenses to be recognized in the future years.

3) The Company calculated expenses by applying the fair value approach. Assumptions used in determining fair value of share options are as follows:

	Risk-free interest rate(*)	Expected exercisable period	Expected volatility	Expected dividend yield ratio
2006.2.27	5.01%	3.00	53.87%	1.69%
2007.3.16	4.79%	3.00	49.33%	5.67%
2008.3.21	5.25%	3.00	56.02%	7.33%
2009.3.27	3.71%	3.00	65.15%	9.00%
2010.3.26	3.82%	3.00	66.45%	10.00%
2011.3.25	3.66%	3.00	53.12%	10.00%
2012.3.30	3.57%	3.00	38.21%	13.33%
2013.3.29	2.45%	3.00	35.98%	15.00%
2014.3.28	2.88%	3.00	34.72%	15.00%

(*)Risk-free interest rate is based on a three-year treasury bond yield rate.

20. ACCUMULATED OTHER COMPREHENSIVE INCOME:

(1) Accumulated other comprehensive income as of December 31, 2016 and 2015, are summarized as follows (in millions of Korean won):

	<u>2016</u>	<u>2015</u>
Loss on valuation of AFS financial assets	₩(567)	₩(3,815)
Gain on valuation of derivative financial instruments	20,116	14,930
Gain on revaluation of land	<u>739,055</u>	<u>739,163</u>
Total	<u>₩758,604</u>	<u>₩750,278</u>

(2) Details of income taxes on accumulated other comprehensive income items directly reflected in equity for the year ended December 31, 2016 and 2015 are as follows (in millions of Korean won):

	<u>2016</u>			<u>2015</u>		
	Balance Before tax	Deferred tax assets (liabilities)	Balance after tax	Balance Before tax	Deferred tax assets (liabilities)	Balance after tax
Gain(Loss) on valuation of AFS financial assets	₩(748)	₩181	₩(567)	₩(5,033)	₩1,218	₩(3,815)
Gain(Loss) on valuation of derivative financial instruments	26,538	(6,422)	20,116	19,697	(4,767)	14,930
Gain(Loss) on revaluation of land	<u>975,007</u>	<u>(235,952)</u>	<u>739,055</u>	<u>975,149</u>	<u>(235,986)</u>	<u>739,163</u>
Total	<u>₩1,000,797</u>	<u>₩(242,193)</u>	<u>₩758,604</u>	<u>₩989,813</u>	<u>₩(239,535)</u>	<u>₩750,278</u>

21. RETAINED EARNINGS:

(1) Retained earnings as of December 31, 2016 and 2015 are as follows (in millions of Korean won):

	<u>2016</u>	<u>2015</u>
Legal reserve	₩127,568	₩117,868
Voluntary reserve	775,973	839,972
Unappropriated retained earnings	<u>709,416</u>	<u>989,001</u>
Total	<u>₩1,612,957</u>	<u>₩1,946,841</u>

(2) Changes in retained earnings for the years ended December 31, 2016 and 2015, are as follows (in millions of Korean won):

	2016	2015
I. Unappropriated retained earnings	₩709,416	₩989,001
Unappropriated retained earnings at the beginning of the period	946,973	1,455,399
Loss for the year	(231,495)	(451,146)
Remeasurements of defined benefit	(6,170)	(15,393)
Revaluation of Assets_Land	108	141
II. Transfer from voluntary reserve and others	85,000	64,000
III. Appropriation of retained earnings	(77,796)	(106,028)
Appropriated retained earnings	7,100	9,700
Dividend	70,696	96,328
IV. Unappropriated retained earnings at the end of the period	₩716,620	₩946,973

The proposed date of appropriation of retained earnings for 2016 is March 31, 2017, and the approved date of appropriation of retained earnings for 2015 was March 25, 2016.

(3) Details of dividends for the years ended December 31, 2016 and 2015, are as follows (in Korean won, except for share data and dividend amount):

	2016(*1)		2015(*1)	
	Common shares	Preferred shares	Common shares	Preferred shares
Number of shares issued	106,158,256	13,203,540	98,845,751	13,203,540
Face value per share	₩5,000	₩5,000	₩5,000	₩5,000
Dividend rate	11.00%	18.65%	17.00%	18.65%
Dividend per share	₩550.00	₩932.25	₩850.00	₩932.25
Dividend amount (in millions of Korean won)	₩58,387	₩12,309	₩84,019	₩12,309

(*1) Represents the amount proposed prior to the date of approval of issuance of financial statements, but not recognized as appropriations of retained earnings on the financial statements as of the reporting date.

The Company paid Dividends for 2015 in April, 2016, and is planning to pay dividends for 2016 in April, 2017.

(4) Dividend propensity and Dividend yield ratio for the year ended December 31, 2016 and 2015 are as follows:

		2016		2015	
		Common shares	Preferred shares	Common shares	Preferred shares
Dividend propensity	Dividends/ Loss for the year	(*1)	(*1)	(*1)	(*1)
Dividend yield ratio	Dividends per share/ Share price as of December 31, 2016	2.02%	(*2)	4.13%	(*2)

(*1) The Company did not calculate the dividend propensity for the year ended December 31, 2016 and 2015 as the Company recorded loss for the year.

(*2) The Company did not calculate the dividend yield ratio of preferred shares as preferred shares has not market price.

22. REVENUES:

Details of revenues for the year ended December 31, 2016 and 2015 are as follows (in millions of Korean won):

	2016	2015
Finished goods	₩341,047	₩367,323
Construction	4,361,897	4,776,844
Others	2,377	2,127
Total	<u>₩4,705,321</u>	<u>₩5,146,294</u>

23. CONSTRUCTION CONTRACTS :

(1) Accumulated profit and loss of construction contracts as of December 31, 2016 and 2015 are as follows (in millions of Korean won):

	2016					
	Accumulated construction cost	Accumulated construction revenue	Accumulated construction profit	Receivables from construction contracts-billed	Receivables from construction contracts-unbilled	Due to customers for contract work
Power generation	₩25,553,319	₩30,699,208	₩5,145,889	₩177,167	₩1,239,824	₩553,818
Water	3,487,802	3,953,709	465,907	61,505	128,741	58,200
Industrial plants	401,044	496,219	95,175	5,718	13,438	9,585
Castings & forgings	4,463	8,607	4,144	-	8,607	-
Plant construction	1,294,002	1,327,101	33,099	2,529	27,258	1,297
General construction	2,008,108	2,259,668	251,560	466,884	130,173	44,863
Total	<u>₩32,748,738</u>	<u>₩38,744,512</u>	<u>₩5,995,774</u>	<u>₩713,803</u>	<u>₩1,548,041</u>	<u>₩667,763</u>
	2015					
	Accumulated construction cost	Accumulated construction revenue	Accumulated construction profit	Receivables from construction contracts-billed	Receivables from construction contracts-unbilled	Due to customers for contract work
Power generation	₩22,939,565	₩27,658,253	₩4,718,688	₩219,450	₩1,140,386	₩653,368
Water	3,668,334	4,055,496	387,162	131,936	128,573	1,418
Industrial plants	703,137	750,561	47,424	6,567	30,301	15,745
Plant construction	1,235,228	1,257,669	22,441	7,674	14,618	10,882
General construction	2,026,072	2,179,703	153,631	756,117	113,126	55,382
Total	<u>₩30,572,336</u>	<u>₩35,901,682</u>	<u>₩5,329,346</u>	<u>₩1,121,744</u>	<u>₩1,427,004</u>	<u>₩736,795</u>

(2) Changes in construction contracts for the year ended December 31, 2016 and 2015 are as follows (in millions of Korean won):

				2016			
	Ordering organization	Project name	Term	January 1	Changes in contract	Realized revenue	December 31
Power Generation	EVN and others	Vinh Tan 4 Thermal Power Plant and others	2014.02~2018.06	₩11,431,311	₩3,286,503	₩3,563,681	₩11,154,133
Water	SWCC and others	Yanbu ph.3 MSF and others	2012.11~2016.12	636,475	588,173	296,230	928,418
Industrial plants	Hyundai Heavy & Industries Co., Ltd and others	AOE-II reduction gear and others	2014.06~2017.11	63,098	59,825	56,430	66,493
Castings & forgings	Jurong Shipyard private limited	Jurong	2016.06~2017.04	-	10,770	8,607	2,163
Plant Construction	KOMIPO Co.,Ltd. and Others	Shinboryung 1,2 electric generation construction and others	2013.06~2017.06	478,151	127,063	104,206	501,008
General Construction	Hanyang Development Co., Ltd. and others	Seoul Forest Trimage and others	2013.07~2017.04	845,280	438,501	335,120	948,661
Total				₩13,454,315	₩4,510,835	₩4,364,274	₩13,600,876
				2015			
	Ordering organization	Project name	Term	January 1	Changes in contract	Realized revenue	December 31
Power Generation	EVN and others	Vinh Tan 4 Thermal Power Plant and others	2014.02~2018.06	₩11,170,597	₩4,052,849	₩3,792,135	₩11,431,311
Water	SWCC and others	Yanbu ph.3 MSF and Others	2012.11~2016.12	809,156	263,010	435,691	636,475
Industrial plants	Tekniko Singapore Pte ltd. and others	Cikarang GTSU 2 and STRE 2 and others	2014.04~2016.04	173,941	(41,773)	69,070	63,098
Plant Construction	KOMIPO Co., Ltd. and Others	Shinboryung 1,2 electric generation construction and others	2013.06~2017.06	128,220	488,819	138,888	478,151
General Construction	Hanyang Development Co., Ltd. and others	Seoul Forest Trimage and others	2013.07~2017.01	957,047	231,420	343,187	845,280
Total				₩13,238,961	₩4,994,325	₩4,778,971	₩13,454,315

- (3) Changes in profit or loss in current and future reporting periods and the book value of due from customers for contracts work (excluding foreign currency translation effect) resulting from changes in total contract revenue and in total estimated contract costs for construction contracts in progress as of December 31, 2016 are as follows (in millions of Korean won):

	Changes in estimated total contract revenue	Changes in estimated total contract cost	Effect on profit(loss) for the year	Effect on profit(loss) for the future	Changes in due from(to) customer for contract work	provision for construction loss
Power generation	₩300,787	₩152,120	₩64,197	₩84,470	₩64,197	₩5,112
Water	103,640	74,582	27,949	1,109	27,949	122
Industrial plants	1,891	(1,792)	1,752	1,931	1,752	-
Plant construction	31,652	26,717	4,355	580	4,355	2,516
General construction	16,269	14,443	(1,338)	3,164	(1,338)	2,152
Total	₩454,239	₩266,070	₩96,915	₩91,254	₩96,915	₩9,902

Impacts on current and future profit (loss) were calculated based on total contract revenue and cost which were estimated based on the current circumstances as of December 31, 2016. Those estimations may change in the future.

- (4) As of December 31, 2016, details of contracts that the revenue was recognized based on the percentage of completion measured by contract cost incurred, which is more than 5% of sales of years ended December 31, 2016 are as follows. There is no contract that the company decided not to disclose due to the prohibition by related regulations or contracts (in millions of Korean won).

	Contract date	Due date / Delivery date in the contract	Percentage of completion	Due from customers for contract work		Trade receivables	
				Amount	Allowance for doubtful accounts	Amount	Allowance for doubtful accounts
UAE BNPP #1, 2 NSSS	2010-06-30	2018-05-01	97	₩-	₩-	₩-	₩-
Ras Al Khair	2010-08-31	2017-03-27	94	12,996	-	74,797	-
Nghi Son II	2014-12-24	2019-07-30	-	-	-	-	-
Vinh Tan 4 TPP	2014-02-26	2018-06-30	82	270,792	-	15,012	200
UAE BNPP #3, 4 NSSS	2010-06-30	2020-05-01	74	-	-	-	-
Shinhanwul #1, 2 NSSS	2009-07-31	2018-02-28	94	34,486	-	-	-
Shingori #5, 6 NSSS	2014-08-28	2022-03-31	36	-	-	-	-
Shingori #3, 4 NSSS	2006-08-28	2017-03-31	98	22,209	-	-	-
Yanbu Ph.3 MSF(*1)	2012-12-04	2016-12-15	90	55,253	-	-	-
Qurayyah Add-On (*1)	2009-09-16	2013-02-15	100	130,681	-	-	-
Fadhili CHP	2016-11-12	2019-11-30	3	-	-	-	-
Song Haul	2015-04-10	2019-10-02	33	154,219	-	234	-
Raipur Chhattisgarh TPP(*1)	2010-01-22	2016-04-03	100	-	-	76,707	-
Subic Redondo	2016-10-13	2021-06-30	-	-	-	-	-
UAE BNPP #1, 2 T/G	2010-06-30	2018-05-01	93	-	-	-	-
Vinh Tan 4 Extension	2016-03-10	2020-01-03	14	21,757	-	-	-
UAE BNPP #3, 4 T/G	2010-06-30	2020-05-01	81	28,950	-	-	-
Shinboryung #1, 2 Boiler	2013-10-22	2017-06-30	100	3,795	-	16,139	-
Shingori #3, 4 main equipment construction	2007-03-09	2017-03-31	96	14,278	-	-	-
Gangneung Anin #1, 2 Boiler	2015-03-31	2021-12-31	15	69,200	-	-	-
Goseong Hai #1, 2 Boiler	2015-12-04	2021-04-30	9	-	-	54,116	-
Saemangeum Collective Energy Facility (*1)	2013-09-30	2016-03-31	100	1,870	-	-	-
Taeon IGCC Gasfication plant(*1)	2011-11-15	2016-03-31	100	-	-	232	-
Shingori #5, 6 main equipment construction	2015-06-12	2022-09-30	5	9,447	-	-	-
Ain Sokhna Boiler Package	2010-02-17	2017-04-08	100	-	-	493	20
Doha RO Stage-I	2016-05-30	2018-11-29	6	-	-	973	-
Shinhanwul #1, 2 T/G	2009-06-23	2019-02-28	99	38,057	-	-	-
Shingori #5, 6 T/G	2014-08-28	2022-10-31	36	3,400	-	-	-
Karabatan CCPP	2014-12-27	2018-02-25	61	-	-	-	-
IEC Add-On Project	2011-03-28	2017-12-31	98	-	-	7,159	-
Hwasung Dongtan 2 integrated energy systems main facility	2014-08-11	2017-12-22	77	38,086	-	-	-
Shingori #3, 4 T/G	2006-08-28	2017-03-31	99	-	-	34	-
Seoul #1, 2 integrated main facility	2013-07-05	2018-11-30	79	26,577	-	-	-
Al Khalij Boiler Package (*1)	2008-11-01	2015-12-31	98	39,285	-	7	-
Vogtle #3,4 AP1000 (*1)	2008-05-08	2015-09-07	100	10,771	-	-	-

(*1) The Company is negotiating to extend contract period with respective contract party.

24. CLASSIFICATION OF EXPENSES BASED ON NATURE:

Details of classification of expenses based on nature of expenses (cost of sale and administrative expense) for the year ended December 31, 2016 and 2015 are as follows (in millions of Korean won):

	<u>2016</u>	<u>2015</u>
Changes in inventories	₩51,346	₩23,536
Purchase of raw materials and goods	2,045,588	2,409,637
Salaries	706,713	701,829
Depreciation & amortization	175,927	171,865
Others	<u>1,442,309</u>	<u>1,611,199</u>
Total	<u>₩4,421,883</u>	<u>₩4,918,066</u>

25. SELLING AND ADMINISTRATIVE EXPENSES:

Selling and administrative expenses for the year ended December 31, 2016 and 2015 are as follows (in millions of Korean won):

	<u>2016</u>	<u>2015</u>
Salaries	₩163,130	₩151,023
Severance and retirement benefit	7,565	10,510
Employee welfare benefits	24,747	25,693
Travel	7,270	7,636
Training	11,864	12,055
Taxes and dues	3,725	2,826
Commissions	60,474	57,005
Rents	12,215	11,728
Bad debt expenses	25,321	52,912
Depreciation	7,229	7,013
Amortization	14,743	12,196
Insurance	7,158	6,750
Research	22,138	17,904
Foreign market development expenses	25,007	30,108
Advertising	23,361	24,076
Others	<u>43,340</u>	<u>46,607</u>
Total	<u>₩459,287</u>	<u>₩476,042</u>

26. FINANCE INCOME AND EXPENSES:

(1) Details of finance income for the year ended December 31, 2016 and 2015 are summarized as follows (in millions of Korean won):

	<u>2016</u>	<u>2015</u>
<u>Finance income:</u>		
Interest income	₩12,698	₩8,656
Dividend income	27	3,167
Gain on foreign currency transactions	108,207	146,463
Gain on foreign currency translation	30,801	27,087
Gain on settlement of derivative financial instruments	212,110	233,729
Gain on valuation of derivative financial instruments	90,446	133,249
Gain on valuation of firm commitment	146,694	241,321
Others	<u>55</u>	<u>157</u>
Total	<u>₩601,038</u>	<u>₩793,829</u>

(2) Details of finance expenses for the year ended December 31, 2016 and 2015 are summarized as follows (in millions of Korean won):

	<u>2016</u>	<u>2015</u>
<u>Finance expenses:</u>		
Interest expenses	₩133,614	₩124,061
Loss on foreign currency transactions	112,815	144,516
Loss on foreign currency translation	82,195	85,074
Loss on redemption of bonds	-	350
Loss on settlement of derivative financial instruments	233,423	253,451
Loss on valuation of derivative financial instruments	179,142	247,606
Loss on valuation of firm commitment	47,956	57,517
Others	<u>22,323</u>	<u>21,069</u>
Total	<u>₩811,468</u>	<u>₩933,644</u>

27. OTHER NON-OPERATING INCOME AND EXPENSES:

- (1) Details of other non-operating income for the year ended December 31, 2016 and 2015 are summarized as follows (in millions of Korean won):

	<u>2016</u>	<u>2015</u>
<u>Other non-operating income:</u>		
Commissions earned	₩10,604	₩8,475
Profit on disposal of PP&E	502	3,531
Others	<u>28,184</u>	<u>5,290</u>
Total	<u>₩39,290</u>	<u>₩17,296</u>

- (2) Details of other non-operating expense for the year ended December 31, 2016 and 2015 are summarized as follows (in millions of Korean won):

	<u>2016</u>	<u>2015</u>
<u>Other non-operating expenses:</u>		
Loss on disposal of PP&E	₩253	₩4,834
Loss on disposal of intangible assets	-	123
Other bad debt expenses	91,035	128,896
Donation	8,962	12,130
Loss on disposal of trade receivables	2,508	4,973
Impairment loss on PP&E	1,473	-
Impairment loss on intangible assets	6,230	67,718
Impairment loss on non-current assets classified as held-for-sale	27,539	-
Impairment loss on long-term investments securities	1,226	587
Impairment loss on subsidiaries investments	233,603	202,749
Others	<u>31,659</u>	<u>77,809</u>
Total	<u>₩404,488</u>	<u>₩499,819</u>

28. INCOME TAX EXPENSE:

- (1) Components of income tax expense for the year ended December 31, 2016 and 2015, are as follows (in millions of Korean won):

	<u>2016</u>	<u>2015</u>
Current income tax expense	₩48,470	₩8,700
Tax effect of temporary difference	(91,514)	134,539
Total income tax expense (benefit)	<u>(43,044)</u>	<u>143,239</u>
Current income tax related to items recognized in equity during the year	(16,963)	(45)
Deferred tax related to items recognized in equity during the year	<u>(689)</u>	<u>(86,158)</u>
Income tax expenses(benefit)	<u>₩(60,696)</u>	<u>₩57,036</u>

- (2) The components of Current income tax expense and deferred income tax related to items directly charged to equity for the year ended December 31, 2016 and 2015, are as follows (in millions of Korean won):

	<u>2016</u>	<u>2015</u>
Gain on disposal of treasury Stock	₩16,928	₩-
Revaluation Surplus	-	73,932
Gain(Loss) on valuation of AFS Securities	1,037	(18)
Gain(Loss) on valuation of Derivatives	1,656	17,203
Remeasurements of defined benefit liabilities:	<u>(1,969)</u>	<u>(4,914)</u>
Total	<u>₩17,652</u>	<u>₩86,203</u>

(3) Changes in deferred tax assets and liabilities for the year ended December 31, 2016 and 2015, are as follows (in millions of Korean won):

	<u>January 1, 2016</u>	<u>Changes</u>	<u>December 31, 2016</u>
Retirement benefit obligation	₩85,283	₩12,859	₩98,142
Allowance for doubtful accounts	170,161	(31,926)	138,235
Property, plant and equipment	14,078	110	14,188
Reserve for research and human resource	(41,601)	19,591	(22,010)
Development costs	37,221	(2,184)	35,037
Derivatives (including Firm commitments)	27,203	(15,221)	11,982
Foreign currency assets and liabilities	16,698	7,138	23,836
Revaluation Surplus	(417,806)	34	(417,772)
Others	(46,066)	101,113	55,047
Total	<u>₩(154,829)</u>	<u>₩91,514</u>	<u>₩(63,315)</u>
	<u>January 1, 2015</u>	<u>Changes</u>	<u>December 31, 2015</u>
Retirement benefit obligation	₩77,468	₩7,815	₩85,283
Allowance for doubtful accounts	128,468	41,693	170,161
Property, plant and equipment	11,229	2,849	14,078
Reserve for research and human resource	(56,110)	14,509	(41,601)
Development costs	39,676	(2,455)	37,221
Derivatives (including Firm commitments)	56,098	(28,895)	27,203
Foreign currency assets and liabilities	1,431	15,267	16,698
Revaluation of Assets_Land	(343,919)	(73,887)	(417,806)
Others	65,369	(111,435)	(46,066)
Total	<u>₩(20,290)</u>	<u>₩(134,539)</u>	<u>₩(154,829)</u>

(4) The amount of deductible temporary differences for which no deferred tax asset is recognized in the statements of financial position as at December 31, 2016 and 2015 are as follows (in millions of Korean won):

	<u>2016</u>	<u>2015</u>
Deductible temporary differences	₩599,252	₩404,388

The probability of deferred tax assets being realized depends on the Company's ability to generate taxable income in future years over which temporary differences are expected to reverse, the economic situation, industry forecast and other various factors. The Company periodically reviews such matters.

- (5) Temporary differences related to investment in subsidiaries, associates and joint ventures which are not recognized as deferred tax asset (liability) as at December 31, 2016 and 2015 are as follows (in millions of Korean won):

	<u>2016</u>	<u>2015</u>
Subsidiaries	₩473,502	₩262,281

- (6) Reconciliation of loss before income tax at the Korea statutory tax rate to income tax benefit at the effective income tax rate of the company is as follows (in millions of Korean won):

	<u>2016</u>	<u>2015</u>
Loss before income tax expense	₩(292,191)	₩(394,110)
Income tax expense at statutory income tax rate	(70,710)	(95,375)
Adjustments:		
Non-temporary difference	13,668	11,525
Temporary differences	90	131,971
Tax credits	(2,041)	(1,522)
Others	<u>(1,703)</u>	<u>10,437</u>
Income tax expense (benefit)	₩(60,696)	₩57,036
Effective tax rate(income tax/Profit before income tax expense)(*1)	<u>-</u>	<u>-</u>

(*1) Effective tax rate is not calculated due to net loss before income tax.

29. EARNINGS PER SHARE:

- (1) Basic earnings per share

Basic earnings(loss) per share for the year ended December 31, 2016 and 2015 are as follows (in Korean won):

	<u>2016</u>	<u>2015</u>
Net income(loss) for the period	₩(231,494,534,587)	₩(451,146,063,561)
Less : preferred stock dividends	12,309,000,165	12,309,000,165
Income for the period of ordinary shares	(243,803,534,752)	(463,455,063,726)
Weighted-average number of ordinary shares outstanding	<u>103,001,492 Shares</u>	<u>98,845,751 Shares</u>
Basic earnings(loss) per share	<u>₩(2,367)</u>	<u>₩(4,689)</u>

Weighted-average number of ordinary shares outstanding for the year ended December 31, 2016 and 2015 are as follows (number of shares):

	<u>2016</u>	<u>2015</u>
Issued common shares as of January 1	106,158,256	106,158,256
Treasury stock as of January 1	(7,312,505)	(7,312,505)
Disposal of treasury stock	<u>4,155,741</u>	<u>-</u>
Weighted average number of common shares outstanding as of December 31	<u>103,001,492</u>	<u>98,845,751</u>

(2) Diluted earnings per share

Diluted earnings per share for the year ended December 31, 2016 and 2015 are as follows (in Korean won, except for share data):

	<u>2016</u>	<u>2015</u>
Net income	₩(243,803,534,752)	₩(463,455,063,726)
Adjustments:		
Adjusted income	(243,803,534,752)	(463,455,063,726)
Adjusted weighted-average number of common shares outstanding	<u>103,001,492 Shares</u>	<u>98,845,751 Shares</u>
Diluted earnings per share	<u>₩(2,367)</u>	<u>₩(4,689)</u>

There is no difference between adjusted weighted-average number of common shares outstanding for the calculation of diluted earnings per share and weighted average number of common shares outstanding for the calculation of basic earnings per share.

Details of potential ordinary shares, that are potentially dilutive but were not included in the calculation of earnings per share, as there were no dilutive effects for the year ended December 31, 2016 and 2015 are as follows (number of shares):

	<u>2016</u>	<u>2015</u>
Stock option (2006.02.27)	-	2,600
Stock option (2007.03.16)	6,800	8,600
Stock option (2008.03.21)	13,400	17,400
Stock option (2009.03.27)	10,900	13,200
Stock option (2010.03.26)	26,800	29,600
Stock option (2011.03.25)	50,500	59,900
Stock option (2012.03.30)	114,800	143,200
Stock option (2013.03.29)	201,000	279,900
Stock option (2015.03.28)	342,300	342,300
Redeemable convertible preferred shares	<u>13,203,540</u>	<u>13,203,540</u>
Total	<u>13,970,040</u>	<u>14,100,240</u>

30. COMMITMENTS AND CONTINGENCIES:

(1) Check provided as collateral

As of December 31, 2016, 6 blank checks have been provided as collateral to Incheon-Kimpo Expressway Co., Ltd. in relation with Incheon-Kimpo Expressway SOC construction project and to Hwaseong City Expressway Co., Ltd. in relation with Bibong-Maesong Expressway SOC construction project.

(2) Operating lease commitments

As of December 31, 2016, the Company's total future minimum lease payments under non-cancellable operating lease contracts are as follows (in millions of Korean won):

	Amount
Less than 1 year	₩5,882
More than 1 year ~ less than 5 years	23,934
More than 5 years	11,983
	<u>₩41,799</u>

- (3) As of December 31, 2016, the Company has credit lines for borrowings, bank overdraft and others from financial institutions up to ₩4,163,371 million and used ₩3,266,605 million. As a result, the Company maintains unused credit lines amounting to ₩896,766 million.
- (4) As of December 31, 2016, the Company is involved in pending lawsuits as a defendant with total claims against the Company amounting to approximately ₩290,052 million. The outcome of such pending lawsuits cannot presently be determined.
- (5) As of December 31, 2016, the Company has entered into 12 technical contracts with Mitsubishi Heavy Industries, Ltd. and others and these contracts have been effective from April 2, 1997 to June 4, 2035. For the year ended December 31, 2016 and 2015, royalty payments amounted to ₩12,762 million and ₩6,669 million, respectively.
- (6) As of December 31, 2016, payment guarantees by financial institutions amounting to ₩6,920,524 million have been provided for the Company in connection with domestic and overseas construction projects and others.
- (7) As of December 31, 2016, the Company provides guarantees amounting to ₩55,558 million to customers, who have leased Yong-in Administration Town, for the deposits of contract amount. Also, in relation with return of membership fee, the Company provides guarantees amounting to ₩37,880 million to Club Mow members. In addition, the Company provides guarantees amounting to ₩47,900 million to Keystone Investment and others for purchase commitment of beneficiary certificate.

(8) Details of payment guarantees provided by the Company for the subsidiaries and other related parties as of December 31, 2016 are as follows (in thousands of foreign currencies and millions of Korean won):

Guarantee	Currency	Guarantee amount	Translated in KRW	Guarantee plan	Beneficiary
Doosan Babcock Ltd.	GBP	98,260	145,442	Construction guarantee	Ineos- Ethan PJT and others
	USD	138,369	167,219	Construction guarantee	Bechtel – Trimble County
Doosan Heavy Industries America LLC	USD	7,000	8,460	Debt guarantee	Woori Bank
Doosan Hydro Technology LLC	USD	19,855	23,995	Construction guarantee	KEB Hana Bank and others
	USD	35,180	42,515	Debt guarantee	JP Morgan and others
Doosan Power Systems S.A.	EUR	150,964	191,362	Construction guarantee	Societe Nationale d'Electricite et de Thermique KDB
	EUR	66,666	84,506	Debt guarantee	
	GBP	30,000	44,405	Debt guarantee	KEB Hana Bank and others
Doosan Power Systems Arabia Company Limited	USD	8,000	9,668	Debt guarantee	Korea Exim Bank
Doosan Power Systems India Private Ltd.	EUR	1,806	2,289	Construction guarantee	Yes Bank
	INR	500,000	8,895	FX guarantee	ICICI Bank
	INR	30,300,614	539,048	Construction guarantee	KEB Hana Bank and others
	INR	2,000,000	35,580	Trade finance guarantee	Axis Bank
	INR	12,700,000	225,933	Debt guarantee	HSBC and others
	JPY	1,273	13	Construction guarantee	Axis Bank
	USD	119,469	144,378	Construction guarantee	KEB Hana Bank and others
Doosan Enpure Ltd.	GBP	87,787	129,940	Construction guarantee	KEB Hana Bank and others
HF Controls Corp.	USD	5,000	6,043	Debt guarantee	Shinhan bank
S.C. Doosan IMGB S.A.	EUR	72,000	91,267	Debt guarantee	KDB and others
Doosan Heavy Industries Muscat LLC	OMR	5,775	18,123	Debt guarantee	HSBC
	USD	157,465	190,296	Construction guarantee	Haya Water
Doosan Skoda Power s.r.o	USD	575	694	Construction guarantee	Federal Electricity Commission
Doosan Heavy Industries Vietnam Co., Ltd.	USD	115,052	139,040	Construction guarantee	Bharat Mumbai Container Terminals Private Limited
	USD	207,850	251,187	Debt guarantee	Korea Exim Bank and others
Doosan Engineering Construction Co., Ltd.	EUR	14,775	18,729	Construction guarantee	Korea Exim Bank and others
	USD	26,081	31,519	Construction guarantee	KEB Hana Bank and others
KDPP 1st Co., Ltd.	KRW	110,400	110,400	Debt guarantee	KDB and others
KDPP 2nd Co., Ltd.	KRW	162,000	162,000	Debt guarantee	KDB and others
KDPP 3rd Co., Ltd.	KRW	70,000	70,000	Debt guarantee	KDB and others
Happy Tomorrow 20th Co., Ltd.	KRW	48,000	48,000	Debt guarantee	Shinyoung Securities and others
Happy Tomorrow 25th Co., Ltd.	KRW	50,000	50,000	Debt guarantee	The Korean Teachers' Credit Union and others
Happy Tomorrow 27th Co., Ltd.	KRW	30,000	30,000	Debt guarantee	Shinyoung Securities and others
			<u>₩3,020,946</u>		

(9) As of December 31, 2016, the details of guarantees provided by the Company for developers' project financing are as follows (in millions of Korean won):

Type	Project name	Lender	Guarantee period	Guarantee limit	Loan balance	Guarantee type
ABCP	Yong-in Administration Town	Meritz Securities Co., Ltd.	2016.04.07~ 2017.04.04	₩45,000	₩45,000	Debt assumption
Loan	Seoul Forest Trimage	Korea Federation of Community Credit Cooperative and others	2014.04.29~ 2017.08.29	135,000	135,000	Debt assumption
Short-term Debenture	Seoul Forest Trimage	LIG Securities and others	2014.04.29~ 2017.08.29	35,000	35,000	Debt assumption
	Sangdo-dong Doosan We've(2nd)	Hyundai Securities and others	2016.02.26~ 2017.02.24	17,000	17,000	Debt assumption
	Hongcheon Club Mow	Hyundai Securities and others	2016.04.19~ 2017.04.18	175,400	175,400	Debt assumption
		Subtotal		<u>₩227,400</u>	<u>₩227,400</u>	
		Total		<u>₩407,400</u>	<u>₩407,400</u>	

(10) Other commitments

As of December 31, 2016, the Company has entered into a contract to assume a liability (Limit: ₩92,600 million) if guarantee fails to complete construction of The Land Park Office in Magok district and the project of Gwanggyo Doosan We've.

31. ASSETS PLEDGED AS COLLATERAL:

- (1) As of December 31, 2016, assets that have been pledged as collateral for the Company's borrowings and others are as follows (in millions of Korean won):

<u>Collateralized asset</u>	<u>Collateralized amount</u>	<u>Amount of borrowings and others</u>	<u>Pledgee</u>
Land, buildings, equipment and others	₩990,485	₩954,747	KDB, Korea Exim Bank
Ordinary stock of DEC	124,132	70,000	KDPP 3rd Co., Ltd.
RCPS issued by DEC	366,154	180,000	Happy Tomorrow 25th Co., Ltd. and others
Total	<u>₩1,480,771</u>	<u>₩1,204,747</u>	

- (2) As of December 31, 2016, shares of Incheon-Kimpo Expressway Co., Ltd. with the book value of ₩14,240 million and shares of Hwaseong City Expressway Co., Ltd. with the book value of ₩9,578 million are pledged for the project financing of those entities to Kookmin Bank and others.
- (3) As of December 31, 2016, the Company and Korea Exim Bank have made a stock exchange contract regarding hybrid equity instruments issued by Doosan Power Systems S.A., a subsidiary of the Company. Under the contract, in case that Korea Exim Bank obtains hybrid equity instruments due to put option execution by investors, the Korea Exim Bank has a right to convert hybrid equity instruments into ordinary share of the Company. As the Korea Exim Bank exercises right, the Company has options to i) convert hybrid equity instruments (USD19.1 of face value) to ordinary share (one share) ii) pay in cash (amounting to issuance price USD 300,000,000). In this regard, the Company provided 75,509,366 shares of DI stock and 29,650,000 shares of DE stock as collateral.

32. RELATED-PARTY TRANSACTIONS:

(1) The related parties of the Company and nature of their relationship with the Company as of December 31, 2016 and 2015 are as follows :

1) As of December 31, 2016, the Company's ultimate parent company is Doosan Corporation (equity ownership: 36.82%).

2) As of December 31, 2016 and 2015 the details of the Company's subsidiaries are as follows :

Related party	Equity ownership (%) (*1)	
	2016	2015
Doosan Asset Management Company Co., Ltd.	100.00	100.00
Doosan Heavy Industries Vietnam Co., Ltd.	100.00	100.00
HF Controls Corp.	100.00	100.00
Doosan HF Controls Asia Co., Ltd.	100.00	100.00
PT. Doosan Heavy Industries Indonesia	55.00	55.00
Doosan Heavy Industries Japan Corp.	100.00	100.00
S.C. Doosan IMGB S.A.	99.86	99.85
Doosan Enpure Ltd.	100.00	100.00
Doosan Construction Site Solutions Vietnam Co., Ltd.	100.00	100.00
Doosan Power Systems India Private Ltd.	100.00	100.00
Doosan Heavy Industries America Holdings LLC	100.00	100.00
Doosan Hydro Technology LLC	100.00	100.00
Doosan Engineering & Services LLC	100.00	100.00
Doosan Heavy Industries America LLC	100.00	100.00
Doosan ATS Amercia, LLC	100.00	100.00
Doosan Power Service America, LLC. (*2)	100.00	-
Doosan Skoda Power s.r.o	100.00	100.00
Skoda Power Private Ltd.	100.00	100.00
Doosan Power Systems Pension Trustee Company Co., Ltd.	100.00	100.00
Doosan Power Systems Overseas Investments Ltd.	100.00	100.00
Doosan Babcock Ltd.	100.00	100.00
Doosan Power Systems Holdings Ltd.	100.00	100.00
Doosan Power Systems Europe Limited GmbH	100.00	100.00
Doosan Power Systems Americas LLC	100.00	100.00
Doosan Lentjes UK Limited	100.00	100.00
Doosan Lentjes GmbH	99.04	99.04
Doosan Power Systems S.A	100.00	100.00
Doosan Babcock Energy Technologies (Shanghai) Ltd.	100.00	100.00
Doosan Babcock Energy Services (Overseas) Ltd.	100.00	100.00
Doosan Babcock Energy Polska Sp z.o.o.	98.91	98.91
Doosan Babcock Energy Germany GmbH	100.00	100.00
Doosan Lentjes Czech s.r.o	100.00	100.00
AE & E Lentjes Belgie N.V.	100.00	100.00
Doosan Power Systems (Scotland) Ltd. Partnership	100.00	100.00
Doosan Babcock General Maintenance Services LLC	49.00	49.00
Doosan Babcock WLL	49.00	49.00
Doosan Heavy Industries Muscat LLC	70.00	70.00
Doosan Power Systems Arabia Company Limited	51.00	51.00
KDPP 1st Co., Ltd.	-	-
KDPP 2nd Co., Ltd. (*2)	-	-
KDPP 3rd Co., Ltd. (*2)	-	-
Happy Tomorrow 20th Co., Ltd.	-	-
Happy Tomorrow 25th Co., Ltd. (*2)	-	-
Happy Tomorrow 27th Co., Ltd. (*2)	-	-
Doosan GridTech Inc. (*3)	100.00	-
Doosan GridTech LLC. (*3)	100.00	-
Doosan GridTech CA LLC. (*2)	100.00	-

Azul Torre Construction, Inc. (*2)	40.00	-
Doosan Infracore Co., Ltd. and its subsidiaries	36.40	36.40
Doosan Engineering & Construction Co., Ltd. and its subsidiaries	80.41	80.01
Doosan Engine Co., Ltd. and its subsidiary	42.66	42.66
Doosan Cuvex Co., Ltd.	26.28	-

(*1) The ownership represents addition of the investment owned by the Company and its subsidiaries.

(*2) Newly established in 2016.

(*3) Newly included as a subsidiary due to acquisition of shares in 2016.

3) The associates, joint ventures and other related parties of the Company and nature of their relationship with the Company as of December 31, 2016 are as follows:

Control relationship	Related party
Associates and joint ventures	Tamra Offshore Wind Power Co., Ltd., Haman Industrial Complex Company,
Others :	
Subsidiaries of the parent company	Doota Mall Co., Ltd.(*3), Oricom Inc., Hancom Co., Ltd., Doosan Bears Inc., Doosan Feed & Livestock Co., Ltd. DIP Holdings Co., Ltd., DRA Co., Ltd., Doosan 2nd Real Estate Securitization Specialty Co., Ltd., Doosan Leadership Institute(*1), Doosan Mecatec Co., Ltd.(*1) Doosan Hongkong Ltd.(DSH), Doosan Shanghai Chemical Limited, Doosan Electro-Materials Singapore Pte Ltd.(“DSES”), Doosan Electro-Materials (Changshu) Co., Ltd., Doosan Electro-Materials America, LLC, Doosan Electro-Materials Luxembourg Sarl, Doosan Electro-Materials(Shen Zhen) Limited, Doosan Information and Communications America LLC, Doosan Information and Communications China Co., Ltd., Doosan Information and Communications Europe Ltd., Doosan Industrial Vehicle Europe N.A., Doosan Industrial Vehicle U.K. Ltd., Doosan Industrial Vehicle America Corp., Doosan Industrial Vehicle Yantai Co., Ltd., Doosan Logistics Europe GmbH, Doosan Mottrol (Jiangyin) Co., Ltd., Doosan Fuel Cell America Inc., Circuit Foil Luxembourg Sarl and others
Associates and joint ventures of the parent company	Guang Dong Xingpu Steel Center, Doosan Eco Biz Net Co., Ltd., Prestoliteasia Co., Ltd., Sichuan Kelun-Doosan Biotechnology Company Limited and others
Others	Doosan Credit Union, Yonkang Foundation, Chung-Ang University, Doosan PSI LLC, Dalian Samyoung Doosan Metal Product Co.,Ltd., Kyunggi Railroad Co., Ltd., Shinbundang Railroad Co., Ltd., Neo Trans Co., Ltd., New Seoul Railway Corporation, Xuzhou Xugong Doosan Engine Co., Ltd Dongdaemoon Miraechangcho Foundation and others
A group of large-enterprise affiliates (*4)	Bigant Co., Ltd. Neoplux Co., Ltd.,Neoholdings Co., Ltd.

(*1) Newly established in 2016.

(*2) In 2016, Doosan DST Co., Ltd was disposed. Doosan Real Estate Securitization Specialty Co., Ltd and Doosan Advertising (Beijing) Co., Ltd. was liquidated.

(*3) Doosan Tower Co., Ltd. changed its name into Doota Mall Co., Ltd. in 2016.

(*4) Although these companies are not applicable to related parties defined in K-IFRS 1024 Paragraph 9, a group of large-size affiliates designated by the Korea Fair Trade Commission are classified as related parties according to the resolution by the Securities & Futures Commission in accordance with substantial relationship defined in IFRS 1024 Paragraph 10.

- (2) Significant operational transactions (excluding dividend and investment) with related parties for the year ended December 31, 2016 and 2015 are as follows (in millions of Korean won):

Related party	2016				
	Sales and others		Purchases and others		
	Sales	Other revenue	Purchase	Acquisition of property, plant and equipment and intangible assets	Other expense
Parent:					
Doosan Corporation	₩25	₩157	₩40,877	₩21,290	₩38,391
Subsidiaries:					
Doosan Engine Co., Ltd.	97,107	-	-	-	-
Doosan Engineering & Construction Co., Ltd.	1,036	754	27,580	64,533	-
Doosan Cuvex Co., Ltd.	1	-	4,371	-	3,072
KDPP 2st Co., Ltd.	-	-	-	-	4,047
Happy Tomorrow 25th Co., Ltd.	-	-	-	-	3,680
Doosan Heavy Industries Vietnam Co., Ltd.	6,730	1,248	259,783	-	-
Doosan Heavy Industries America LLC	-	3	100	-	3,364
S.C Doosan IMGB S.A	-	467	34,989	-	-
Doosan Power Systems India Private Ltd.	8,238	1,113	6,611	-	-
Doosan Heavy Industries Muscat LLC.	10,205	383	-	-	-
Doosan ATS America, LCC	-	-	13,763	-	-
Doosan Babcock Ltd.	1,788	921	27,970	-	-
Doosan Lentjes GmbH	-	-	3,627	-	-
Doosan Power system S.A.	26	1,198	9,324	-	-
Doosan Skoda Power s.r.o	669	-	6,956	-	5,733
Others	4	1,583	5,799	-	7,929
Subtotal	₩125,804	₩7,670	₩400,873	₩64,553	₩27,825
Associates and joint ventures:					
Tamra Offshore Wind Power Co., Ltd.	39,767	-	-	-	-
Haman Industrial Complex Company	-	180	-	-	-
Subtotal	₩39,767	₩180	₩-	₩-	₩-
Others:					
Oricom Inc.	-	-	-	-	8,887
Chung-Ang University	-	-	914	-	5,400
Doosan Bears Inc.	-	-	-	-	10,976
Doosan Leadership Institute	-	-	-	-	5,704
Others	1,362	-	530	-	960
Subtotal	₩1,362	₩-	₩1,444	₩-	₩31,927
Total	₩166,958	₩8,007	₩443,194	₩85,823	₩98,143

Related party	2015				
	Sales and others		Purchases and others		
	Sales	Other revenue	Purchase	Acquisition of property, plant and equipment and intangible assets	Other Expense
Parent:					
Doosan Corporation	₩4	₩183	₩39,208	₩78,015	₩39,867
Subsidiaries:					
Doosan Heavy Industries Vietnam Co., Ltd.	9,050	1,134	192,191	-	-
Doosan Hydro Technology LLC	-	199	9,301	-	-
Doosan Heavy Industries America LLC	-	-	58	-	3,622
Doosan Heavy Industries Japan Corp.	-	-	42	-	2,943
S.C Doosan IMGB S.A	-	588	41,114	-	11
Doosan Power Systems India Private Ltd.	30,918	637	5,111	-	14
Doosan Enpure Ltd.	-	29	6,862	-	-
Doosan Babcock Ltd.	-	1,325	36,299	-	-
Doosan Skoda Power s.r.o	-	-	5,210	-	-
Doosan Equipment Rental Vietnam Co.Ltd.	-	5	3,251	-	-
Doosan ATS America, LCC	-	12	5,154	-	681
Doosan Engine Co., Ltd.	86,314	19	-	-	-
Doosan Infracore Co., Ltd.	-	12	2,944	-	-
Doosan Engineering & Construction Co., Ltd.	2,904	3,455	61,713	20,283	547
Doosan Cuvex Co., Ltd.	-	-	6,678	12,944	822
Others	59	1,828	4,473	-	376
Subtotal	₩129,245	₩9,243	₩380,401	₩33,227	₩9,016
Associates and joint ventures:					
Tamra Offshore Wind Power Co., Ltd.	63,443	-	2	-	-
Haman Industrial Complex Company	-	215	-	-	-
Subtotal	₩63,443	₩215	₩2	₩-	₩-
Others:					
Oricom Inc.	-	-	-	-	9,496
Chung-Ang University	-	-	1,071	40	5,806
Doosan Bears Inc.	-	-	-	-	7,883
Others	2,014	-	884	-	1,124
Subtotal	₩2,014	₩-	₩1,955	₩40	₩24,309
Total	₩194,706	₩9,641	₩421,566	₩111,282	₩73,192

- (3) The outstanding receivables and payables arising from the transactions (excluding investments and dividends) with related parties as of December 31, 2016 and 2015 are as follows (in millions of Korean won):

Related party	2016					
	Receivables			Payables		
	Accounts receivable	Loans (*1)	Other receivable	Accounts payable	Debt	Other payable
Parent:						
Doosan Corporation	₩45	₩-	₩824	₩4,899	₩-	₩79,333
Subsidiaries:						
Doosan Engine Co., Ltd.	3,521	-	-	-	-	-
Doosan Engineering & Construction Co., Ltd.	-	-	4,055	174	-	11,733
KDPP 1st Co., Ltd.	-	-	-	-	92,000	-
KDPP 2nd Co., Ltd.	-	-	-	-	135,000	-
KDPP 3rd Co., Ltd.	-	200	-	-	70,000	-
Happy Tomorrow 25th Co., Ltd.	-	-	-	-	50,000	-
Happy Tomorrow 27th Co., Ltd.	-	127	-	-	30,000	-
Doosan Heavy Industries Vietnam Co., Ltd.	7,374	-	17,096	155,539	-	-
PT. Doosan Heavy Industries Indonesia (*1)	-	64,303	-	-	-	-
Doosan Heavy Industries America LLC	-	-	132	14,936	-	748
Doosan Heavy Industries Japan Corp.	-	-	100	10,402	-	385
S.C Doosan IMGB S.A	599	-	2,299	6,628	-	-
Doosan Power Systems India Private Ltd.	113,018	-	768	4,049	-	3
Doosan Heavy Industries Muscat LLC	6,405	-	543	-	-	-
Doosan Heavy Industries America Holdings LLC	1,630	34,442	-	-	-	-
Doosan Babcock Ltd.	4,747	-	863	21,802	-	-
Doosan Lentjes GmbH	-	-	-	3,325	-	-
Doosan Skoda Power s.r.o	1,521	-	-	6,548	-	445
Others	1,111	-	3,366	4,540	-	385
Subtotal	₩139,926	₩99,072	₩29,222	₩227,943	₩377,000	₩13,699
Associates and joint ventures:						
Tamra Offshore Wind Power Co., Ltd.	-	-	115	-	-	12,795
Haman Industrial Complex Company	138	-	4,196	-	-	-
Subtotal	₩138	₩-	₩4,311	₩-	₩-	₩12,795
Related Parties						
Oricom Inc.	-	-	-	4,190	-	45
Others	-	-	1,327	258	-	14
Subtotal	₩-	₩-	₩1,327	₩4,448	₩-	₩59
Total	₩140,109	₩99,072	₩35,684	₩237,290	₩377,000	₩105,886

(*1) As of December 31, 2016, the Company provided the allowance for doubtful accounts for total of the loan considering the possibility of collection.

2015

Related party	Receivables			Payables		
	Accounts receivable	Loans (*1)	Other receivable	Accounts payable	Debt	Other payable
Parent:						
Doosan Corporation	₩46	₩-	₩176	₩8,910	₩-	₩57,678
Subsidiaries:						
Doosan Engineering & Construction Co., Ltd.	26,949	-	15,469	58,390	-	6,221
Doosan Cuvex Co., Ltd.	-	-	4,877	-	-	660
Doosan Heavy Industries Vietnam Co., Ltd.	6,064	-	28,671	62,581	-	-
PT. Doosan Heavy Industries Indonesia(*1)	-	64,303	-	-	-	-
Doosan Heavy Industries America LLC	-	-	-	17,901	-	1,224
Doosan Heavy Industries Japan Corp.	-	-	580	13,460	-	540
Doosan Power Systems India Private Ltd.	118,150	-	421	2,176	-	14
Doosan Hydro Technology LLC	-	-	142	6,184	-	-
S.C. Doosan IMGB S.A.	-	-	2,290	3,857	-	-
Doosan Babcock Ltd.	-	-	6,129	33,801	-	-
Doosan Skoda Power s.r.o	-	-	328	7,169	-	-
Doosan Heavy Industries America Holdings LLC	395	33,402	-	-	-	-
Happy Tomorrow 20th Co., Ltd.	-	-	-	-	50,000	-
KDPP 1st Co., Ltd.	-	-	-	-	115,000	-
Others	1,587	-	4,858	4,674	-	-
Subtotal	<u>₩153,145</u>	<u>₩97,705</u>	<u>₩63,765</u>	<u>₩210,193</u>	<u>₩165,000</u>	<u>₩8,659</u>
Associates and joint ventures:						
Haman Industrial Complex Company	2,025	-	5,929	-	-	-
Tamra Offshore Wind Power Co., Ltd.	63,126	-	-	-	-	12,795
Subtotal	<u>₩65,151</u>	<u>₩-</u>	<u>₩5,929</u>	<u>₩-</u>	<u>₩-</u>	<u>₩12,795</u>
Related Parties						
Oricom Inc.	-	-	-	7,302	-	-
Others	521	-	552	86	-	312
Subtotal	<u>₩521</u>	<u>₩-</u>	<u>₩552</u>	<u>₩7,388</u>	<u>₩-</u>	<u>₩312</u>
Total	<u>₩218,863</u>	<u>₩97,705</u>	<u>₩70,422</u>	<u>₩226,491</u>	<u>₩165,000</u>	<u>₩79,444</u>

(*1) As of December 31, 2015, the Company provided the allowance for doubtful accounts for total of the loan considering the possibility of collection.

(4) Financial transactions (including investment) with related parties for the year ended December 31, 2016 and 2015 are as follows (in millions of Korean won):

Related party	2016							
	Loans		Borrowings		Investments		Dividend	
	Lending	Collection	Borrowed	Repaid	Received	Provided	Income	Payout
Parent:								
Doosan Corporation	W-	W-	W-	W-	W-	W-	W-	W37,354
Subsidiaries:								
Doosan Skoda Power s.r.o	-	-	230,223	230,223	-	-	-	-
Happy Tomorrow 20th Co., Ltd.	-	-	-	-	-	50,000	-	-
KDPP 1st Co., Ltd.	-	-	-	23,000	-	-	-	-
KDPP 2nd Co., Ltd.	-	-	135,000	-	-	-	-	-
KDPP 3rd Co., Ltd.	200	-	70,000	-	-	-	-	-
Happy Tomorrow 25th Co., Ltd.	-	-	50,000	-	-	-	-	-
Happy Tomorrow 27th Co., Ltd.	127	-	30,000	-	-	-	-	-
Doosan Cuvex Co., Ltd.	-	-	-	-	-	36,479	-	-
Doosan GridTech Inc.	-	-	-	-	-	40,772	-	-
Doosan Asset Management Company Co., Ltd.	-	-	-	-	-	2,130	-	-
Doosan Engineering & Construction Co., Ltd.	-	-	-	-	-	400,000	-	-
Azul Torre Construction, Inc.	-	-	-	-	-	9	-	-
Doosan Power Systems Arabia Company Limited	-	-	-	-	-	1,929	-	-
S.C Doosan IMGB S.A	-	-	-	-	-	7,481	-	-
Doosan Infracore America Corporation	-	-	-	-	-	-	-	1,844
Subtotal	W327	W-	W515,223	W253,223	W-	W538,800	W-	W1,844
Associates and joint ventures:								
Tamra Offshore Wind Power Co., Ltd.	-	-	-	-	-	2,016	-	W-
Total	W327	W-	W515,223	W253,223	W-	W540,816	W-	W39,198

2015

Related party	Loans		Borrowings		Investments		Dividend	
	Lending	Collection	Borrowed	Repaid	Received	Provided	Income	Payout
Parent:								
Doosan Corporation	₩-	₩-	₩-	₩-	₩-	₩-	₩-	₩32,959
Subsidiaries:								
Doosan Heavy Industries America Holdings Ltd.	33,402	-	-	-	-	3,960	-	-
Doosan Engineering & Construction Co., Ltd.	-	-	-	-	-	-	2,326	-
Doosan Infracore America Corporation	-	-	-	-	-	-	-	2,149
Doosan Power Systems Arabia Company Limited	-	-	-	-	-	319	-	-
KDPP 1st Co., Ltd.	-	-	115,000	-	-	2,039	-	-
Happy Tomorrow 20th Co., Ltd.	-	-	50,000	-	-	-	-	-
Subtotal	₩33,402	₩-	₩165,000	₩-	₩-	₩6,318	₩2,326	₩2,149
Total	₩33,402	₩-	₩165,000	₩-	₩-	₩6,318	₩2,326	₩35,108

- (5) The Company provides payment guarantees and collateral to certain related parties as of December 31, 2016 (See Notes 30 and 31).
- (6) Key management personnel are standing directors who have authorities and responsibilities for planning, operation and control of the business of the Company. Compensation for key management personnel for the year ended December 31, 2016 and 2015 consists of following (in millions of Korean won):

	2016	2015
Short-term employee benefits	₩46,137	₩45,398
Severance and retirement benefits	2,715	3,595
Share-based payment	324	985
Total	₩49,176	₩49,978

33. SEPARATE STATEMENTS OF CASH FLOWS:

(1) Details of non-cash and changes in operating assets and liabilities to reconcile profit for the year ended December 31, 2016 and 2015 are as follows (in millions of Korean won):

	2016	2015
<u>Net income</u>	₩(231,495)	₩(451,146)
<u>Adjustments:</u>	720,032	873,627
Interest expenses	133,614	124,061
Loss on foreign currency translation	82,195	85,074
Bad debt expenses	25,321	52,912
Other bad debt expenses	91,035	128,896
Loss on valuation of derivative financial instruments	179,142	247,606
Loss on valuation of firm commitments	47,956	57,517
Defect repair cost	10,380	9,493
Depreciation	103,422	104,395
Amortization of intangible assets	72,505	67,470
Income tax expense(gain)	(60,696)	57,036
Severance and retirement benefits	46,572	45,286
Share-based payments	324	985
Loss on valuation of inventories	3,704	1,720
Loss on disposal of property, plant and equipment	253	4,834
Loss on disposal of intangible assets	-	123
Impairment of property, plant and equipment	1,473	-
Impairment of intangible assets	6,230	67,718
Loss on redemption of bonds	-	350
Impairment loss on non-current assets classified as held-for-sale	27,539	-
Impairment loss on long-term investment securities	1,226	587
Impairment loss on subsidiary investments	233,603	202,749
Interest income	(12,698)	(8,656)
Dividend income	(27)	(3,167)
Gain on foreign currency translation	(30,801)	(27,087)
Gain on valuation of derivative financial instruments	(90,446)	(133,249)
Gain on valuation of firm commitments	(146,694)	(241,321)
Gain on disposal of property, plant and equipment	(502)	(3,531)
Gain on long-term investment securities	-	(98)
Others	(4,598)	31,924
<u>Changes in operating assets and liabilities:</u>	198,566	(527,329)
Trade receivables	79,933	(62,431)
Due from customers for contract work	(127,024)	(394,620)
Other receivables	(32,717)	(27,641)
Prepayments	72,492	16,721
Inventories	47,643	21,816
Derivative financial assets and liabilities	(109,888)	(24,374)
Firm commitments assets and liabilities	64,545	80,244
Trade payables	232,172	54,645
Other payables	146,089	(34,224)
Advanced receipts	(4,454)	(37,115)
Due to customers for contract work	(67,076)	2,613
Accrued expenses	20,976	(2,715)
Severance payments paid	(12,590)	(48,027)
Plan assets	(56,937)	(51,599)
Others	(54,598)	(20,622)
<u>Cash generated from operating activities</u>	<u>₩687,103</u>	<u>₩(104,848)</u>

- (2) Significant non-cash transactions for the year ended December 31, 2016 and 2015 are as follows (in millions of Korean won):

	<u>2016</u>	<u>2015</u>
Transfer of current portion of bonds and borrowings	₩980,750	₩925,528
Transfer from construction-in-progress to property, plant and equipment and intangible assets	79,366	107,668
Transfer of current portion of long-term financial instruments	-	50,417
Increase in other payables from acquisition of property, plant and equipment	18,787	58,921

34. SUBSEQUENT EVENT:

- (1) The Company announced that it will issue KRW 500,000 million of bonds with warrants on May 4, 2017. The issuance of bonds with warrants was approved by the board of directors on February 27, 2017.
- ① Maturity Date : a 5-year maturity, May 4, 2022
 - ② Coupon rate : 1.00%
 - ③ YTM : 2.00%, 105,245% of the principal amount will be paid at maturity
 - ④ Advanced redemption right: the redeemable put option that allows investors to redeem them three years post issuance (May 4, 2020). 103.0839% of the principal amount will be paid.
 - ⑤ The warrant exercise price: ₩26,550/share (projection)
 - ⑥ The warrant exercise ratio: one registered common stock per one security of stock warrant.
- (2) On February 16, 2017, Korea Gas Corporation filed the lawsuit of KRW 200,000 million against each of total 13 construction companies including the Company.

35. APPROVAL OF FINANCIAL STATEMENTS

The financial statements were issued and approved on February 16, 2017, and will get final approval during the shareholders' meeting on March 31, 2017.

Internal Accounting Control System (IACS) Review Report

English Translation of a Report Originally Issued in Korean on March 23, 2017.

To the Representative Director of
Doosan Heavy Industries & Construction Co., Ltd.

We have reviewed the accompanying Report on the Management's Assessment of IACS (the "Management's Report") of Doosan Heavy Industries & Construction Co., Ltd. (the "Company") as of December 31, 2016. The Management's Report, and the design and operation of IACS are the responsibility of the Company's management. Our responsibility is to review the Management's Report and issue a review report based on our procedures. The Company's management stated in the accompanying Management's Report that "based on the assessment of the IACS as of December 31, 2016, the Company's IACS has been appropriately designed and is operating effectively as of December 31, 2016, in all material respects, in accordance with the IACS Framework established by the Korea Listed Companies Association."

We conducted our review in accordance with the IACS Review Standards established by the Korean Institute of Certified Public Accountants. Those standards require that we plan and perform a review, objective of which is to obtain a lower level of assurance than an audit, of the Management's Report in all material respects. A review includes obtaining an understanding of a Company's IACS and making inquiries regarding the Management's Report and, when deemed necessary, performing a limited inspection of underlying documents and other limited procedures.

The Company's IACS represents internal accounting policies and a system to manage and operate such policies to provide reasonable assurance regarding the reliability of financial statements prepared, in accordance with accounting principles generally accepted in the Republic of Korea, for the purpose of preparing and disclosing reliable accounting information. Because of its inherent limitations, IACS may not prevent or detect a material misstatement of the financial statements. Also, projections of any evaluation of effectiveness of IACS to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Based on our review, nothing has come to our attention that causes us to believe that the Management's Report referred to above is not fairly stated, in all material respects, in accordance with the IACS Framework established by the Korea Listed Companies Association.

Our review is based on the Company's IACS as of December 31, 2016, and we did not review its IACS subsequent to December 31, 2016. This report has been prepared pursuant to the Acts on External Audit for Stock Companies in the Republic of Korea and may not be appropriate for other purposes or for other users.

Deloitte Anjin LLC.

March 23, 2017

Report on the Assessment of Internal Accounting Control System (“IACS”)

To the Board of Directors and Internal Auditor (Audit Committee) of
Doosan Heavy Industries & Construction Co., Ltd.

I, as the Internal Accounting Control Officer (“IACO”) of Doosan Heavy Industries & Construction Co., Ltd. (“the Company”), assessed the status of the design and operation of the Company’s IACS for the year ended December 31, 2016.

The Company’s management including IACO is responsible for designing and operating IACS. I, as the IACO, assessed whether the IACS has been appropriately designed and is effectively operating to prevent and detect any error or fraud which may cause any misstatement of the financial statements, for the purpose of preparing and disclosing reliable financial statements. I, as the IACO, applied the IACS Framework established by the Korea Listed Companies Association for the assessment of design and operation of the IACS.

Based on the assessment of the IACS, the Company’s IACS has been appropriately designed and is operating effectively as of December 31, 2016, in all material respects, in accordance with the IACS Framework.

February, 16, 2017

Myung Ho Jang,
Internal Accounting Control Officer

Ji Taik Chung,
Chief Executive Officer or President