DOOSAN ENGINE CO., LTD.

SEPARATE FINANCIAL STATEMENTS AS OF AND FOR THE YEARS ENDED DECEMBER 31, 2015 AND 2014

ATTACHMENT: INDEPENDENT AUDITORS' AUDIT REPORT

DOOSAN ENGINE CO., LTD.

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INDEPENDENT AUDITORS' REPORT

English Translation of Independent Auditors' Report Originally Issued in Korean on March 17, 2016.

To the Stockholders and Board of Directors of
Doosan Engine Co., Ltd.:

Report on the Separate Financial Statements

We have audited the accompanying separate financial statements of Doosan Engine Co., Ltd. (the "Company"), which comprise the separate statements of financial position as of December 31, 2015 and 2014, respectively, and the separate statements of income, separate statements of comprehensive income, statements of changes in stockholders' equity and separate statements of cash flows for the years 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.

Auditors' Responsibility

Our responsibility is to express an audit opinion on these separate 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 separate financial statements are free from material misstatement.

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

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

Opinion

In our opinion, the separate financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2015 and 2014, respectively, and its financial performance and its cash flows for the years then ended in accordance with K-IFRS.

Deloitte Anjin LLC

March 17, 2016

Notice to Readers

This report is effective as of March 17, 2016, the auditors' report date. Certain subsequent events or circumstances may have occurred between the auditors' report date and the time the auditors' report is read. Such events or circumstances could significantly affect the separate financial statements and may result in modifications to the auditors' report.

DOOSAN ENGINE CO., LTD. (the "Company")

SEPARATE FINANCIAL STATEMENTS
AS OF AND FOR THE YEARS ENDED DECEMBER 31, 2015 AND 2014

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

Kim, Dong-Chul
Chief Executive Officer
Doosan Engine Co., Ltd.

DOOSAN ENGINE CO., LTD.
SEPARATE STATEMENTS OF FINANCIAL POSITION
AS OF DECEMBER 31, 2015 AND 2014
(In Korean won)

ASSETS	Notes	December 31, 2015	December 31, 2014
CURRENT ASSETS			
Cash and cash equivalents	10	₩43,734,483,439	₩40,970,489,949
Short-term financial instruments	5 and 10	17,330,000,000	37,810,000,000
Short-term investment securities	8 and 10	-	7,000,000,000
Short-term loans receivables	10	1,206,666,362	1,100,900,000
Trade and other receivables	6, 10, 14, 30 and 32	53,613,190,960	73,073,305,809
Gross amount due from customers for contract work	23	2,331,456,039	12,999,974,380
Prepaid income tax assets		292,191,741	1,059,722,158
Derivative assets	9 and 10	1,485,413,778	2,489,829,322
Firm commitment assets	9	48,225,408,694	41,236,094,869
Inventories	7	198,874,019,906	197,396,445,146
Assets held for sale	34	64,355,499,916	-
Other current assets		10,544,456,304	17,152,791,384
Total current assets		441,992,787,139	432,289,553,017
NON-CURRENT ASSETS			
Long-term financial instruments	5, 10 and 31	6,000,000	1,934,858,690
Long-term investment securities	8 and 10	72,048,000	72,048,000
Investments in subsidiary and associated companies	11 and 31	363,994,143,560	363,994,102,690
Long-term loans receivables	10	1,719,786,920	3,116,039,530
Long-term other receivables	6 and 10	14,050,682,201	10,701,073,220
Property, plant and equipment	12	486,893,184,784	587,007,566,603
Intangible assets	13	28,543,282,035	41,679,003,150
Derivative assets	9 and 10	1,246,978,730	722,321,724
Firm commitment assets	9	9,584,804,110	25,860,296,653
Other non-current assets		7,669,621,724	1,665,692,890
Total non-current assets		913,780,532,064	1,036,753,003,150
TOTAL ASSETS		₩1,355,773,319,203	₩1,469,042,556,167

(Continued)

DOOSAN ENGINE CO., LTD.
SEPARATE STATEMENTS OF FINANCIAL POSITION (CONTINUED)
AS OF DECEMBER 31, 2015 AND 2014
(In Korean won)

LIABILITIES AND STOCKHOLDERS' EQUITY	Notes	December 31, 2015	December 31, 2014
CURRENT LIABILITIES			
Trade and other payable	10 and 32	₩123,666,456,295	₩124,770,714,634
Gross amount due to customers for contract work	23	9,702,365,258	14,568,457,756
Short-term borrowings	10, 14 and 30	56,304,129,400	3,857,092,800
Advance receipts		261,346,635,817	271,795,996,146
Current portion of long-term borrowings	10 and 14	-	50,000,000,000
Income tax payable		12,759,183	-
Derivative liabilities	9 and 10	31,962,933,015	14,866,327,518
Firm commitment liabilities	9	7,862,163,477	14,768,025,920
Financial warranty liabilities	10 and 31	44,154,124	73,636,042
Provisions	16	4,433,211,662	1,916,319,087
Other current liabilities		20,671,932,655	16,588,492,436
Total current liabilities		516,006,740,886	513,205,062,339
NON-CURRENT LIABILITIES			
Long-term borrowings	10 and 14	75,000,000,000	45,000,000,000
Bonds	10 and 14	189,483,246,417	189,259,736,473
Long-term other payable	10	8,044,292,315	1,918,290,120
Retirement benefit obligation	15	7,932,876,997	11,865,665,028
Derivative liabilities	9 and 10	6,701,954,873	7,306,319,851
Firm commitment liabilities	9	4,542,533,243	13,108,076,384
Financial warranty liabilities	10 and 31	3,865,652,143	4,581,819,663
Provisions	16	3,034,720,345	1,949,715,661
Deferred income tax liabilities	28	2,587,679,241	34,828,749,253
Total non-current liabilities		301,192,955,574	309,818,372,433
TOTAL LIABILITIES		817,199,696,460	823,023,434,772
STOCKHOLDERS' EQUITY			
Share capital	1 and 17	69,500,000,000	69,500,000,000
Capital surplus	17	367,214,701,425	367,214,701,425
Other capital items	18	623,042,540	550,159,285
Accumulated other comprehensive income	12 and 19	63,063,627,475	36,207,539,902
Retained earnings	20	38,172,251,303	172,546,720,783
TOTAL STOCKHOLDERS' EQUITY		538,573,622,743	646,019,121,395
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY		₩1,355,773,319,203	₩1,469,042,556,167

(Concluded)

See accompanying notes.

DOOSAN ENGINE CO., LTD.
SEPARATE STATEMENTS OF INCOME
FOR THE YEARS ENDED DECEMBER 31, 2015 AND 2014
(In Korean won)

	Notes	2015	2014
SALES	21, 22, 23 and 32	₩692,276,966,777	₩887,764,719,542
COST OF SALES	24, 30 and 32	(694,212,581,556)	(886,270,246,080)
SELLING AND ADMINISTRATIVE EXPENSES	24 and 25	(61,014,986,202)	(39,904,780,646)
OPERATING INCOME (LOSS)		(62,950,600,981)	(38,410,307,184)
Finance income	10 and 26	94,298,812,955	91,160,334,537
Finance expense	10 and 26	(123,646,320,189)	(93,987,658,722)
Other non-operating income	27	2,147,168,613	1,960,947,370
Other non-operating expense	27	(84,333,112,137)	(2,688,873,049)
LOSS BEFORE INCOME TAX EXPENSE		(174,484,051,739)	(41,965,557,048)
INCOME TAX BENEFIT	28	40,056,235,245	10,909,129,342
NET LOSS		(₩134,427,816,494)	(₩31,056,427,706)
EARNINGS PER SHARE:	29		
Basic earnings per share		(₩1,934)	(₩447)
Diluted earnings per share		(₩1,934)	(₩447)

See accompanying notes.

DOOSAN ENGINE CO., LTD.
SEPARATE STATEMENTS OF COMPREHENSIVE INCOME
FOR THE YEARS ENDED DECEMBER 31, 2015 AND 2014
(In Korean won)

	Notes	2015	2014
NET LOSS		(₩134,427,816,494)	(₩31,056,427,706)
OTHER COMPREHENSIVE INCOME (LOSS)	19		
Items not reclassified subsequently to profit or loss:			
Remeasurements of net defined benefit liabilities	15	36,539,304	(3,054,807,011)
Revaluation of land	12 and 19	26,872,895,283	-
Total other comprehensive income (loss)		26,909,434,587	(3,054,807,011)
TOTAL COMPREHENSIVE INCOME (LOSS)		(₩107,518,381,907)	(₩34,111,234,717)

See accompanying notes.

DOOSAN ENGINE CO., LTD.
SEPARATE STATEMENTS OF CHANGES IN STOCKHOLDERS' EQUITY
FOR THE YEARS ENDED DECEMBER 31, 2015 AND 2014
(In Korean won)

	Share capital	Capital surplus	Other equity items	Accumulated other comprehensive income	Retained earnings	Total
Balance at January 1, 2014	₩69,500,000,000	₩367,214,701,425	₩355,389,958	₩36,207,539,902	₩206,657,955,500	₩679,935,586,785
Total comprehensive income:						
Net loss	-	-	-	-	(31,056,427,706)	(31,056,427,706)
Remeasurements of net defined benefit liabilities	-	-	-	-	(3,054,807,011)	(3,054,807,011)
Subtotal	-	-	-	-	(34,111,234,717)	(34,111,234,717)
Capital transactions with stockholders:						
Stock-based payment	-	-	194,769,327	-	-	194,769,327
Balance at December 31, 2014	₩69,500,000,000	₩367,214,701,425	₩550,159,285	₩36,207,539,902	₩172,546,720,783	₩646,019,121,395
Balance at January 1, 2015	₩69,500,000,000	₩367,214,701,425	₩550,159,285	₩36,207,539,902	₩172,546,720,783	₩646,019,121,395
Total comprehensive income:						
Net loss	-	-	-	-	(134,427,816,494)	(134,427,816,494)
Remeasurements of net defined benefit liabilities	-	-	-	-	36,539,304	36,539,304
Disposal of revaluation of land	-	-	-	(16,807,710)	16,807,710	-
Revaluation surplus of land	-	-	-	26,872,895,283	-	26,872,895,283
Subtotal	-	-	-	26,856,087,573	(134,374,469,480)	(107,518,381,907)
Capital transactions with stockholders:						
Stock-based payment	-	-	72,883,255	-	-	72,883,255
Balance at December 31, 2015	₩69,500,000,000	₩367,214,701,425	₩623,042,540	₩63,063,627,475	₩38,172,251,303	₩538,573,622,743

See accompanying notes.

DOOSAN ENGINE CO., LTD.

SEPARATE STATEMENTS OF CASH FLOWS

FOR THE YEARS ENDED DECEMBER 31, 2015 AND 2014

(In Korean won)

	2015	2014
CASH FLOWS FROM OPERATING ACTIVITIES		
Cash generated from operations		
Net loss	(₩134,427,816,494)	(₩31,056,427,706)
Adjustments	96,617,213,939	24,071,126,445
Changes in operating assets and liabilities	1,096,503,848	(67,178,345,235)
Interest received	1,762,140,832	4,777,756,405
Interest paid	(9,872,017,837)	(10,309,894,777)
Dividend received	600,000	-
Income tax paid	(24,900,297)	(2,645,758,218)
Net cash used in operating activities	(44,848,276,009)	(82,341,543,086)
CASH FLOWS FROM INVESTING ACTIVITIES		
Cash inflows from investing activities:		
Decrease in short-term financial instruments	20,480,000,000	107,190,000,000
Decrease in short-term investment securities	7,000,000,000	-
Decrease in short-term loans	1,100,900,000	9,484,400,000
Decrease in long-term financial instruments	1,928,858,690	-
Decrease in long-term loans	896,636,352	1,247,017,256
Disposal of property, plant and equipment	311,300,000	57,367,071
Disposal of intangible assets	743,181,819	476,790,908
Subtotal	32,460,876,861	118,455,575,235
Cash outflows for investing activities:		
Increase in long-term loans	594,967,714	950,750,000
Acquisition of investments in subsidiaries	40,870	-
Acquisition of property, plant and equipment	4,866,450,598	1,705,065,565
Acquisition of intangible assets	11,929,974,351	19,338,691,563
Subtotal	(17,391,433,533)	(21,994,507,128)
Net cash provided by investing activities	₩15,069,443,328	₩96,461,068,107

(Continued)

DOOSAN ENGINE CO., LTD.
SEPARATE STATEMENTS OF CASH FLOWS (CONTINUED)
FOR THE YEARS ENDED DECEMBER 31, 2015 AND 2014
(In Korean won)

	2015	2014
CASH FLOWS FROM FINANCING ACTIVITIES		
Cash inflows from financing activities:		
Proceeds from short-term borrowings	₩52,447,036,600	₩3,857,092,800
Proceeds from long-term borrowings	30,000,000,000	45,000,000,000
Subtotal	82,447,036,600	48,857,092,800
Cash outflows for financing activities:		
Repayment of long-term borrowings	50,000,000,000	63,318,000,000
Subtotal	(50,000,000,000)	(63,318,000,000)
Net cash provided by (used in) financing activities	32,447,036,600	(14,460,907,200)
EFFECT OF EXCHANGE RATE CHANGES ON CASH AND CASH EQUIVALENTS	95,789,571	53,124,974
NET DECREASE IN CASH AND CASH EQUIVALENTS	2,763,993,490	(288,257,205)
CASH AND CASH EQUIVALENTS AT THE BEGINNING OF YEAR	40,970,489,949	41,258,747,154
CASH AND CASH EQUIVALENTS AT THE END OF YEAR	₩43,734,483,439	₩40,970,489,949

(Concluded)

See accompanying notes

DOOSAN ENGINE CO., LTD.
NOTES TO SEPARATE FINANCIAL STATEMENTS
AS OF AND FOR THE YEARS ENDED DECEMBER 31, 2015 AND 2014

1. GENERAL:

Doosan Engine Co., Ltd. (the "Company") was incorporated on December 30, 1999, under the Commercial Code of the Republic of Korea to manufacture and sell marine diesel engines. The Company's headquarters and plants are located at Changwon, Korea.

Under the Company's Articles of Incorporation, the Company is authorized to issue 120,000 thousand shares of capital stock (par value of ₩1,000). As of December 31, 2015, the Company issued 69,500 thousand common shares for ₩69,500,000 thousand.

On January 4, 2011, the Company's shares were listed in the Korea Exchange.

The Company's shares as of December 31, 2015, are owned as follows:

Name of stockholders	Number of shares owned	Ownership percentage (%)
Doosan Heavy Industries Construction Co., Ltd.	29,650,000	42.66
Samsung Heavy Industries Co., Ltd.	9,815,000	14.12
Daewoo Shipbuilding & Marine Engineering Co., Ltd.	2,555,746	3.68
Employee stock ownership association	945,017	1.36
Others	26,534,237	38.18
Total	69,500,000	100.00

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES:

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

(1) Basis of Preparation

The Company's separate financial statements for the year ended December 31, 2015, are prepared in accordance with K-IFRS, and the separate financial statements have been prepared on a stand-alone basis in accordance with K-IFRS 1027, *Separate Financial Statements*. Separate financial statements are those presented by a parent or an investor with joint control of, or significant influence over, an investee, in which the investments are accounted for at cost or fair value in accordance with K-IFRS 1039, *Financial Instruments: Recognition and Measurement*.

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, 2015, are consistent with the accounting policies used to prepare the separate financial statements as of and for the year ended December 31, 2014.

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 1019 – *Employee Benefits*

The amendments permits the Company to recognize amount of contributions as a reduction in the service cost in which the related service is rendered if the amount of the contributions are independent of the number of years of service. The application of these amendments has no significant impact on the disclosure in the Company's separate financial statements.

Annual Improvements to K-IFRS 2010-2012 Cycle

The amendments to K-IFRS 1102 'Share-based Payment' (i) changes the definitions of 'vesting condition' and 'market condition' and (ii) add definitions for 'performance condition' and 'service condition' that were previously included within the definition of 'vesting condition.' The amendments to K-IFRS 1103 'Business Combinations' clarify the classification and measurement of the contingent consideration in business combination. The amendments to K-IFRS 1108 'Operating Segments' clarify that a reconciliation of the total of the reportable segments' assets should only be provided if the segment assets are regularly provided to the chief operating decision maker. The application of these amendments has no significant impact on the disclosure in the Company's separate financial statements.

Annual Improvements to K-IFRS 2011-2013 Cycle

The amendments to K-IFRS 1103 clarify that it excludes the accounting for the formation of a joint arrangement in the financial statements of the joint arrangement itself from the scope of K-IFRS 1103 'Business Combination' The amendments to K-IFRS 1113, Fair Value Measurements, and K-IFRS 1040 'Investment Properties' exist. The application of these amendments has no significant impact on the disclosure 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 K-IFRSs that have been issued, but are not yet effective.

Amendments to K-IFRS 1001 – *Presentation of Financial Statements*

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 amendments to K-IFRS 1001 are effective for annual periods beginning on or after January 1, 2016.

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 amendments are effective for the annual periods beginning on or after January 1, 2016.

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 and that 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 amendments apply prospectively for annual periods beginning on or after January 1, 2016.

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

The amendments to K-IFRS 1016 and K-IFRS 1041 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 amendments to K-IFRS 1016 and K-IFRS 1041 are effective for annual periods beginning on or after January 1, 2016.

Amendments to K-IFRS 1110 – *Consolidated Financial Statements*, K-IFRS 1112 *Disclosure of interests in other entities*, and 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 amendments are effective for annual periods beginning on or after January 1, 2016.

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

The amendments to K-IFRS 1111 provides 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 amendments to K-IFRS 1111 are effective for the annual periods beginning on or after January 1, 2016.

Amendments to K-IFRS 1109 – *Financial Instruments*

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

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

The core principle under K-IFRS 1115 is that an entity should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. The amendments introduces a five-step approach to revenue recognition and measurement: 1) Identify the contract with a customer, 2) Identify the performance obligations in the contract, 3) Determine the transaction price, 4) Allocate the transaction price to the performance obligations in the contract and 5) Recognize revenue when (or as) the entity satisfies a performance obligation. This standard will supersede K-IFRS 1011 - *Construction Contracts*; K-IFRS 1018- *Revenue*; K-IFRS 2113 - *Customer Loyalty Programms*; 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.

Annual Improvements to K-IFRS 2012-2014 cycle

The annual improvements include amendments to a number of K-IFRSs. The amendments introduce specific guidance in K-IFRS 1105, *Non-current Assets Held for Sale and Discontinued Operations*, for 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 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*.

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 amendments are effective for the annual periods beginning on or after January 1, 2016.

The application of these amendments has no significant impact on the disclosure in the Company's separate financial statements.

(2) Subsidiaries, Joint Ventures and Associates

The Company has elected to use book value under previous generally accepted accounting principles as deemed cost for subsidiaries and associates at the date of transition to K-IFRS. After the date of transition, subsidiaries and associates are measured at cost.

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

(3) Goodwill

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

For the purpose of impairment testing, goodwill is allocated to each of the cost generating units (CGUs) (or groups of CGUs) that is expected to benefit from the synergies of the combination.

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

On disposal of the relevant CGU, the attributable amount of goodwill is included in the determination of the profit or loss on disposal.

(4) Non-current assets held for sale

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

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

(5) Revenue Recognition

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

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.

2) Rendering of services

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

3) Dividend and interest income

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

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

4) Rental income

The Company's policy for recognition of revenue from operating leases is described in Note 2-(7).

(6) 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 statements 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 statements of financial position under trade and other receivables.

(7) Lease

Lease are classified as finance lease 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 lease.

1) The Company as lessor

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

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

2) The Company as lessee

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

Lease payments are apportioned between finance expenses and reduction of the lease obligation so as to achieve a constant rate of interest on the remaining balance of the liability. Finance expenses are recognized immediately in profit or loss, unless they are directly attributable to qualifying assets, in which case they are capitalized in accordance with the Company's general policy on borrowing costs (see Note 2-(9)). Contingent rentals are recognized as expenses in the periods in which they are incurred.

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

(8) Foreign currencies

The separate financial statements of the Company 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.

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

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

- exchange differences on foreign currency borrowings relating to assets under construction for future productive use, which are included in the cost of those assets when they are regarded as an adjustment to interest costs on those foreign currency borrowings
- exchange differences on transactions entered into in order to hedge certain foreign currency risks (see Note 2-(21) below for hedging accounting policies)
- exchange differences on monetary items receivable from or payable to a foreign operation for which settlement is neither planned nor likely to occur (therefore, forming part of the net investment in the foreign operation), which are recognized initially in other comprehensive income and reclassified from equity to profit or loss on disposal or partial disposal of the net investment.

(9) Borrowing costs

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

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

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

(10) Retirement benefit costs and termination benefits

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

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

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

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

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

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

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

(11) Share-based payment arrangements

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

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

(12) Taxation

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

1) Current tax

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

2) Deferred tax

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

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

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

3) Current and deferred taxes for the year

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

(13) Property, Plant and Equipment

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

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

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

	Estimated useful lives (in years)
Buildings	20–40
Structures	10–20
Machinery	5–20
Others	3–10

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

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

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

(14) Investment property

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

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

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

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

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

(15) Intangible Assets

1) Intangible assets acquired separately

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

2) Internally generated intangible assets - research and development expenditure

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

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

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

3) Intangible assets acquired in a business combination

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

4) Derecognition of intangible assets

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

5) Amortization of intangible assets

Intangible assets other than memberships with indefinite useful lives are amortized using the straight-line method with acquiring cost, except for residual value, with the amortization beginning when the asset is available for use. The estimated useful lives of the assets are as follows:

	Estimated useful lives (in years)
Development costs	5
Right of utilization	16
Software	5
Others	5

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

At the end of each reporting period, the Company reviews the carrying amounts of its tangible and intangible assets to determine whether there is any indication that those assets have suffered an impairment loss. If any such indication exists, the recoverable amount of the asset is estimated in order to determine the extent of the impairment loss (if any). When it is not possible to estimate the recoverable amount of an individual asset, the Company estimates the recoverable amount of the CGU to which the asset belongs.

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

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

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

(17) Inventories

Inventories are stated at the lower of cost and net realizable value. Cost of inventories, except for those in transit, are measured under the specific identification of their individual costs method and consists of the purchase price, cost of conversion and other costs incurred in bringing the inventories to their present location and condition. Net realizable value represents the estimated selling price for inventories, less all estimated costs of completion and costs necessary to make the sale.

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

(18) Provisions

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

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

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

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

(19) Financial Instruments

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

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

1) Effective interest method

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

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

2) Financial assets at FVTPL

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

A financial asset is classified as held for trading if:

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

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

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

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

3) Held-to-maturity investments

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

4) AFS financial assets

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

They are subsequently measured at fair value at the end of each reporting period. Changes in the carrying amount of AFS financial assets are recognized in other comprehensive income (as investments revaluation reserve). When the investment is disposed of or is determined to be impaired, the cumulative gain or loss previously accumulated in other comprehensive income is reclassified to profit or loss.

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

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

5) Loans and receivables

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

6) Impairment of financial assets

Financial assets, other than those at FVTPL, are assessed for indicators of impairment at the end of each reporting period. Financial assets are considered to be impaired when there is an 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.

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

For certain categories of financial assets, such as trade receivables, assets that are assessed not to be impaired individually are, in addition, assessed for impairment on a collective basis. Objective evidence of impairment for a portfolio of receivables could include the Company’s past experience of collecting payments, an increase in the number of delayed payments in the portfolio past the average credit period of 30 days, as well as observable changes in national or local economic conditions that correlate with default on receivables.

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

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

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

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

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

7) Derecognition of financial assets

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

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

On derecognition of a financial assets other than in its entirety (e.g., when the Company retains an option to repurchase part of a transferred asset, or it retains a residual interest and such a retained interest indicates that the transferor has neither transferred nor retained substantially all the risks and rewards of ownership and has retained control of the transferred asset), the Company allocates the previous carrying amount of the financial asset between the part it continues to recognize under continuing involvement and the part it no longer recognizes on the basis of the relative fair value of those parts on the date of the transfer.

(20) Financial liabilities and equity instruments

1) Classification as debt or equity

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

2) Equity instruments

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

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

3) Compound instruments

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

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

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

4) Financial liabilities

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

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

5) Financial liabilities at FVTPL

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

A financial liability is classified as held for trading if:

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

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

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

Financial liabilities at FVTPL are stated at fair value, with any gains or losses arising on remeasurement recognized in profit or loss. The net gain or loss recognized in profit or loss incorporates any interest paid on the financial liability and is included in the ‘other non-operating income and expense’ line item in the consolidated statements of comprehensive income.

6) Other financial liabilities

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

7) Financial guarantee contracts

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

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

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

8) Derecognition of financial liabilities

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

(21) Derivative financial instruments

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

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

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

1) Embedded derivatives

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

2) Hedge accounting

The Company designates certain hedging instruments, which include derivatives, embedded derivatives and non-derivatives in respect of foreign currency risk, as either fair value hedges, cash flow hedges or hedges of net investments in foreign operations.

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

3) Fair value hedges

Changes in the fair value of derivatives that are designated and qualify as fair value hedges 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. The change in the fair value of the hedging instrument and the change in the hedged item attributable to the hedged risk are recognized in the line of the separate statements of comprehensive income relating to the hedged item.

Hedge accounting is discontinued when the Company revokes the hedging relationship, when the hedging instrument expires or is sold, terminated or exercised, or when it no longer qualifies for hedge accounting. The fair value adjustment to the carrying amount of the hedged item arising from the hedged risk is amortized to profit or loss from that date.

4) Cash flow hedges

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

Amounts previously recognized in other comprehensive income and accumulated in equity are reclassified to profit or loss in the periods when the hedged item is recognized in profit or loss, in the same line of the separate statements of comprehensive income as the recognized hedged item.

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

(22) Fair value

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

In addition, for financial reporting purposes, fair value measurements are categorized into Levels 1, 2 or 3 based on the degree to which the inputs to the fair value measurements are observable and the significance of the inputs to the fair value measurement in their entireties, which are described in Note 10.

(23) Accounting Treatment related to the Emission Rights Cap and Trade Scheme

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

(24) Approval of separate financial statements

The separate financial statements as of and for the year ended December 31, 2015, were approved by the Board of Directors on March 3, 2016.

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

In the application of the Company's accounting policies, which are described in Note 2, management is required to make judgments, estimates and assumptions about the carrying amounts of assets and liabilities that are not readily apparent from other sources. Actual results may differ from those estimates.

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

(1) Revenue recognition

Revenue from a contract to provide services is recognized by reference to the stage of completion of the contract. The stage of completion of the contract is determined as reasonable estimation and is subject to change as related factors change.

(2) Defined benefit obligation

The Company's defined benefit obligation is determined based on the actuarial valuation carried out at the end of each annual reporting period. Actuarial assumptions are the Company's best estimates of the variables, such as discount rates, rates of expected future salary increases and mortality rates.

(3) Provision for construction losses

Provisions for the expected cost of warranty obligations are recognized at the best estimate of the past expenditure experiences periodically.

(4) Revaluation model on land

As stated in Note 12, the Company uses evaluation technique, including inputs that are not based on observable market data, to approximate revalued amount of land classified as property, plant and equipment and fair value of investment property. Management assuming evaluation method has been considered appropriate.

(5) Deferred tax

Recognition and measurement of deferred tax assets and liabilities require the management's judgment, in particular, whether to recognize if the scope of deferred tax assets is affected by management's judgment and assumption in the future.

(6) Estimated useful lives of property, plant, equipment and intangible assets

Useful lives for depreciation are determined by the management's judgment.

4. FINANCIAL RISK MANAGEMENT:

The Company is exposed to various financial risks, such as market (foreign currency risk and interest rate risk), credit and liquidity related to the operations of the Company. The purpose of risk management policy is to minimize potential risks, which could have an adverse effect on financial performance.

Financial risk management activities are performed by treasury and international finance department, in accordance with the aforementioned documented risk management policies. In addition, the Company enters into derivative contracts to hedge against certain risks.

(1) Market risk

1) Foreign exchange risk

The Company is exposed to foreign currency risk since it makes transactions in foreign currencies. Foreign currency risk arises from forecast transactions, recognized assets and liabilities and net investments in foreign operations.

Foreign currency risk is managed by the Company's policy on foreign currencies. The Company's basis for foreign currency management is to reduce income/loss volatility. The Company reduces exposure to foreign currency risk by matching the inflow and the outflow of foreign currencies (natural hedge) and manages foreign currency risk by using currency derivatives, such as currency forwards, for the remaining exposure.

The book value of the Company's monetary assets and liabilities denominated in foreign currencies, which represents the maximum exposure to foreign currency risk as of December 31, 2015 and 2014, is as follows (in thousands of Korean won):

	December 31, 2015				
	USD	EUR	CNY	Others (*)	Total
Assets	₩71,886,529	₩1,087,007	₩234,692	₩77,763	₩73,285,991
Liabilities	(7,061,611)	(31,142,730)	(55,169)	(5,865,306)	(44,124,816)
Net assets (liabilities)	₩64,824,918	(₩30,055,723)	₩179,523	(₩5,787,543)	₩29,161,175

	December 31, 2014				
	USD	EUR	CNY	Others (*)	Total
Assets	₩80,900,696	₩536,882	₩258,060	₩106,537	₩81,802,175
Liabilities	(7,555,119)	(22,968,235)	(38,774)	(5,744,506)	(36,306,634)
Net assets (liabilities)	₩73,345,577	(₩22,431,353)	₩219,286	(₩5,637,969)	₩45,495,541

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

Net foreign currency translation gain/loss for the years ended December 31, 2015 and 2014, is ₩123,704 thousand and ₩744,924 thousand, respectively.

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, 2015 and 2014, is as follows (in thousands of Korean won):

	December 31, 2015		December 31, 2014	
	10% increase in Korean won against foreign currency	10% decrease in Korean won against foreign currency	10% increase in Korean won against foreign currency	10% decrease in Korean won against foreign currency
Income before tax impact	₩2,916,118	(₩2,916,118)	₩4,549,554	(₩4,549,554)

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, 2015 and 2014.

2) Interest rate risk

The Company's 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 deposits and borrowing 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 and reduces borrowings with high interest rates and maintains an appropriate balance between borrowings with floating interest rate and fixed-interest rate and 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, 2015 and 2014, is as follows (in thousands of Korean won):

	December 31, 2015	December 31, 2014
Financial assets	₩26,928,522	₩40,676,259
Financial liabilities	(50,000,000)	(20,000,000)
Net assets (liabilities)	(₩23,071,478)	₩20,676,259

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, 2015 and 2014, is as follows (in thousands of Korean won):

	December 31, 2015		December 31, 2014	
	1% increase	1% decrease	1% increase	1% decrease
Income before tax impact	(₩230,715)	₩230,715	₩206,763	(₩206,763)

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 creditworthiness 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 creditworthiness using opened financial information and information provided by credit-rating institutions when the Company contracts with new customers. The Company decides credit transaction limit and is provided with collateral and guarantee based on evaluation.

Also, the Company revaluates customers' creditworthiness periodically, reassesses credit transaction limit and readjusts level of collateral. The Company reports the present condition of delayed collection and collection measures periodically to financial assets, which has delayed collection and takes measures by causes of delay.

1) The maximum credit risk exposure

The maximum credit risk exposure for financial assets maintained by the Company and the book value for the financial assets as of December 31, 2015 and 2014, are as follows (in thousands of Korean won):

	December 31, 2015	December 31, 2014
Loans and receivables:		
Cash and cash equivalents	₩43,734,483	₩40,970,490
Financial instruments	17,336,000	39,744,859
Trade and other receivables	53,613,191	73,073,306
Long-term and short-term loans	2,926,453	4,216,940
Long-term others receivables	14,050,682	10,701,073
Held-to-maturity investments:		
Short-term investment securities	-	7,000,000
Derivative assets	2,732,393	3,212,151
Total	₩134,393,202	₩178,918,819

Apart from the above financial assets, the maximum exposure of the Company related to financial guarantee contract is the maximum amount to be paid if the guarantee will be charged (see Note 31).

2) The Company's receivables' aging analysis as of December 31, 2015 and 2014, is as follows (in thousands of Korean won):

	December 31, 2015						
	Individually assessed receivables	Receivables assessed for impairment on a collective basis					Total
		Within due	0–3 months	3–6 months	6–12 months	More than 12 months	
Short-term loans	₩-	₩1,206,666	₩-	₩-	₩-	₩-	₩1,206,666
Trade receivables	2,599,402	48,911,408	1,611,196	179,720	928,924	192,185	54,422,835
Other receivables	1,358,247	427,517	-	-	-	-	1,785,764
Accrued income	-	55,425	-	-	-	-	55,425
Long-term loans	-	1,890,400	-	-	-	-	1,890,400
Long-term other receivables	5,964,941	4,616,869	-	-	-	-	10,581,810
Total	₩9,922,590	₩57,108,285	₩1,611,196	₩179,720	₩928,924	₩192,185	₩69,942,900

	December 31, 2014						
	Individually assessed receivables	Receivables assessed for impairment on a collective basis					Total
		Within due	0–3 months	3–6 months	6–12 months	More than 12 months	
Short-term loans	₩-	₩1,100,900	₩-	₩-	₩-	₩-	₩1,100,900
Trade receivables	-	56,898,656	6,119,278	180,927	689,420	246,970	64,135,251
Other receivables	7,763,621	375,568	-	-	-	-	8,139,189
Accrued income	-	939,894	-	-	-	-	939,894
Long-term loans	-	3,398,735	-	-	-	-	3,398,735
Long-term other receivables	-	5,488,065	-	-	-	-	5,488,065
Total	₩7,763,621	₩68,201,818	₩6,119,278	₩180,927	₩689,420	₩246,970	₩83,202,034

An allowance account is recognized by applying appropriate allowance rate for receivables that can be assessed to be impaired individually due to insolvency, bankruptcy and others. A group of financial assets that are not individually significant and have similar credit risk characteristics is assessed for impairment on a collective basis. An allowance account is recognized 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 to be impaired.

(3) Liquidity risk

Liquidity risk is the risk that the Company will encounter difficulty in meeting its financial liability obligations related to its financing for its operation.

The Company forecasts cash flows from operating, investing and financing activities through a cash flow budget regularly. This secures and retains a necessary liquidity scale in advance. Also, this manages a possible liquidity risk for the future.

The Company's major non-derivative liabilities as of December 31, 2015 and 2014, which have matured, are as follows (in thousands of Korean won):

		December 31, 2015				
		Nominal cash flows according to contract				
	Book value	Total	Less than 1 year	1-2 years	2-5 years	More than 5 years
Financial liabilities	₩452,498,124	₩453,014,878	₩179,970,586	₩153,044,292	₩120,000,000	₩ -
Interest expense	-	26,429,460	11,770,543	10,724,417	3,934,500	-
	₩452,498,124	₩479,444,338	₩191,741,129	₩163,768,709	₩123,934,500	₩ -

	December 31, 2014					
		Nominal cash flows according to contract				
	Book value	Total	Less than 1 year	1-2 years	2-5 years	More than 5 years
Financial liabilities	₩414,805,834	₩415,546,097	₩178,627,807	₩1,918,290	₩235,000,000	₩ -
Interest expense	-	35,496,786	11,882,036	10,591,000	13,023,750	-
	₩414,805,834	₩451,042,883	₩190,509,843	₩12,509,290	₩248,023,750	₩ -

The above-mentioned maturity analysis is based on undiscounted cash flow according to the contract, which is different from non-derivative liabilities in the separate statements of financial position.

Apart from the above-mentioned non-derivative liabilities, as of December 31, 2015, financial guarantee contract liabilities of the Company are explained in Note 31.

(4) Capital risk

The Company performs capital risk management to maintain its ability to continuously provide profits to stockholders and parties in interest and to maintain optimum capital structure to reduce capital expenses.

Debt-to-equity ratio calculated as total liabilities divided by equity is used as an index to manage the Company's capital similar to overall industry practice.

Debt-to-equity ratios as of December 31, 2015 and 2014, are as follows (in thousands of Korean won):

	December 31, 2015	December 31, 2014
Total liabilities	₩817,199,696	₩823,023,435
Total equity	538,573,623	646,019,121
Debt-to-equity ratio	151.73%	127.40%

5. RESTRICTED FINANCIAL INSTRUMENTS:

Details of restricted financial instruments as of December 31, 2015 and 2014, are as follows (in thousands of Korean won):

Account	December 31, 2015	December 31, 2014	Remarks
Short-term financial instruments	₩330,000	₩810,000	Establishment of a pledge to Korea Gas Corporation
Long-term financial instruments	6,000	6,500	Guarantee deposits for checking account
	-	1,928,359	Employee stock ownership loan secured by deposits
Total	₩336,000	₩2,744,859	

6. TRADE AND OTHER RECEIVABLES:

(1) Trade and other receivables as of December 31, 2015 and 2014, consist of the following (in thousands of Korean won):

	December 31, 2015			December 31, 2014		
	Gross	Allowance for doubtful accounts	Carrying value	Gross	Allowance for doubtful accounts	Carrying value
CURRENT:						
Trade receivables	₩54,422,835	(₩2,706,662)	₩51,716,173	₩64,135,251	(₩197,312)	₩63,937,939
Other receivables	1,785,764	(6,236)	1,779,528	8,139,189	(6,236)	8,132,953
Accrued income	55,425	-	55,425	939,894	-	939,894
Guarantee deposits	62,065	-	62,065	62,520	-	62,520
Subtotal	56,326,089	(2,712,898)	53,613,191	73,276,854	(203,548)	73,073,306
NON-CURRENT:						
Other receivables	₩10,137,428	₩ -	₩10,137,428	₩4,886,885	₩ -	₩4,886,885
Guarantee deposits	3,913,254	-	3,913,254	5,814,188	-	5,814,188
Subtotal	14,050,682	-	14,050,682	10,701,073	-	10,701,073
Total	₩70,376,771	(₩2,712,898)	₩67,663,873	₩83,977,927	(₩203,548)	₩83,774,379

(2) The changes in allowance for doubtful accounts for the year ended December 31, 2015, are as follows (in thousands of Korean won):

	January 1, 2015	Increase	Reversal	December 31, 2015
Trade receivables	(₩197,312)	(₩2,509,350)	₩ -	(₩2,706,662)
Other receivables	(6,236)	-	-	(6,236)
	(₩203,548)	(₩2,509,350)	₩ -	(₩2,712,898)

Bad debt expense to impaired trade receivables is included in selling, general and administrative expenses and bad debt expense to impaired other receivables is included in other non-operating expenses in the separate statements of income.

7. INVENTORIES:

Inventories as of December 31, 2015 and 2014, are summarized as follows (in thousands of Korean won):

	December 31, 2015			December 31, 2014		
	Acquisition cost	Valuation allowance	Book value	Acquisition cost	Valuation allowance	Book value
Work in progress	₩140,023,278	(₩19,917,387)	₩120,105,891	₩107,955,272	(₩14,136,463)	₩93,818,809
Raw materials	86,458,463	(11,202,930)	75,255,533	94,332,184	(4,528,115)	89,804,069
Materials in transit	3,512,596	-	3,512,596	13,773,567	-	13,773,567
Total	₩229,994,337	(₩31,120,317)	₩198,874,020	₩216,061,023	(₩18,664,578)	₩197,396,445

Losses on inventory valuation amounted to ₩12,455,739 thousand and ₩816,946 thousand for the years ended December 31, 2015 and 2014, respectively.

8. INVESTMENT SECURITIES:

Investment securities as of December 31, 2015 and 2014, are summarized as follows (in thousands of Korean won):

	December 31, 2015		December 31, 2014	
	Current	Non-current	Current	Non-current
AFS financial assets:				
Investment in capital of partnership:				
Korea Marine Equipment Association	₩ -	₩20,000	₩ -	₩20,000
Electronic Contractors' Financial Cooperative	-	52,047	-	52,047
Equity securities:				
Casco	-	1	-	1
Subtotal	-	72,048	-	72,048
Long-term held-to-maturity financial assets:				
Debt security:				
Subordinated beneficiary certificate	-	-	7,000,000	-
Total	₩-	₩72,048	₩7,000,000	₩72,048

AFS financial assets are measured at acquisition cost as they cannot be reliably measured at fair value.

9. DERIVATIVES:

(1) Details of the derivatives and risk aversion accounting are as follows:

Purpose	Derivative instruments	Contract description
Risk aversion of fair value	Foreign currency forwards	When receiving the foreign receivables, determined foreign payables to fix the value of Korean won at maturity about exposed fluctuation risk of exchange rate

(2) Details of gain and loss on valuation of derivatives as of December 31, 2015 and 2014, are as follows (in foreign currencies and in thousands of Korean won):

December 31, 2015						
Buy		Sell		Assets (liabilities)	Gains (losses)	Firm commitment
Currency	Amount	Currency	Amount			
KRW	906,562,580	USD	801,216,060	(₩34,283,414)	(₩28,214,013)	₩40,539,987
EUR	69,646,000	KRW	92,079,679	(1,784,714)	(845,623)	4,997,724
CHF	7,624,000	KRW	9,130,045	135,633	174,342	(132,195)
Total				(₩35,932,495)	(₩28,885,294)	₩45,405,516

December 31, 2014						
Buy		Sell		Assets (liabilities)	Gains (losses)	Firm commitment
Currency	Amount	Currency	Amount			
KRW	752,196,632	USD	693,038,000	(₩13,870,143)	(₩19,654,828)	₩31,200,074
EUR	61,928,000	KRW	88,752,216	(4,976,801)	(4,933,113)	7,918,277
CHF	2,739,000	KRW	3,226,908	(113,552)	(139,961)	101,938
Total				(₩18,960,496)	(₩24,727,902)	₩39,220,289

10. FINANCIAL INSTRUMENTS:

(1) Categories of financial instruments as of December 31, 2015 and 2014, are as follows (in thousands of Korean won):

	December 31, 2015						
	Financial assets at FVTPL	Loans and receivables	AFS financial assets	Held-to-maturity investments	Derivatives designated as hedging instruments	Book value	Fair value
Cash and cash equivalents	₩-	₩43,734,483	₩-	₩-	₩-	₩43,734,483	₩43,734,483
Long- and short-term financial instruments	-	17,336,000	-	-	-	17,336,000	17,336,000
Trade and other receivables	-	53,613,191	-	-	-	53,613,191	53,613,191
Derivative assets	-	-	-	-	2,732,393	2,732,393	2,732,393
Long- and short-term loans	-	2,926,453	-	-	-	2,926,453	2,926,453
Long-term investment securities	-	-	72,048	-	-	72,048	72,048
Long-term other receivables	-	14,050,682	-	-	-	14,050,682	14,050,682
Total	₩-	₩131,660,809	₩72,048	₩-	₩2,732,393	₩134,465,250	₩134,465,250

	December 31, 2015					
	Financial liabilities at FVTPL	Financial liabilities at amortized cost	Derivatives designated as hedging instruments	Financial guarantee contract	Book value	Fair value
Trade and other payables	₩-	₩123,666,456	₩-	₩-	₩123,666,456	₩123,666,456
Borrowings and bonds	-	320,787,376	-	-	320,787,376	320,787,376
Derivative liabilities	-	-	38,664,888	-	38,664,888	38,664,888
Long-term non-trade payables	-	8,044,292	-	-	8,044,292	8,044,292
Financial guarantee liabilities	-	-	-	3,909,806	3,909,806	3,909,806
Total	₩-	₩452,498,124	₩38,664,888	₩3,909,806	₩495,072,818	₩495,072,818

	December 31, 2014						
	Financial assets at FVTPL	Loans and receivables	AFS financial assets	Held-to-maturity investments	Derivatives designated as hedging instruments	Book value	Fair value
Cash and cash equivalents	₩-	₩40,970,490	₩-	₩-	₩-	₩40,970,490	₩40,970,490
Long- and short-term financial instruments	-	39,744,859	-	-	-	39,744,859	39,744,859
Trade and other receivables	-	73,073,306	-	-	-	73,073,306	73,073,306
Derivative assets	-	-	-	-	3,212,151	3,212,151	3,212,151
Long- and short-term loans	-	4,216,940	-	-	-	4,216,940	4,216,940
Long-term and short-term investment securities	-	-	72,048	7,000,000	-	7,072,048	7,072,048
Long-term other receivables	-	10,701,073	-	-	-	10,701,073	10,701,073
Total	₩-	₩168,706,668	₩72,048	₩7,000,000	₩3,212,151	₩178,990,867	₩178,990,867

	December 31, 2014					
	Financial liabilities at FVTPL	Financial liabilities at amortized cost	Derivatives designated as hedging instruments	Financial guarantee contract	Book value	Fair value
Trade and other payables	₩-	₩124,770,715	₩-	₩-	₩124,770,715	₩124,770,715
Borrowings and bonds	-	288,116,829	-	-	288,116,829	288,116,829
Derivative liabilities	-	-	22,172,647	-	22,172,647	22,172,647
Long-term non-trade payables	-	1,918,290	-	-	1,918,290	1,918,290
Financial guarantee liabilities	-	-	-	4,655,456	4,655,456	4,655,456
Total	₩-	₩414,805,834	₩22,172,647	₩4,655,456	₩441,633,937	₩441,633,937

(2) Fair value measurements of financial instruments by fair value hierarchy levels as of December 31, 2015 and 2014, are as follows (in thousands of Korean won):

	December 31, 2015			
	Level 1	Level 2	Level 3	Total
Financial assets:				
Derivatives designated as hedging instruments	₩-	₩2,732,393	₩-	₩2,732,393
Financial liabilities:				
Derivatives designated as hedging instruments	-	(38,664,888)	-	(38,664,888)
Total	₩-	(₩35,932,495)	₩-	(₩35,932,495)

	December 31, 2014			
	Level 1	Level 2	Level 3	Total
Financial assets:				
Derivatives designated as hedging instruments	₩-	₩3,212,151	₩-	₩3,212,151
Financial liabilities:				
Derivatives designated as hedging instruments	-	(22,172,647)	-	(₩22,172,647)
Total	₩-	(₩18,960,496)	₩-	(₩18,960,496)

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: Unadjusted quoted 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 comprise primarily listed equity investments classified as trading securities or AFS.

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 for fair value of an instrument are observable, the instrument is included in Level 2.

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

(3) Valuation techniques and inputs used for derivatives designated as hedging instruments (Level 2) are as follows:

Valuation methodology	Observable inputs	Explanation of inputs
Discounted cash flow method	Forward exchange rate	It is based on forward exchange rate, disclosed on the market, its remaining period is the same to maturity of forward contracts. If the forward exchange rate is not disclosed on the market, it is calculated by using of interpolation method.
	Discount rate	It is determined by using yield curve that is disclosed at the end of reporting period.

(4) Comprehensive income (loss) by categories of financial instruments for the years ended December 31, 2015 and 2014, is as follows (in thousands of Korean won):

	2015							
	Profit or loss							Other comprehensive income
	Interest	Dividend	Valuation	Impairment /Reversal	Disposal	Foreign exchange	Others	
Financial instruments:								
Financial asset at FVTPL	₩ -	₩ -	₩ -	₩ -	₩ -	₩ -	₩ -	₩ -
Loans and receivables	1,174,828	-	-	(2,509,350)	-	14,729,035	-	-
AFS financial assets	-	600	-	-	-	-	-	-
Held-to-maturity investments	141,764	-	-	-	-	-	-	-
Total	₩1,316,592	₩600	₩ -	(₩2,509,350)	₩ -	₩14,729,035	₩ -	₩ -
Financial liabilities:								
Financial liabilities at FVTPL	₩ -	₩ -	₩ -	₩ -	₩ -	₩ -	₩ -	₩ -
Financial liabilities at amortized cost	(12,478,767)	-	-	-	-	(10,508,831)	-	-
Financial guarantee contracts	-	-	-	-	-	-	1,315,422	-
Total	(₩12,478,767)	₩ -	₩ -	₩ -	₩ -	(₩10,508,83	₩1,315,422	₩ -

	2014							
	Profit or loss							Other comprehensive income
	Interest	Dividend	Valuation	Impairment /Reversal	Disposal	Foreign exchange	Others	
Financial instruments:								
Financial asset at FVTPL	₩ -	₩ -	₩ -	₩ -	₩ -	₩ -	₩ -	₩ -
Loans and receivables	4,173,629	-	-	391,621	-	4,013,103	-	-
AFS financial assets	-	-	-	-	-	-	-	-
Held-to-maturity investments	588,000	-	-	-	-	-	-	-
Total	₩4,761,629	₩ -	₩ -	₩391,621	₩ -	₩4,013,103	₩ -	₩ -
Financial liabilities:								
Financial liabilities at FVTPL	₩ -	₩ -	₩ -	₩ -	₩ -	₩ -	₩ -	₩ -
Financial liabilities at amortized cost	(12,768,544)	-	-	-	-	692,241	-	-
Financial guarantee contracts	-	-	-	-	-	-	1,295,113	-
Total	(₩12,768,544)	₩ -	₩ -	₩ -	₩ -	₩692,241	₩1,295,113	₩ -

Apart from the above financial instruments, comprehensive income (loss) by derivatives for the years ended December 31, 2015 and 2014, is as follows (in thousands of Korean won):

	December 31, 2015			December 31, 2014		
	Valuation	Disposal	Other comprehensive income	Valuation	Disposal	Other comprehensive income
Derivatives designated as hedging instruments	(₩28,885,294)	(₩19,473,616)	₩ -	(₩24,727,902)	₩1,348,755	₩ -

11. INVESTMENTS IN ASSOCIATES AND SUBSIDIARIES:

Investments in subsidiaries and associates as of December 31, 2015 and 2014, consist of the following (in thousands of Korean won):

Company	Country	Percentage	December 31, 2015	December 31, 2014
Subsidiaries:				
Doosan Marine Industry (Dalian) Co., Ltd. ("DMI")	China	100.00%	₩17,579,757	₩17,579,757
Doosan Engine PNG Co., Ltd. ("DEPNG")	Papua New Guinea	100.00%	42	-
Subtotal			17,579,799	17,579,757
Associates:				
Dalian Samyoung Doosan Metal Product Co., Ltd. (*1)	China	10.80%	3,853,794	3,853,794
Doosan Infracore International, Inc. ("DII") (*2)	America	11.59%	146,521,807	146,521,807
Doosan Holdings Europe Ltd. ("DHEL") (*2)	Island	21.73%	196,038,744	196,038,744
Subtotal			346,414,345	346,414,345
Total			₩363,994,144	₩363,994,102

(*1) Although the Company's ownership in each of these companies is less than 20%, the Company has significant influence over this company through participation in various management decisions of these companies. As a result, the Company accounts for these investments using the equity method.

(*2) Investees have agreement with Doosan Infracore ("DI"), related party of the Company, for appointment of representative director, etc., and the Company accounts for these investments using the equity method. In addition, the Company provides share of DII and DHEL for its loans as collateral (see Note 31-(2)).

The Company does not have securities of subsidiaries and associates with posted market price.

12. PROPERTY, PLANT AND EQUIPMENT:

(1) Changes in property, plant and equipment for the years ended December 31, 2015 and 2014, are as follows (in thousands of Korean won):

	2015					
	Land	Buildings and structures	Machinery	Others	Construction in progress	Total
January 1, 2015	₩283,761,955	₩195,728,391	₩104,061,949	₩2,620,752	₩834,520	₩587,007,567
Acquisition	215,248	700,581	679,570	387,940	3,265,291	5,248,630
Transfer (*1)	(43,351,982)	(46,821,919)	(29,107,490)	78,820	(539,240)	(119,741,811)
Net changes from revaluation	35,465,744	-	-	-	-	35,465,744
Disposal	(94,800)	(121,381)	(644)	-	-	(216,825)
Depreciation	-	(7,010,439)	(12,753,387)	(1,106,294)	-	(20,870,120)
December 31, 2015	₩275,996,165	₩142,475,233	₩62,879,998	₩1,981,218	₩3,560,571	₩486,893,185
-Acquisition cost	₩202,195,640	₩189,784,727	₩183,022,078	₩56,788,893	₩3,560,571	₩635,351,909
-Accumulated depreciation	-	(47,309,494)	(120,142,080)	(54,807,675)	-	(222,259,249)
-Revaluation surplus	73,800,525	-	-	-	-	73,800,525

(*1) The Company reclassifies land, building and structures, and machinery amounted to ₩119,338,592 thousand to assets held for sale, and recognized impairment on fair value of amounted to ₩54,983,092 thousand (see Note 34).

	2014					
	Land	Buildings and structures	Machinery	Others	Construction in progress	Total
January 1, 2014	₩283,761,955	₩202,468,302	₩112,942,419	₩3,960,243	₩3,203,638	₩606,336,557
Acquisition	-	259,779	666,094	253,552	525,640	1,705,065
Transfer	-	-	3,114,650	34,708	(2,894,758)	254,600
Disposal	-	-	(2,891)	(2)	-	(2,893)
Depreciation	-	(6,999,690)	(12,658,323)	(1,627,749)	-	(21,285,762)
December 31, 2014	₩283,761,955	₩195,728,391	₩104,061,949	₩2,620,752	₩834,520	₩587,007,567
-Acquisition cost	₩236,132,293	₩247,600,188	₩240,599,422	₩56,331,582	₩834,520	₩781,498,005
-Accumulated depreciation	-	(51,871,797)	(136,537,473)	(53,710,830)	-	(242,120,100)
-Revaluation surplus	47,629,662	-	-	-	-	47,629,662

The Company recognized the land subsequently measured at revaluation amount; if the land were stated at cost, the land would amount to ₩202,195,640 thousand and ₩236,132,293 thousand as of December 31, 2015 and 2014, respectively.

(2) The details of revaluation model, which the Company applies to measurement of the land, are as follows:

The Company measured all land assets using fair value at the date of the revaluation. As of December 31, 2015, the fair value of land assets was determined from the appraisal that was undertaken by independently qualified valuators, Pacific Appraisal Group Limited ("Pacific") on November 31, 2015.

The Pacific is a member of Korea Association of Property Appraisers and comprises of certified professionals that have a significant amount of industry experience.

(3) Fair value measurements of land assets by fair value hierarchy level as of December 31, 2015 and 2014, are as follows (in thousands of Korean won):

	2015			2014		
	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3
Land	₩ -	₩ -	₩275,996,165	₩ -	₩ -	₩283,761,955

Valuation techniques and inputs used for fair value measurement of land assets (Level 3) are as follows:

Valuation technique	Significant inputs that are not based on observable market data (unobservable inputs)	Correlation between unobservable inputs and fair value arguments
Official Assessed Reference Land Price ("OARLP"): OARLP of similar parcels nearby the subject land and reflating corrections necessary for differences between the subject and the comparable	a. Fluctuation rate of land price and others	Fair value increases (decreases) if fluctuation rate of land price increases (decreases).
	b. Parcel conditions and others	Fair value increases (decreases) if correction of parcel conditions and others increase (decrease).
	c. Land conditions affecting the sales price and others	Fair value increases (decreases) if correction of land conditions affecting the sales price increases (decreases).

(4) Changes in land whose degree of fair value is classified as Level 3 for the years ended December 31, 2015, are as follows (in thousands of Korean won):

				Revaluation increase		
January 1, 2015	Acquisition	Disposal	Reclassification to assets held for sale	Other comprehensive income	Profit (loss)	December 31, 2015
₩283,761,955	₩215,248	(₩94,800)	(₩43,351,982)	₩35,452,368	₩13,376	₩275,996,165

(5) Changes in revaluation surplus and classification of asset for the years ended December 31, 2015, are as follows (in thousands of Korean won):

				Classification	
January 1, 2015	Increase	Disposal	December 31, 2015	Property, plant and equipment	Assets held for sale
₩47,767,203	₩35,452,368	(₩22,174)	₩83,197,397	₩73,800,525	₩9,396,872

The revaluation surplus amount before tax effect.

(6) Classification of depreciation expenses for the years ended December 31, 2015 and 2014, is as follows (in thousands of Korean won):

	2015	2014
Cost of sales	₩20,456,211	₩20,680,577
Selling and administrative expenses	208,306	321,066
Development costs	205,603	284,119
Total	₩20,870,120	₩21,285,762

13. INTANGIBLE ASSETS:

(1) Changes in intangible assets for the years ended December 31, 2015 and 2014, are as follows (in thousands of Korean won):

	2015				
	Development costs	Rights of utilization	Software	Others	Total
January 1, 2015	₩31,015,578	₩208,096	₩5,623,452	₩4,831,877	₩41,679,003
Acquisition	11,135,059	-	460,057	393,758	11,988,874
Transfer	2,147,978	-	-	-	2,147,978
Disposal	-	-	-	(741,389)	(741,389)
Amortization	(66,931)	(208,096)	(2,574,962)	(457,863)	(3,307,852)
Impairment	(23,181,311)	-	-	(42,021)	(23,223,332)
December 31, 2015	₩21,050,373	₩ -	₩3,508,547	₩3,984,362	₩28,543,282
-Acquisition cost	₩43,286,673	₩3,329,540	₩14,608,101	₩5,421,260	₩66,645,574
-Accumulated amortization	(22,236,300)	(3,329,540)	(11,099,554)	(1,436,898)	(38,102,292)

	2014				
	Development costs	Rights of utilization	Software	Others	Total
January 1, 2014	₩12,850,498	₩416,193	₩8,563,624	₩3,078,225	₩24,908,540
Acquisition	16,563,904	-	38,000	2,736,788	19,338,692
Transfer	1,601,176	-	-	-	1,601,176
Abandon	-	-	-	(544,000)	(544,000)
Amortization	-	(208,096)	(2,978,172)	(433,197)	(3,619,465)
Impairment	-	-	-	(5,940)	(5,940)
December 31, 2014	₩31,015,578	₩208,097	₩5,623,452	₩4,831,876	₩41,679,003
-Acquisition cost	₩31,015,578	₩3,329,540	₩14,148,044	₩5,932,701	₩54,425,863
-Accumulated amortization	-	(3,121,443)	(8,524,592)	(1,100,825)	(12,746,860)

The carrying amount of membership with indefinite useful lives in other intangible assets item is ₩2,486,113 thousand and ₩2,875,765 thousand as of December 31, 2015 and 2014, respectively.

Expenditure on research and development, which was recognized as expenses, amounted to ₩6,939,200 thousand and ₩5,673,011 thousand for the years ended December 31, 2015 and 2014, respectively.

(2) Borrowing costs added to the cost of intangible assets for the years ended December 31, 2015 and 2014, are as follows (in thousands of Korean won):

	2015	2014
Borrowing costs added to the cost of intangible assets	₩1,180,666	₩913,496
Interest rate (%)	4.45%	4.36%

(3) Classification of amortization expense for the years ended December 31, 2015 and 2014, is as follows (in thousands of Korean won):

	2015	2014
Cost of sales	₩2,248,832	₩1,851,202
Selling and administrative expenses	939,020	1,648,263
Development costs	120,000	120,000
Total	₩3,307,852	₩3,619,465

14. BORROWING AND BONDS:

(1) Bonds as of December 31, 2015 and 2014, are as follows (in thousands of Korean won):

Details	Interest rate (%)	December 31, 2015	December 31, 2014
The 6th	4.16	₩100,000,000	₩100,000,000
The 7th	5.00	90,000,000	90,000,000
Subtotal		190,000,000	190,000,000
Less discount on bonds		(516,754)	(740,264)
Net		₩189,483,246	₩189,259,736

(2) Short-term and long-term borrowings as of December 31, 2015 and 2014, are as follows (in thousands of Korean won):

1) Short-term borrowings

	Interest rate (%)	December 31, 2015	December 31, 2014
Short-term borrowings in foreign currency:			
KEB Hana Bank (*1)	1.36–1.38	₩6,304,129	₩3,857,093
Short-term borrowings in Korean won:			
NH Bank	3.52	10,000,000	-
Kookmin Bank	4.05	10,000,000	-
Woori Bank	4.05	30,000,000	-
Subtotal		50,000,000	-
Total		₩56,304,129	₩3,857,093

(*1) Short-term borrowings in foreign currency are provided as collateral for the accounts receivable debt transactions that occurred in assigning receivables that do not meet the requirements for removal of financial instruments (see Note 30-(2)).

2) Long-term borrowings

	Interest rate (%)	December 31, 2015	December 31, 2014
Long-term borrowings in Korean			
La-union	5.15	₩-	₩50,000,000
NH Bank	MOR+2.0	20,000,000	20,000,000
Korea Development Bank	4.42	25,000,000	25,000,000
	3M CD+2.06	30,000,000	-
Subtotal		75,000,000	95,000,000
Less current portion		-	(50,000,000)
Net		₩75,000,000	₩45,000,000

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, 2015 and 2014, are as follows (in thousands of Korean won):

	December 31, 2015	December 31, 2014
Present value of defined benefit obligation	₩29,549,919	₩31,811,723
Fair value of plan assets	(21,617,042)	(19,946,058)
Total	₩7,932,877	₩11,865,665

(2) Expenses recognized in profit and loss for the years ended December 31 2015 and 2014, are as follows (in thousands of Korean won):

	2015	2014
Current service cost	₩4,597,591	₩5,272,021
Past service cost	(31,881)	-
Net interest cost (interest cost – expected return on plan assets)	426,428	469,569
Total	₩4,992,138	₩5,741,590

(3) Classification of the expenses related to the retirement benefit obligation recognized in the separate statements of income for the years ended December 31, 2015 and 2014, is as follows (in thousands of Korean won):

	2015	2014
Cost of sales	₩3,471,470	₩4,201,224
Selling and administrative expenses	1,282,179	1,256,804
Development cost	238,489	283,562
Total	₩4,992,138	₩5,741,590

(4) Changes in defined benefit obligations for the years ended December 31, 2015 and 2014, are as follows (in thousands of Korean won):

	2015	2014
Beginning balance	₩31,811,723	₩22,972,104
Current service cost	4,597,591	5,272,021
Past service cost	(31,881)	-
Transfer in	-	52,077
Transfer out	(246,934)	(242,933)
Interest cost	958,107	969,018
Remeasurements of defined benefit liabilities:	(262,310)	3,846,663
- Changes in demographic assumptions	146,372	1,095,264
- Changes in financial assumptions	485,499	2,187,452
- Others	(894,181)	563,947
Benefit paid	(7,276,377)	(1,057,227)
Ending balance	₩29,549,919	₩31,811,723

(5) Changes in plan assets for the years ended December 31, 2015 and 2014, are as follows (in thousands of Korean won):

	2015	2014
Beginning balance	₩19,946,058	₩12,363,157
Expected return on plan assets	531,680	499,449
Remeasurements of plan assets	(214,106)	(183,425)
Contributions by employer directly to plan assets	8,709,701	8,405,523
Benefit paid	(7,276,377)	(1,057,227)
Transfer in	-	19,158
Transfer out	(79,914)	(100,577)
Ending balance	₩21,617,042	₩19,946,058

(6) Assumptions used for actuarial valuation as of December 31, 2015 and 2014, are as follows:

	December 31, 2015	December 31, 2014
Discount rate for defined benefit obligations	2.60%	3.40%
Expected rate of salary increase:		
Employee	2.00%	2.40%
Officer	2.80%	3.40%

(7) Details of plan assets as of December 31, 2015 and 2014, are as follows (in thousands of Korean won):

	December 31, 2015	December 31, 2014
Debt securities	₩430,672	₩1,295,835
Equity securities	61,421	247,888
Loans	91,723	84,782
Deposits	20,938,266	18,251,926
Others	94,960	65,627
Total	₩21,617,042	₩19,946,058

Plan assets are mostly invested in assets that have a quoted market price in an active market.

(8) The sensitivity analysis for the significant actuarial assumptions as of December 31, 2015 and 2014, is as follows (in thousands of Korean won):

	December 31, 2015		December 31, 2014	
	Amount	Rate	Amount	Rate
Discount rate:				
1% increase	(₩1,187,266)	(-)4.02%	(₩1,376,883)	(-)4.33%
1% decrease	1,310,547	4.44%	1,525,215	4.79%
Salary increase rate:				
1% increase	1,305,094	4.42%	1,525,065	4.79%
1% decrease	(1,205,070)	(-)4.08%	(1,402,538)	(-)4.41%

(9) Information about the maturity profile of the defined benefit obligation as of December 31, 2015 and 2014, is as follows (in thousands of Korean won):

	2015			
	0–1 year	1–2 years	2–5 years	More than 5 years
Expected payment	₩4,202,871	₩7,881,253	₩12,307,562	₩16,022,186

	2014			
	0–1 year	1–2 years	2–5 years	More than 5 years
Expected payment	₩4,588,493	₩6,809,797	₩14,885,066	₩21,555,345

The Company plans to contribute ₩3,153,834 thousand for the defined benefit plans in 2016.

16. PROVISIONS:

Changes in provisions for construction warranties for the years ended December 31, 2015 and 2014, are as follows (in thousands of Korean won):

	2015	2014
Beginning balance	₩3,866,035	₩10,097,900
Accrual	1,413,918	(3,282,509)
Use	(2,226,377)	(4,060,524)
Others(*1)	4,414,356	1,111,168
Ending balance	₩7,467,932	₩3,866,035
Current	₩4,433,212	₩1,916,319
Non-current	3,034,720	1,949,716

(*1) The amounts represent those settled by professional engineers who are responsible for the warranty.

The Company estimates expenditure required to settle the Company's obligation for product warranty, refund, related after-sales service and other based on warranty period, historical claim rate and other.

17. SHARE CAPITAL AND CAPITAL SURPLUS:

Changes in share capital and capital surplus for the year ended December 31, 2015, are as follows (in thousands of Korean won, except for number of shares):

	Number of shares	Capital stock	Capital surplus
Balance at December 31, 2015	69,500,000	₩69,500,000	₩367,214,701

The Company's number of shares authorized amounted to 120,000,000 shares with a par value of ₩1,000 per share. There are no issued shares with restricted voting rights under commercial law.

18. OTHER CAPITAL ITEMS:

(1) Other capital items as of December 31, 2015 and 2014, are summarized as follows (in thousands of Korean won):

Description	December 31, 2015	December 31, 2014
Share options	₩623,043	₩550,159

(2) Share-based payment

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 stockholders' meeting.

1) The number of granted options as of December 31, 2015, is as follows:

	Date of grant	Number of granted options	Exercisable period	Exercisable price	Expected fair value at the date of grant
1st	2011.3.25	10,900	2014.3.25–2021.3.24	₩21,600	₩10,343
2nd	2012.3.30	30,000	2015.3.30–2022.3.29	13,300	4,653
3rd	2013.3.29	83,700	2016.3.29–2023.3.28	9,050	3,383
4th	2014.3.28	27,700	2017.3.28–2024.3.27	9,490	3,583

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

	Risk-free interest rate(*1)	Expected exercisable period	Expected volatility	Expected dividend yield ratio
1st	3.66%	3 years	68.77%	0.00%
2nd	3.57%	3 years	55.03%	0.00%
3rd	2.45%	3 years	52.35%	0.00%
4th	2.88%	3 years	52.27%	0.00%

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

3) Changes in share options for the year ended December 31, 2015, are as follows:

a) Number of common shares to be issued:

	January 1, 2015	Granted	Exercised	Canceled	December 31, 2015
1st	10,900	-	-	-	10,900
2nd	30,000	-	-	-	30,000
3rd	87,100	-	-	(3,400)	83,700
4th	27,700	-	-	-	27,700
Total	155,700	-	-	(3,400)	152,300

b) Valuation amount (in thousands of Korean won):

	January 1, 2015	Granted	Exercised	Forfeited	December 31, 2015
1st	₩112,739	₩ -	₩ -	₩ -	₩112,739
2nd	139,590	-	-	-	139,590
3rd	259,898	33,404	-	(10,145)	283,157
4th	37,932	49,625	-	-	87,557
Total	₩550,159	₩83,029	₩ -	(₩10,145)	₩623,043

Expense of the Company, recognized related to the share option grant, amounted to ₩72,883 thousand and ₩194,76 thousand for the years ended December 31, 2015 and 2014, respectively. Expense to be recognized in the future period amounted to ₩11,692 thousand.

19. ACCUMULATED OTHER COMPREHENSIVE INCOME:

Accumulated other comprehensive income as of December 31, 2015 and 2014, is as follows (in thousands of Korean won):

	December 31, 2015	December 31, 2014
Revaluation surplus of land	₩63,063,627	₩36,207,540

20. RETAINED EARNINGS:

(1) Retained earnings as of December 31, 2015 and 2014, are as follows (in thousands of Korean won):

	December 31, 2015	December 31, 2014
Legal reserve	₩1,200,000	₩1,200,000
Optional reserve	2,700,000	2,700,000
Retained earnings before appropriations	34,272,251	168,646,721
Total	₩38,172,251	₩172,546,721

The Commercial Code of the Republic of Korea requires the Company to appropriate an amount equal to a minimum of 10% of annual cash dividends declared as a legal reserve until the reserve equals 50% of its issued share capital.

(2) Changes in retained earnings for the years ended December 31, 2015 and 2014, are as follows (in thousands of Korean won):

	2015	2014
Beginning balance	₩172,546,721	₩206,657,956
Net loss for the period	(134,427,816)	(31,056,428)
Actuarial loss on defined benefit obligations	36,539	(3,054,807)
Revaluation surplus of land	16,807	-
Ending balance	₩38,172,251	₩172,546,721

(3) Separate statements of appropriation of retained earnings for the years ended December 31, 2015 and 2014, are as follows (in thousands of Korean won):

	2015	2014
UNAPPROPRIATED RETAINED EARNINGS:		
Unappropriated retained earnings carriover from the prior year ed	₩168,646,721	₩202,757,956
Net loss	(134,427,816)	(31,056,428)
Actuarial loss on defined benefit obligations	36,539	(3,054,807)
Disposal of revaluated land	16,807	-
Subtotal	34,272,251	172,546,721
TRANSFER FROM VOLUNTARY RESERVES:	-	-
APPROPRIATIONS:	–	-
UNAPPROPRIATED RETAINED EARNINGS TO BE CARRIED FORWARD TO SUBSEQUENT YEAR	₩ 34,272,251	₩168,646,721

The appropriations of retained earnings for the year ended December 31, 2015, will be approved at the general stockholders' meeting on March 25, 2016.

21. SALES:

Details of sales for the years ended December 31, 2015 and 2014, are as follows (in thousands of Korean won):

	2015	2014
Sales of goods	₩649,927,307	₩861,252,945
Construction sales	36,754,714	20,726,389
Others	5,594,946	5,785,386
Total	₩692,276,967	₩887,764,720

22. SEGMENT INFORMATION:

The Company has a single reportable segment determined by considering the characteristics of the nature of goods and assets to create sales.

(1) The following table provides sale information by geographical segment for the years ended December 31, 2015 and 2014 (in thousands of Korean won):

	2015	2014
Domestic	₩396,018,079	₩443,173,636
Overseas	296,258,888	444,591,084
Total	₩692,276,967	₩887,764,720

(2) There is a single external customer who accounted for 10% or more of the Company's sales for the years ended December 31, 2015 and 2014 (in thousands of Korean won):

	2015	2014
Samsung Heavy Industries Co., Ltd.	₩115,010,665	₩102,549,771
Daewoo Shipbuilding & Marine Engineering Co., Ltd.	101,007,893	208,448,596
Total	₩216,018,558	₩310,998,367

23. CONSTRUCTION CONTRACTS:

(1) Details of profit and unbilled (overbilled) construction receivables (payables) under construction contract for the years ended December 31, 2015 and 2014, are as follows (in thousands of Korean won):

	2015					
				Contract receivables		
	Construction revenue	Construction cost	Construction profit	Claimed	Not claimed	Gross amount due to customers
Diesel engine	₩226,099,696	₩177,912,875	₩48,186,821	₩-	₩2,331,456	₩9,702,365

	2014					
				Contract receivables		
	Construction revenue	Construction cost	Construction profit	Claimed	Not claimed	Gross amount due to customers
Diesel engine	₩188,147,457	₩147,311,231	₩40,836,226	₩-	₩12,999,974	₩14,568,458

(2) Details of construction contract for the years ended December 31, 2015 and 2014, are as follows (in thousands of Korean won):

		2015			
Order	Description	January 1, 2015	Increase by contract	Decrease by sales	December 31, 2015
KHNP and other six companies	Singori No. 3 and No. 4 emergency generators, alternative AC power diesel engine and other 13	₩97,502,112	₩24,460,363	(₩36,754,714)	₩85,207,761

		2014			
Order	Description	January 1, 2014	Increase by contract	Decrease by sales	December 31, 2014
KHNP and other five companies	Singori No. 3 and No. 4 emergency generators, alternative AC power diesel engine and other 13	₩84,587,474	₩33,641,027	(₩20,726,389)	₩97,502,112

24. EXPENSES CLASSIFIED BY NATURE:

Expenses classified by nature for the years ended December 31, 2015 and 2014, are as follows (in thousands of Korean won):

	2015	2014
Changes in inventories	(₩1,477,575)	(₩20,848,297)
Purchase of raw materials	505,922,562	659,637,406
Employee benefits	87,247,772	70,292,771
Other employee benefits	14,868,825	12,972,919
Depreciation and amortization	23,852,369	24,501,107
Commission expenses	55,313,571	73,419,063
Others	69,500,044	106,200,058
Total	₩755,227,568	₩926,175,027

25. SELLING AND ADMINISTRATIVE EXPENSES:

Selling and administrative expenses for the years ended December 31, 2015 and 2014, are as follows (in thousands of Korean won):

Account	2015	2014
Salaries	₩18,757,037	₩16,976,222
Other employee benefits	5,276,827	3,318,995
Provision for retirement and severance benefits	16,352,447	1,256,804
Commission expenses	5,479,587	6,124,980
Depreciation	208,306	321,066
Amortization	939,020	1,648,263
Advertising and marketing expenses	490,418	430,633
Rental expenses	1,259,458	1,321,020
Allowance for bad debt	2,509,350	(391,621)
Research and ordinary development costs	6,939,200	5,673,011
Others	2,803,336	3,225,408
Total	₩61,014,986	₩39,904,781

26. FINANCE INCOME AND EXPENSES:

Finance income and expenses for the years ended December 31, 2015 and 2014, are as follows (in thousands of Korean won):

Account	2015	2014
Finance income:		
Interest income	₩1,316,592	₩4,761,629
Dividend income	600	-
Income from financial guarantee	1,315,422	1,295,113
Gain on foreign currency transaction	23,839,560	20,150,971
Gain on foreign currency translation	1,435,628	1,662,678
Gain on derivative transaction	8,864,243	20,974,261
Gain on valuation of derivatives	2,838,556	520,055
Gain on valuation of firm commitments	54,688,212	41,795,628
Subtotal	94,298,813	91,160,335
Finance expenses:		
Interest expenses	12,478,767	12,768,544
Expense for financial guarantee	451,631	471,641
Loss on foreign currency transaction	19,743,060	16,190,551
Loss on foreign currency translation	1,311,924	917,754
Loss on derivative transaction	28,337,859	19,625,506
Loss on valuation of derivatives	31,723,850	25,247,957
Loss on valuation of firm commitments	29,599,229	18,765,706
Subtotal	(123,646,320)	(93,987,659)
Net finance expenses	(₩29,347,507)	(₩2,827,324)

27. OTHER NON-OPERATING INCOME AND EXPENSES:

Other non-operating income and expenses for the years ended December 31, 2015 and 2014, are as follows (in thousands of Korean won):

Account	2015	2014
Other non-operating income:		
Commission	₩ -	₩472,587
Rental income	255,935	220,455
Gain on disposal of property, plant and equipment	94,475	54,473
Gain on disposal of intangible assets	54,550	700
Gain on revaluation of land	13,376	-
Other income	1,728,833	1,212,732
Subtotal	2,147,169	1,960,947
Other non-operating expenses:		
Loss on disposal of intangible assets	52,758	67,909
Impairment loss of intangible assets	23,223,332	5,940
Impairment loss of assets held for sale	54,983,092	-
Donations	221,339	154,862
Other loss	5,852,591	2,460,162
Subtotal	(84,333,112)	(2,688,873)
Net other non-operating expenses	(₩82,185,943)	(₩727,926)

28. INCOME TAX EXPENSE:

(1) Details of income tax expense for the years ended December 31, 2015 and 2014, are as follows (in thousands of Korean won):

Details	2015	2014
Current income tax expense	₩770,608	(₩1,099,478)
Changes in deferred income tax assets (liabilities) related to temporary differences	(32,241,070)	(10,784,932)
Deferred income tax assets (liabilities) directly reflected in stockholders' equity	(8,585,773)	975,281
Income tax expense (profit)	(₩40,056,235)	(₩10,909,129)

(2) Changes in deferred tax assets and liabilities for the years ended December 31, 2015 and 2014, are as follows (in thousands of Korean won):

Details	January 1, 2015	Change		December 31, 2015
		Income	Capital	
Foreign currency translation, net	(₩187,817)	₩143,282	₩-	(₩44,535)
Depreciation	2,338,163	713,051	-	3,051,214
Allowance for doubtful accounts	-	496,130	-	496,130
Accrued income	(105,444)	100,285	-	(5,159)
Loss on inventory obsolescence	4,774,350	2,925,995	-	7,700,345
Currency forwards	4,588,440	4,107,224	-	8,695,664
Firm commitment assets	(9,491,310)	(1,496,825)	-	(10,988,135)
Loss on investment assets	970,458	-	-	970,458
Other intangible assets	177,079	(31,587)	-	145,492
Accrued expenses	1,075,120	3,769,918	-	4,845,038
Unearned revenue	(2,242,990)	788,720	-	(1,454,270)
Financial guarantee liabilities	(66,382)	(10,298)	-	(76,680)
Provision for construction warranties	935,580	871,660	-	1,807,240
Provision for severance indemnities	2,102,551	(481,788)	(11,666)	1,609,097
Gain on revaluation of land and buildings	(53,261,636)	(3,237)	(8,574,107)	(61,838,980)
Advanced payment	444,427	(171,612)	-	272,815
Development costs	-	5,364,987	-	5,364,987
Assets held for sale	-	13,305,908	-	13,305,908
Others	64,401	(17,281)	-	47,120
Subtotal	(₩47,885,010)	₩30,374,532	(₩8,585,773)	(₩26,096,251)
Tax credit carryforwards	1,675,802	(447,106)	-	1,228,696
Donations in excess of tax limit	697,356	(606,466)	-	90,890
Tax loss carryforwards	10,683,103	11,505,883	-	22,188,986
Subtotal	13,056,261	10,452,311	-	23,508,572
Total	(₩34,828,749)	₩40,826,843	(₩8,585,773)	(₩2,587,679)

Details	January 1, 2014	Change: Income	Change: Capital	December 31, 2014
Foreign currency translation, net	₩1,585,241	(₩1,773,058)	₩-	(₩187,817)
Depreciation	1,753,382	584,781	-	2,338,163
Allowance for doubtful accounts	43,656	(43,656)	-	-
Accrued income	(308,136)	202,692	-	(105,444)
Loss on inventory obsolescence	4,664,942	109,408	-	4,774,350
Currency forwards	(10,511,868)	15,100,308	-	4,588,440
Firm commitment assets	2,261,396	(11,752,706)	-	(9,491,310)
Loss on investment assets	970,458	-	-	970,458
Long-term loan	(58,338)	58,338	-	-
Other intangible assets	420,920	(243,841)	-	177,079
Accrued expenses	408,218	666,902	-	1,075,120
Unearned revenue	(2,644,405)	401,415	-	(2,242,990)
Long-term borrowings	172,788	(172,788)	-	-
Financial guarantee liabilities	(48,310)	(18,072)	-	(66,382)
Provision for construction warranties	2,443,692	(1,508,112)	-	935,580
Transfer price to DMI	806,191	(806,191)	-	-
Omission to sale of ship steel	167,810	(167,810)	-	-
Provision for severance indemnities	1,808,972	(681,702)	975,281	2,102,551
Gain on revaluation of land and buildings	(53,261,636)	-	-	(53,261,636)
Advanced payment	-	444,427	-	444,427
Others	152,955	(88,554)	-	64,401
Subtotal	(₩49,172,072)	₩311,781	₩975,281	(₩47,885,010)
Tax credit carryforwards	931,422	744,380	-	1,675,802
Donations in excess of tax limit	659,880	37,476	-	697,356
Tax loss carryforwards	1,967,090	8,716,013	-	10,683,103
Subtotal	3,558,392	9,497,869	-	13,056,261
Total	(₩45,613,680)	₩9,809,650	₩975,281	(₩34,828,749)

(3) Deductible temporary differences, tax loss and tax credit carryforwards, which have not been recognized as deferred income tax assets and expired and unused as of December 31, 2015 and 2014, are as follows (in thousands of Korean won):

	December 31, 2015	December 31, 2014
Deductible temporary differences:		
Donations in excess of tax limit	₩2,726,776	₩-
Unused tax credit	882,554	-

Maturity of deductible temporary difference and unused tax credit, which have not been recognized as deferred income tax assets, are as follows (in thousands of Korean won):

	0–1 years	1–2 years	2–3 years	More than 3 years	Total
Deductible temporary differences:					
Donations in excess of tax limit	₩2,602,688	₩-	₩124,088	₩-	₩2,726,776
Unused tax credit	-	-	882,554	-	882,554

The probability of deferred tax assets being realized depends on the Company's ability to generate taxable income in future years, the economic situation and industry forecast. The Company periodically reviews such matters.

(4) Temporary differences associated with investments in subsidiaries and associates, which are not recognized as deferred tax assets, as of December 31, 2015 and 2014, are as follows (in thousands of Korean won):

	December 31, 2015	December 31, 2014	Remarks
Subsidiaries	(₩5,242,062)	(₩5,242,062)	The Company is able to control the reversal of the temporary difference
Associates	394,451,511	394,451,511	It is probable that the temporary difference will not reverse in the foreseeable future
Total	₩389,209,449	₩389,209,449	

(5) Tax effects directly recognized in equity as of December 31, 2015 and 2014, are as follows (in thousands of Korean won):

	December 31, 2015			December 31, 2014		
Details	Before tax	Deferred income tax assets (liabilities)	After tax	Before tax	Deferred income tax assets (liabilities)	After tax
Remeasurements of defined benefit liabilities	(₩4,381,010)	₩1,060,204	(₩3,320,806)	(₩4,429,215)	₩1,071,870	(₩3,357,345)
Revaluation surplus of land	83,197,397	(20,133,770)	63,063,627	47,767,203	(11,559,663)	36,207,540
Total	₩78,816,387	(₩19,073,566)	₩59,742,821	₩43,337,988	(₩10,487,793)	₩32,850,195

(6) A reconciliation of income tax expense and accounting income before income tax expense for the years ended December 31, 2015 and 2014, is as follows (in thousands of Korean won):

Details	2015	2014
Income (loss) before income tax expense	(₩174,484,052)	(₩41,965,557)
Income tax expense at statutory income tax rate	(42,225,141)	(10,155,665)
Adjustments (Note 1)	2,168,906	(753,464)
Income tax expense (profit)	(₩40,056,235)	(₩10,909,129)
Effective tax rate	(Note 2)	(Note 2)
(Note 1) Adjustments:		
Additional payment (refund) of income tax	₩770,608	(₩1,099,478)
Non-temporary difference	285,945	134,184
Tax credits	(435,447)	(744,379)
Temporary difference not recognized as deferred income tax	1,542,434	-
Others	5,366	956,209
Total	₩2,168,906	(₩753,464)

(Note 2) Net loss before tax does not calculate the effective tax rate.

29. EARNINGS PER SHARE:

(1) Basic earnings per share

Basic earnings per share are computed by dividing net income attributable to owners of the parent company by the weighted-average number of common shares outstanding during the period (in thousands of Korean won, except for share data).

	2015	2014
Net income (loss) available to common shares	(₩134,427,816)	(₩31,056,428)
Weighted-average number of common shares outstanding (*)	69,500,000	69,500,000
Basic net income (loss) per share	(₩1,934)	(₩447)

(*) The weighted-average number of common shares outstanding for the years ended December 31, 2015 and 2014, is equal to the number of shares outstanding.

(2) Diluted earnings per share

The Company does not compute diluted earnings per common share for the years ended December 31, 2015 and 2014, because there is no dilutive effect of potential ordinary share (share-based payment). Diluted earnings per share are equal to earnings per share for the years ended December 31, 2015 and 2014.
Due to the antidilutive effect for the years ended December 31, 2015 and 2014, the Company is not considering share option, which could dilute the basic earnings per share in the future.

	2015	2014
Number of common shares to be issued	152,300	155,700

30. COMMITMENTS AND CONTINGENCIES:

(1) Notes and checks provided as collateral

As of December 31, 2015, the Company has provided six (as of December 31, 2014: Five) blank promissory notes and 20 (as of December 31, 2014: 20) promissory notes amounting to USD 10,829,062 (as of December 31, 2014: USD 10,829,062) to Daewoo Shipbuilding & Marine Engineering Co., Ltd., and five other companies as security in connection with contract performance guarantees and guarantees for advance receipts.

(2) Transferred trade receivables

Outstanding trade receivables sold with recourse by the Company are in the amount of ₩6,304,129 thousand and ₩3,857,093 thousand as of December 31, 2015 and 2014, respectively. Because the Company retains some level of risks and rewards relating to trade receivables, the Company has recognized its carrying amount of it and cash receipt from transfer as short-term borrowings in separate statements of financial position (see Note 14-(2)).

(3) Pending litigation as of December 31, 2015, are as follows (in foreign currency and thousands of Korean won):

Site	Plaintiff	Defendant	Claim	Claimed amount	Progress
Greece	GAEI (Guam Advance Enterprises. Inc.)	Doosan Engine Co., Ltd.	Damages for cancellation of contract (related to Greece Chios diesel plant)	EUR 2,181,541	Pending in the court of first instance (Note1)
				EUR 473,162	Pending in the court of first instance
				EUR 2,000,000	Pending in the court of first instance
Seoul Central District Court	Steamar Transportes Maritimos LDA and other 1	Doosan Engine Co., Ltd. and other 1	Damages for stopping Sailing	USD 125,163	Pending in the court of first instance
				EUR 266,865	Pending in the court of first instance
Chang won District Court	Kang, Kyuyoung and other 461	Doosan Engine Co., Ltd.	Wage claims for normal wage of workers	₩11,339,995	Pending in the court of first instance
	Kim, Kyoungho and other 59			₩723,723	Pending in the court of first instance
Korean Commercial Arbitration Board	Busanjin District Office	Doosan Engine Co., Ltd	Arbitration for request to return advanced payment owing to tax in arrears of customer	₩424,632	Pending in the court of first instance
	MASTEK Heavy industries Co., Ltd.	Doosan Engine Co., Ltd	Arbitration for request to return advanced payment due to cancellation of a contract	USD 2,000,000	Pending in the court of first instance

As of December 31, 2015, the outcome of the cases is unpredicted.

(Note 1) The Company won the previous suit, and then the law suit of Greece Chios was newly filed on December 30, 2015.

(4) Commitments with financial institutions

As of December 31, 2015, major commitments with various financial institutions are as follows (in foreign currencies and thousands of Korean won):

Commitment	Financial institution	Credit limit		Used amount	
General loan facilities	Korea Development Bank		₩25,000,000		₩-
	Woori Bank		30,000,000		30,000,000
	Kookmin Bank		30,000,000		10,000,000
	The Export-Import Bank of Korea		25,000,000		-
	Kyoungnam Bank		30,000,000		10,000,000
Electronic loan facilities	Woori Bank		30,000,000		16,339,917
	Kookmin Bank		13,000,000		291,152
	KEB Hana Bank		20,000,000		143,435
	Industrial Bank of Korea		5,000,000		4,991,070
	Kyongnam Bank		10,000,000		-
Issuance of letter of credit	Woori Bank	USD	30,000,000	USD	15,627,108
	KEB Hana Bank	USD	10,000,000	USD	57,783
	Kookmin Bank	USD	1,778,828	USD	1,778,828
	Korea Development Bank	USD	20,000,000	USD	-
Other guarantees in foreign currency	KEB Hana Bank	USD	24,575,894	USD	24,575,894
		EUR	100,000	EUR	100,000
		CNY	50,712,500	CNY	50,712,500
		USD	20,000,000	USD	1,842,000
	Woori Bank	USD	90,000,000	USD	29,307,250
	NH Bank	USD	30,000,000	USD	25,354,234
				JPY	51,352,000
	Kookmin Bank	USD	20,000,000	USD	18,567,480
Other guarantees in Korean won	KEB Hana Bank		4,110,029		4,110,029
	Woori Bank		10,000,000		5,533,973

(5) Technology transfer contract

The Company has eight technical license agreements with several foreign companies for the purpose of manufacturing engines. In accordance with the agreements, the Company is committed to pay a royalty calculated based on the cumulative horse power of engines manufactured during the year. The royalty amounted to ₩55,313,571 thousand and ₩73,419,063 thousand for the years ended December 31, 2015 and 2014, respectively.

(6) Wage claims for normal wage of workers in accordance with the Supreme Court ruling

We have paid a regular salary in past, including bonuses that were not included in the existing ordinary wages paid. If the item is usually available for wages paid in future, then it can be classified as additionally payable. The Supreme Court ruling dated December 18, 2013, is usually associated with wages on the basis of additional benefits associated with regular bonuses and other payments to the excessive financial burden due to the expected management company that will likely result in accounting difficulties; therefore, we have presumed the amount to be low. On the other hand, related impact on the separate financial statements of K-IFRS 1037, Provisions, Contingent Liabilities and Contingent Assets, paragraph 92 according to the comments is omitted.

31. GUARANTEES AND PLEDGED ASSETS:

(1) Guarantees

Guarantees received by the Company from third parties as of December 31, 2015, are as follows (in foreign currencies and thousands of Korean won):

Guarantee received from	Guaranteed amount (foreign currency)		Description of guarantee
KEB Hana Bank	USD	26,417,894	Guarantee for fulfillment of a contract, advance receipts and defecti
	EUR	100,000	Guarantee for bidding
		₩4,110,239	Guarantee for advance receipts and defect
Woori Bank	USD	29,307,250	Guarantee for advance receipts, defect and fulfillment of a contract
		₩5,533,973	
NH Bank	USD	25,354,234	Guarantee for advance receipts
	JPY	51,352,000	Guarantee for advance receipts
Kookmin Bank	USD	18,567,480	Guarantee for advance receipts
Total	USD	99,646,858	
	EUR	100,000	
	JPY	51,352,000	
		₩9,644,212	

Guarantees provided by the Company as of December 31, 2015, are as follows (in foreign currencies):

Warrantee	Amount		Description of guarantee	Institution	Related party
DMI	CNY	50,712,500	Guarantee for the borrowings	KEB Hana Bank	Subsidiary
	USD	4,300,000		The Export-Import Bank of Korea	

(2) Pledged assets

The Company provided stocks of DII and DHEL as collateral to the credit banks, amounting to USD 1,180,500 thousand and borrowing limit amounting to USD 100,000 thousand. Collateral provided by the Company as of December 31, 2015, is as follows (see Note 11) (in foreign currencies and thousands of Korean won):

Institution	Borrowing amount (foreign currency)		Asset	Book value	Related party
Citigroup Global Markets Inc. and other	USD	1,180,500,000	DII	₩146,521,807	Associates
			DHEL	196,038,744	

32. TRANSACTIONS AND BALANCES WITH RELATED PARTIES:

Significant transactions and account balances with related parties as of and for the years ended December 31, 2015 and 2014, are as follows:

(1) Relationship between parents and subsidiaries as of December 31, 2015, is as follows:

Relationship with the Company	Company name
Ultimate controlling party	Doosan Corporation (“DS”)
Next most senior parent	Doosan Heavy Industries Construction Co., Ltd. (“DHIC”)
Subsidiary	Doosan Marine Industry (Dalian) Co., Ltd. (“DMI”)
	Doosan Engine PNG Co., Ltd(“DEPNG”)
Associates	Dalian Samyoung Doosan Metal Product Co., Ltd. (“DSDMP”)
	Doosan Infracore International, Inc. (“DII”)
	Doosan Holdings Europe Ltd. (“DHEL”)
Other related parties	Doosan Infracore Co., Ltd.
	Doosan Infracore Bobcat Holdings Co., Ltd. (“DIBH”)
	Doosan Engineering & Construction Co., Ltd. (“Doosan E&C”)
	Doosan Cuvex Co., Ltd.
	Doosan Tower Co., Ltd. (“Doosan Tower”)
	Doosan Defense Systems & Technology Co., Ltd.
	Oricom Inc. (“Oricom”)
	Doosan Bears Inc.

(2) Significant transactions with related parties for the years ended December 31, 2015 and 2014, are as follows (in thousands of Korean won):

		December 31, 2015				
Description	The name of the related parties	Sales	Other income	Purchases	Acquisition of property, plant and equipment and intangible assets	Other expenses
Ultimate controlling party	DS	₩2,071,384	₩849,137	₩5,447,472	₩1,413,874	₩4,544,680
Next most senior parent	DHIC	-	-	86,332,211	-	-
Subsidiary	DMI	-	68,158	10,443,463	-	-
Associates	DII	-	654,314	-	-	-
	DHEL	-	567,614	-	-	-
Other related parties	Doosan E&C	2,793,378	280	180,731	738,849	-
	Others	-	1,680	231,261	254,231	336,091
Total		₩4,864,762	₩2,141,183	₩102,635,138	₩2,406,954	₩4,880,771

Description	The name of the related parties	December 31, 2014 Sales	Other income	Purchases	Acquisition of property, plant and equipment and intangible assets	Other expenses
Ultimate controlling party	DS	₩2,024,054	₩795,088	₩4,779,734	₩554,418	₩5,136,727
Next most senior parent	DHIC	12,848	-	103,227,220	-	-
Subsidiary	DMI	-	522,129	8,382,457	-	-
Associates	DII	-	587,776	-	-	-
	DHEL	-	592,272	-	-	-
Other related parties	Doosan E&C	3,030,449	-	174,965	-	-
	Others	-	-	449,641	92,796	263,585
Total		₩5,067,351	₩2,497,265	₩117,014,017	₩647,214	₩5,400,312

(3) As of December 31, 2015 and 2014, related significant balances are as follows (in thousands of Korean won):

Description	The name of the related parties	December 31, 2015 Trade receivables	Other receivables	Loans	Trade payables	Other payables
Ultimate controlling party	DS	₩-	₩-	₩-	₩545,699	₩2,040,582
Next most senior parent	DHIC	-	-	-	1,577,472	3,144
Subsidiary	DMI	-	1,406,188	-	1,839,962	170,243
Associates	DII	-	2,237,230	-	-	-
	DHEL	-	1,935,257	-	-	-
Other related parties	Doosan E&C	-	8,508,289	-	-	3,034
	Others	-	643,406	-	386,666	66,347
Total		₩-	₩14,730,370	₩-	₩4,349,799	₩2,283,350

Description	The name of the related parties	December 31, 2014 Trade receivables	Other receivables	Loans	Trade payables	Other payables
Ultimate controlling party	DS	₩-	₩11,708	₩-	₩1,502,883	₩1,926,863
Next most senior parent	DHIC	-	-	-	8,354,026	2,768
Subsidiary	DMI	-	1,310,907	-	477,531	-
Associates	DII	-	2,619,298	-	-	-
	DHEL	-	2,267,588	-	-	-
Other related parties	Doosan E&C	-	9,033,008	-	-	15,086
	Others	-	865,844	-	207,060	89,385
Total		₩-	₩16,108,353	₩-	₩10,541,500	₩2,034,102

The Company does not recognize amount of allowance for doubtful accounts of the related party’s receivables.

(4) As of December 31, 2015, guarantees by the Company for related parties are disclosed in Note 31.

(5) The Company defines key management personnel as registered officer and non-registered officer who have the authority and responsibility for planning, operation and control and are in charge of business or division unit. Compensation to key management personnel of the Company for the years ended December 31, 2015 and 2014, is as follows (in thousands of Korean won):

Description	2015	2014
Employee benefits	₩6,527,755	₩4,423,045
Retirement benefits	415,349	423,460
Share-based payment	72,883	194,769
Total	₩7,015,987	₩5,041,274

33. SEPARATE STATEMENTS OF CASH FLOWS:

(1) The adjustments and changes in operating assets and liabilities in the separate statements of cash flows for the years ended December 31, 2015 and 2014, are as follows (in thousands of Korean won):

Description	2015	2014
Adjustments:		
Expenses not involving cash outflows:		
Interest expenses	₩12,478,767	₩12,768,544
Retirement benefits	4,753,649	5,458,028
Loss from valuation inventories	12,455,739	816,946
Depreciation	20,664,517	21,001,643
Amortization	3,187,852	3,499,465
Bad debt expenses	2,509,350	(391,621)
Share-based payment	72,883	194,769
Loss on foreign currency translation	1,311,924	917,754
Loss on valuation of derivatives	31,723,850	25,247,957
Loss on valuation of firm commitments	29,599,229	18,765,706
Loss on disposal of intangible assets	52,758	67,909
Impairment loss of intangible assets	23,223,332	5,940
Provision for defects	1,413,918	-
Impairment loss of assets held for sale	54,983,092	-
Income not involving cash inflows:		
Interest income	(1,316,592)	(4,761,629)
Dividend income	(600)	-
Income tax profit	(40,056,235)	(10,909,129)
Reversal of allowance for doubtful accounts	-	(3,282,509)
Income on financial guarantee	(1,315,422)	(1,295,113)
Gain on foreign currency translation	(1,435,628)	(1,662,678)
Gain on valuation of derivatives	(2,838,556)	(520,055)
Gain on valuation of firm commitments	(54,688,212)	(41,795,628)
Gain on disposal of property, plant and equipment	(94,475)	(54,473)
Gain on disposal of intangible assets	(54,550)	(700)
Gain from revaluation of land	(13,376)	-
Total	₩96,617,214	₩24,071,126

Description	2015	2014
Changes in operating assets and liabilities:		
Trade receivables	₩9,991,963	(₩43,806,983)
Other receivables	538,321	(3,486,522)
Unbilled construction receivables	10,668,518	(2,279,325)
Inventories	(13,933,314)	(21,665,243)
Other current assets	6,668,136	(1,212,317)
Long-term accounts receivable – other	3,064,166	1,820,142
Other non-current assets	(6,041,771)	(1,883)
Derivative instruments	(11,913,295)	37,670,066
Firm commitments	18,903,757	(25,534,981)
Trade payables	(12,513,841)	33,732,597
Other payables	7,316,851	3,471,421
Overbilled construction payables	(4,866,092)	10,795,007
Advance receipts	(10,449,360)	(50,172,494)
Other current liabilities	4,225,205	4,150,837
Long-term other payable	6,126,002	805,650
Plan assets	(1,433,324)	(7,348,297)
Payment of severance benefits	(7,276,377)	(1,057,227)
Transfer in	-	32,919
Transfer out	(167,020)	(142,356)
Provision for construction warranties	2,187,979	(2,949,356)
Total	₩1,096,504	(₩67,178,345)

(2) Significant non-cash transactions for the years ended December 31, 2015 and 2014, are as follows (in thousands of Korean won):

Description	2015	2014
Reclassification of other receivable to other long-term other receivables	₩5,964,941	₩-
Reclassification of construction in progress to property, plant and equipment	539,240	3,149,358
Reclassification of held-to-maturity investments financial assets	-	7,000,000
Reclassification of long-term borrowings to current portion of long-term borrowing	-	50,000,000
Acquisition of property, plant and equipment	382,180	-
Acquisition of intangible assets	58,900	-

34. ASSETS HELD FOR SALE:

(1) The assets held for sale as of December 31, 2015, are as follows (in thousands of Korean won) :

	2015
Land	₩42,005,000
Buildings and structures	12,100,500
Machinery	10,250,000
Total	₩64,355,500

The Company steadily makes an effort to the disposal of the asset and expected the assets to be sold in 2016.

(2) Fair value measurements of assets held for sale

The fair value of assets held for sale is measured based on market approach considering the recent trading price of an reference assets similar to the assets held for sale. The fair value of assets held for sale, classified as fair value hierarchy Level 3, is ₩64,355,500 thousand as of December 31, 2015. The assets were recognized as impairment loss amounted to ₩54,932,092 thousand for the year ended December 31, 2015.

The valuation technique and inputs used for fair values measurements of the assets held for sale are as follows:

Valuation technique	Significant inputs that are not based on observable market data (unobservable inputs)	Correlation between unobservable inputs and fair value arguments
Sales comparison approach: Fair value of land, buildings and structures is measured by selecting sales comparison similar to the subject assets and modified considering corrections for differences between the subject and the comparable.	a. Fluctuation rate of land price and others	Fair value increases (decreases) if rate of land price increases (decreases).
	b. Parcel conditions and others	Fair value increases (decreases) if correction of parcel conditions and others increase (decrease).
Fair value of machinery was measured in consideration of the characteristics of the machine and the market trend. If there are no sales comparables, resale value is measured in consideration of consumer layer and years of use.	c. Land conditions affecting the sales price and others	Fair value increases (decreases) if correction of land conditions affecting the sales price increases (decreases).