LG CNS CO., LTD. AND ITS SUBSIDIARIES

CONSOLIDATED FINANCIAL STATEMENTS
AS OF AND FOR THE YEARS ENDED
DECEMBER 31, 2018 AND 2017
ATTACHMENT: INDEPENDENT AUDITORS' REPORT

Deloitte.

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INDEPENDENT AUDITORS' REPORT

English Translation of Independent Auditors' Report Originally Issued in Korean on March 14, 2019

To the Shareholders and Board of Directors of
LG CNS Co., Ltd.:

Report on the Audited Consolidated Financial Statements

Our Opinion

We have audited the accompanying consolidated financial statements of LG CNS Co., Ltd. and its subsidiaries (the "Group"), which comprise the consolidated statements of financial position as of December 31, 2018 and December 31, 2017, respectively, and the consolidated statements of income, the consolidated statements of comprehensive income, consolidated statements of changes in shareholders' equity and consolidated statements of cash flows, all expressed in Korean won, for the years then ended, and a summary of significant accounting policies and other explanatory information.

In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Group as of December 31, 2018 and December 31, 2017, respectively, and its financial performance and its cash flows for the years then ended in accordance with Korean International Financial Reporting Standards ("K-IFRS").

Basis for Audit Opinion

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

Key Audit Matters

The key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the consolidated financial statements of the current period. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our audit opinion thereon, and we do not provide a consolidated opinion on these matters.

(The key audit matters) Change in estimating total contract cost

As described in Note 18 (5) to the consolidated financial statements, changes in estimation of the total contract cost for contracts that recognize revenue over time using the cost-based input method affect profit or loss of current and future peroids, contract assets and contract liabilities. In addition, as explained in Note 3 to the consolidated financial statements, the total contract cost is estimated on the basis of future forecasting of labor cost, material cost, project duration, and so on. Estimates of total contract costs require expertise in engineering design and therefore the risk that changes in total contract costs with the project progresses will not be reflected in a timely manner. Thus, we identified changes in estimated total contract cost as a key audit matter, taking into account the impact of changes in estimated total contract cost on current and future profit and loss.

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The major audit procedures we have conducted in relation to the changes in estimated total contract cost are as follows:

- Understanding and evaluation of design and implementation of internal control relevant to accuracy and cut off of estimated total contract cost
- Retrospective test of changes in estimated total contract cost of ongoing projects at the end of current period
- Test of accuracy and cut off of estimated total contract cost which was changed during the current period
- Test of the subsequent event related to estimated total contract cost, which is in progress at the end of current period

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

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

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

Those charged with governance's responsibilities include overseeing the Group's financial reporting process.

Auditor's Responsibilities for the Audit of the Consolidated Financial Statements

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

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

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

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- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We are solely responsible for our audit opinion.

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

Deloitte Anjin LLC

March 14, 2019

<u>Notice to Readers</u>

This report is effective as of March 14, 2019, the auditors' report date. Certain subsequent events or circumstances may have occurred between this auditors' report date and the time the auditors' report is read. Such events or circumstances could significantly affect the accompanying consolidated financial statements and may result in modifications to the auditors' report.

LG CNS CO., LTD. AND ITS SUBSIDIARIES
(the "Group")

CONSOLIDATED FINANCIAL STATEMENTS
AS OF AND FOR THE YEARS ENDED
DECEMBER 31, 2018 AND 2017

The accompanying consolidated financial statements, including all footnote disclosures, were prepared by, and are the responsibility of, LG CNS Co., Ltd.

Kim Young Shub.
Chief Executive Officer
LG CNS Co., LTD.

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LG CNS CO., LTD. AND ITS SUBSIDIARIES
CONSOLIDATED STATEMENTS OF FINANCIAL POSITION
AS OF DECEMBER 31, 2018 AND 2017

	Korean won	
	December 31, 2018	December 31, 2017
	(In thousands)	
ASSETS		
CURRENT ASSETS:		
Cash and cash equivalents (Notes 5, 6 and 34)	₩ 439,345,857	₩ 352,557,025
Financial institution deposits (Notes 5, 31 and 34)	39,352,886	77,613,666
Financial assets measured at FVTPL(Notes 5, and 34)	1,030	1,715,664
Current derivative assets (Notes 5 and 34)	1,241,121	-
Trade receivables, net (Notes 5,7, 30 and 34)	818,015,421	770,349,227
Other receivables, net (Notes 5,7, 30 and 34)	34,836,336	42,453,542
Inventories, net (Note 8)	51,940,637	48,398,012
Income tax refund receivables (Note 28)	6,937,009	4,944,837
Other current assets (Notes 9 and 18)	194,188,511	168,638,171
Total current assets	1,585,858,808	1,466,670,144
NON-CURRENT ASSETS:		
Financial assets measured at FVTPL(Notes 5, 31 and 34)	7,935,198	-
Financial assets measured at FVOCI(Notes 5 and 34)	4,478,098	-
Available-for-sale (“AFS”) financial assets (Notes 5, 31 and 34)	-	23,829,568
Long-term trade receivables, net (Notes 5, 7, 30 and 34)	25,750,514	25,734,387
Long-term other receivables, net (Notes 5, 7, 30, 31, and 34)	6,103,550	4,491,504
Property, plant and equipment, net (Notes 10, and 32)	664,831,702	668,170,854
Investment property, net (Notes 11 and 32)	16,734,678	5,315,805
Intangible assets (Notes 12)	53,275,112	51,128,445
Investments in associates (Note 13)	56,794,092	65,424,012
Deferred tax assets, net (Note 28)	50,319,836	46,027,331
Other non-current assets (Note 9)	3,239,271	2,917,737
Total non-current assets	889,462,051	893,039,643
TOTAL ASSETS	₩ 2,475,320,859	₩ 2,359,709,787

(Continued)

See notes

LG CNS CO., LTD. AND ITS SUBSIDIARIES
CONSOLIDATED STATEMENTS OF FINANCIAL POSITION (CONTINUED)
AS OF DECEMBER 31, 2018 AND 2017

	Korean won	
	December 31, 2018	December 31, 2017
	(In thousands)	
LIABILITIES AND SHAREHOLDERS' EQUITY		
CURRENT LIABILITIES:		
Current derivative liabilities (Notes 5 and 34)	₩ 180,750	₩ 1,864,318
Trade payables (Notes 5, 30 and 34)	380,739,060	364,581,804
Other payables (Notes 5, 30 and 34)	157,350,077	193,159,179
Short-term borrowings (Notes 5, 14 and 34)	22,031,548	18,229,537
Current portion of debentures and long-term borrowings (Notes 5, 14 and 34)	-	189,928,993
Current tax liabilities (Note 28)	24,891,093	22,321,113
Current provisions (Note 15 and 30)	50,009,895	57,903,669
Other liabilities (Notes 17 and 18)	179,839,498	151,432,372
Total current liabilities	815,041,921	999,420,985
NON-CURRENT LIABILITIES:		
Long-term other payables (Notes 5, 30 and 34)	941,265	1,121,600
Long-term borrowings (Notes 5, 14 and 34)	547,129,005	319,133,330
Provisions (Note 15 and 30)	2,445,594	2,590,789
Net defined benefit liability (Note 16)	1,730,863	6,122,554
Deferred tax liability (Note 28)	3,087,653	2,889,961
Other liabilities (Note 17)	8,572,047	8,048,512
Total non-current liabilities	563,906,427	339,906,746
TOTAL LIABILITIES	1,378,948,348	1,339,327,731
SHAREHOLDERS' EQUITY:		
Equity attributable to owners of the Parent Company:		
Isuued capital (Note 19)	47,198,411	47,198,411
Capital surplus (Note 20)	39,515,638	39,519,782
Accumulated other comprehensive loss (Note 21)	(17,944,454)	(3,396,109)
Retained earnings (Note 22)	1,030,556,232	936,968,190
	1,099,325,827	1,020,290,274
Non-controlling interests	(2,953,316)	91,782
TOTAL SHAREHOLDERS' EQUITY	1,096,372,511	1,020,382,056
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY	₩ 2,475,320,859	₩ 2,359,709,787

(Concluded)

See notes

LG CNS CO., LTD. AND ITS SUBSIDIARIES
CONSOLIDATED STATEMENTS OF INCOME
FOR THE YEARS ENDED DECEMBER 31, 2018 AND 2017

	Korean won	
	Year ended December 31, 2018	Year ended December 31, 2017
	(In thousands)	
Sales (Notes 4, 23 and 30)	₩ 3,117,655,729	₩ 3,003,212,038
Cost of sales (Notes 8, 23, 24 and 30)	(2,703,042,074)	(2,577,927,577)
Gross profit	414,613,655	425,284,461
Selling and administrative expenses (Notes 23 and 24)	(227,555,091)	(209,634,557)
Operating income	187,058,564	215,649,904
Financial income (Note 25)	10,089,735	6,494,179
Financial expenses (Note 25)	(17,123,584)	(23,670,182)
Gain or loss from investment in associates (Note 13)	(440,776)	3,782,100
Other operating income (Note 26)	21,068,477	34,073,019
Other operating expenses (Note 26)	(39,090,783)	(42,734,580)
Profit before income tax expense	161,561,633	193,594,440
Income tax expense (Note 28)	(51,053,250)	(74,719,567)
Profit from continuing operations	110,508,383	118,874,873
Profit or loss from discontinued operations (Note 36)	-	(18,769,319)
Profit for the year	₩ 110,508,383	₩ 100,105,554
Profit for the year attributable to:		
Owners of the Parent Company	₩ 107,913,077	₩ 101,531,454
Non-controlling interests	2,595,306	(1,425,900)
Earnings per share ("EPS") (in Korean won)		
Continuing and discontinued operations:		
Basic and diluted income per share (Note 29)	₩ 1,238	₩ 1,165
Continuing operations:		
Basic and diluted income per share	₩ 1,238	₩ 1,380

See notes

LG CNS CO., LTD. AND ITS SUBSIDIARIES
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
FOR THE YEARS ENDED DECEMBER 31, 2018 AND 2017

	Korean won	
	Year ended December 31, 2018	Year ended December 31, 2017
	(In thousands)	
Profit for the year	₩ 110,508,383	₩ 100,105,554
Items that will not be reclassified to profit or loss:		
Remeasurements of the net defined benefit liability	(540,930)	2,113,197
Changes in retained earnings of equity method investments	(706,151)	(3,605,958)
Net loss on Financial assets measured at FVTOCI	(9,613,021)	-
	(10,860,102)	(1,492,761)
Items that may be reclassified subsequently to profit or loss:		
Net loss on AFS financial assets	-	(92,797)
Capital change in equity method	(1,171,815)	1,372,149
Net loss on derivative instruments entered into for cash flow hedges	-	173,082
Exchange differences on translating foreign operations	1,358,870	(3,283,736)
	187,055	(1,831,302)
Total comprehensive income for the year	₩ 99,835,336	₩ 96,781,491
Total comprehensive income attributable to:		
Owners of the Parent Company	₩ 97,351,141	₩ 98,106,156
Non-controlling interests	2,484,195	(1,324,665)

See notes

LG CNS CO., LTD. AND ITS SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CHANGES IN SHAREHOLDERS' EQUITY
FOR THE YEARS ENDED DECEMBER 31, 2018 AND 2017

	Korean won					
	Issued capital	Capital surplus	Accumulated other comprehensive income (loss)	Retained earnings	Non-controlling interests	Total
	(In thousands)					
Balance as of January 1, 2017	₩47,198,411	₩39,329,110	₩ (1,467,197)	₩ 851,320,684	₩ 1,903,262	₩ 938,284,270
Profit (loss) for the year	-	-	-	101,531,454	(1,425,900)	100,105,554
Net gain on AFS financial assets	-	-	(92,797)	-	-	(92,797)
Valuation through equity method	-	-	1,372,149	(3,605,958)	-	(2,233,809)
Valuation on derivative instruments entered into for cash flow hedges	-	-	173,082	-	-	173,082
Remeasurements of net defined benefit liability	-	-	-	2,109,573	3,624	2,113,197
Translating foreign operations	-	-	(3,381,346)	-	97,610	(3,283,736)
Annual dividends	-	-	-	(14,387,563)	(229,392)	(14,616,955)
Acquisition/disposal of additional shares in subsidiaries	-	190,672	-	-	(257,422)	(66,750)
Balance as of December 31, 2017	₩47,198,411	₩39,519,782	₩ (3,396,109)	₩ 936,968,190	₩ 91,782	₩1,020,382,056
Balance at January 1, 2018 – As	₩47,198,411	₩39,519,782	₩ (3,396,109)	₩ 936,968,190	₩ 91,782	₩1,020,382,056
Effect of changes in accounting policy (Note 2)	-	-	(5,231,400)	5,231,400	-	-
Balance as of January 1, 2018-restated	47,198,411	39,519,782	(8,627,509)	942,199,590	91,782	1,020,382,056
Profit (loss) for the year	-	-	-	107,913,077	2,595,306	110,508,383
Net gain on financial assets measured at FVOCI	-	-	(9,613,021)	-	-	(9,613,021)
Valuation through equity method	-	-	(1,171,815)	(706,152)	-	(1,877,967)
Remeasurements of net defined benefit liability	-	-	-	(538,839)	(2,090)	(540,929)
Translating foreign operations	-	-	1,467,891	-	(109,021)	1,358,870
Annual dividends	-	-	-	(18,311,444)	-	(18,311,444)
Acquisition of additional shares in subsidiaries	-	(4,144)	-	-	(3,161,458)	(3,165,602)
Disposal of shares in subsidiaries	-	-	-	-	(2,367,835)	(2,367,835)
Balance as of December 31, 2018	₩47,198,411	₩39,515,638	₩(17,944,454)	₩ 1,030,556,232	₩ (2,953,316)	₩1,096,372,511

See notes

LG CNS CO., LTD. AND ITS SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
FOR THE YEARS ENDED DECEMBER 31, 2018 AND 2017

	Korean won	
	Year ended December 31, 2018	Year ended December 31, 2017
	(In thousands)	
CASH FLOWS FROM OPERATING ACTIVITIES:		
Profit for the year	₩ 110,508,383	₩ 100,105,554
Additions of expenses not involving cash outflows:		
Salaries and wages	1,171,808	619,905
Retirement benefits	4,035,498	5,314,600
Depreciation	65,550,288	68,586,333
Amortization of intangible assets	8,286,300	11,510,888
Loss on valuation of inventories	5,997	148,116
Bad debt expenses	9,481,030	10,032,727
Accrual of provision	28,661,901	36,601,089
Other selling and administrative expenses	1,661,983	2,693,465
Loss on disposal of other assets	-	521,555
Loss on foreign currency translation	3,683,221	13,182,057
Loss on disposal of property, plant and equipment	230,644	908,338
Impairment loss on property, plant and equipment	75,208	17,208,003
Loss on disposal of intangible assets	714,069	779,117
Impairment loss on intangible assets	879,443	1,785,138
Loss on transactions of derivatives	13,467,144	10,790,710
Other operating expenses	5,423,750	1,835,613
Interest expenses	15,345,828	13,378,608
Loss on disposal of AFS financial assets	-	193
Loss on disposal of financial assets measured at FVTPL	89	-
Impairment loss on AFS financial assets	-	4,317,727
Impairment loss on investments in associates	6,823,984	1,168,933
Loss on disposal of investments in subsidiaries	592,425	-
Loss on valuation using equity method	4,166,563	1,645,137
Other non-operating expenses	125,502	4,128,472
Income tax expense	51,053,250	64,501,370
	221,435,925	271,658,094
Deduction of items not involving cash inflows:		
Reversal of allowance for doubtful accounts	1,152,030	747,284
Reversal of provision	5,644,709	3,630,286
Gain on foreign currency translation	1,803,453	7,124,209
Reversal of impairment loss on inventories	39,853	413,881
Gain on disposal of property, plant and equipment	471,375	778,923
Gain on disposal of intangible assets	216,911	9,000
Gain on transaction of derivatives	7,101,281	14,485,970
Gain on valuation of derivatives	1,270,864	1,763,158
Gain on valuation of financial assets measured at FVTPL	95,324	-
Interest income	8,635,815	5,758,272

(Continued)

LG CNS CO., LTD. AND ITS SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS (CONTINUED)
FOR THE YEARS ENDED DECEMBER 31, 2018 AND 2017

	Korean won	
	Year ended December 31, 2018	Year ended December 31, 2017
	(In thousands)	
Dividend income	₩ 83,960	₩ 50,653
Gain on disposal of AFS financial assets	-	263
Gain on disposal of investments in subsidiaries	1,978,715	37,667
Gain on valuation using equity method	3,725,787	5,427,237
Other non-operating income	1,304,089	390
	(33,524,166)	(40,227,193)
Movements in working capital:		
Trade receivables	(94,370,096)	44,839,430
Other receivables	(6,476,104)	12,043,325
Other current assets	(29,165,408)	39,078,271
Inventories	(3,547,593)	(8,072,513)
Non-current trade receivables	(1,643,778)	(26,265,168)
Other non-current assets	(598,749)	(45,709)
Other current financial liabilities	(82)	-
Trade payables	29,256,153	(87,344,609)
Other payables	18,392,707	1,878,007
Other current liabilities	29,580,952	(70,947,614)
Current provisions	(16,452,651)	(22,005,788)
Other non-current payables	-	(21,089)
Other non-current liabilities	(606,650)	(652,800)
Provision	-	(488,200)
Net defined benefit liability	(7,214,243)	(2,244,816)
Other operating assets and liabilities	(3,693,030)	970,182
	(86,538,572)	(119,279,091)
Interest income received	8,059,727	4,270,723
Dividend income received	83,960	50,653
Income taxes received	(316,193)	-
Interest expense paid	(13,725,875)	(11,960,879)
Income taxes paid	(47,092,897)	(49,500,964)
Net cash (used in) provided by operating activities	158,890,292	155,116,897

(Continued)

LG CNS CO., LTD. AND ITS SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS (CONTINUED)
FOR THE YEARS ENDED DECEMBER 31, 2018 AND 2017

	Korean won	
	Year ended December 31, 2018	Year ended December 31, 2017
	(In thousands)	
CASH FLOWS FROM INVESTING ACTIVITIES:		
Cash inflows from investing activities:		
Decrease in financial institution deposits	₩ 40,182,306	₩ 11,286,302
Settlement of derivative instruments	7,084,843	14,436,120
Decrease in other receivables	16,728,339	5,328,217
Disposal of Financial assets measured at FVOCI	739,657	-
Disposal of AFS financial assets	-	344,565
Disposal of investments in subsidiaries	2,403,864	26,278,977
Decrease in non-current other receivables	749,012	900,859
Disposal of property, plant and equipment	24,381,229	2,343,482
Disposal of intangible assets	222,461	1,734,140
Cash inflows from other investment activities	824,107	-
Cash inflows from changes in the scope of consolidation	4,226,045	-
	97,541,863	62,652,662
Cash outflows for investing activities:		
Increase in financial institution deposits	2,059,238	65,159,409
Acquisition of derivative instruments	13,600,341	12,899,241
Increase in other receivables	1,331,195	8,552,637
Purchase of financial assets measured at FVOCI	1,907,008	-
Purchase of AFS financial assets	-	5,645,747
Increase in non-current other receivables	3,424,264	1,772,798
Acquisition of property, plant and equipment	125,870,511	111,234,566
Acquisition of intangible assets	14,428,112	10,746,634
Cash outflows from changes in the scope of consolidation	2,636,626	-
Cash outflows from other investment activities	28,627	-
	(165,285,922)	(216,011,032)
Net cash used in investing activities	(67,744,059)	(153,358,370)

(Continued)

LG CNS CO., LTD. AND ITS SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS (CONTINUED)
FOR THE YEARS ENDED DECEMBER 31, 2018 AND 2017

	Korean won	
	Year ended December 31, 2018	Year ended December 31, 2017
	(In thousands)	
CASH FLOWS FROM FINANCING ACTIVITIES:		
Cash inflows from financing activities:		
Proceeds from short-term borrowings	₩ 13,800,328	₩ 22,986,052
Issuance of debentures	199,283,352	149,365,460
Increase in government subsidy	-	89,854
	213,083,680	172,441,366
Cash outflows for financing activities:		
Settlement of derivative instruments	-	248,630
Redemption of short-term borrowings	9,876,333	33,499,396
Redemption of current portion of long-term borrowings	512,148	50,000,000
Redemption of debentures	190,000,000	100,000,000
Payment of dividends	18,311,190	14,387,374
Cash outflows for consolidated capital transactions	-	74,772
Cash outflows for other financial activities	29,288	-
	(218,728,959)	(198,210,172)
Net cash provided by financing activities	(5,645,279)	(25,768,806)
Net increase (decrease) in cash and cash equivalents	85,500,954	(24,010,279)
Cash and cash equivalents at the beginning of year	352,557,025	381,558,322
Effects of exchange rate changes on the balance of cash held in foreign currencies	1,287,878	(4,991,018)
Cash and cash equivalents at the end of year	₩ 439,345,857	₩ 352,557,025

(Concluded)

See note.

1. GENERAL:

LG CNS Co., Ltd. (the "Parent Company") was incorporated in 1987 under the laws of the Republic of Korea to engage in system integration, software design and development, providing information-processing services and leasing computer hardware. It was organized under a joint venture agreement among LG Engineering Co., Ltd., E.D.S. World Corporation (Far East) and others.

As of December 31, 2018, the issued capital is ₩47,198 million, and the Parent Company's shareholders are LG Corp. (84.95%) and others.

2. STANDARDS AFFECTING PRESENTATION, DISCLOSURE AND SIGNIFICANT ACCOUNTING POLICIES:

(1) Basis of Preparation

The Group has prepared the consolidated financial statements in accordance with the Korean International Financial Reporting Standards ("K-IFRS").

The principal accounting policies are set out below. Except for the effect of the Amendments to K-IFRSs and new interpretations set out below, the principal accounting policies used to prepare the consolidated financial statements as of and for the year ended December 31, 2018 are consistent with the accounting policies used to prepare the consolidated financial statements as of and for the year ended December 31, 2017.

The accompanying consolidated financial statements have been prepared on the historical cost basis except for certain properties/non-current assets and financial assets 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.

Fair value is the price that will be paid when the asset is sold or the liability is transferred in a normal transaction between market participants at the measurement date, whether the price is directly observable or whether it is valued using valuation techniques. In estimating the fair value of an asset or liability, we consider the nature of the asset or liability that the market participant considers when determining the cost of the asset or liability at the measurement date. Fair value for measurement and disclosure purposes in these financial statements is determined on such a basis, except for share-based payment transactions that are within the scope of K-IFRS 1102 Share-based payment, leasing transactions that are within the scope of K-IFRS 1017 Leases, and measurements that have some similarities to fair value but are not fair value, such as net realizable value in K-IFRS 1002 Inventories or value in use in K-IFRS 1036 Impairment of Assets in accordance with the principles described above will be determined.

1) In the current year, the Group has applied a number of amendments to K-IFRSs and new interpretations issued that are mandatorily effective for accounting periods beginning on or after January 1, 2018

- K-IFRS 1109 – Financial Instruments (Enactment)

The Group has applied K-IFRS 1109 Financial Instruments and the related consequential amendments to other IFRS Standards that are effective for an annual period that begins on or after January 1, 2018. K-IFRS 1109 introduced new requirements for:

1) The classification and measurement of financial assets and financial liabilities,
2) Impairment of financial assets, and
3) General hedge accounting.

Additionally, the Group adopted consequential amendments to K-IFRS 1107 Financial Instruments: Disclosures that were applied to the disclosures for 2018.

At the date of initial application, the Group elected not to restate prior periods, and hence the Group did not restate comparative consolidated financial statements in accordance with K-IFRS 1109.

Details of these new requirements as well as their impact on the Group's consolidated financial statements are described below.

(a) Classification and measurement of financial assets

All recognized financial assets that are within the scope of K-IFRS 1109 are required to be measured subsequently at amortized cost or fair value on the basis of the entity's business model for managing the Group's the financial assets and the contractual cash flow characteristics of the financial assets.

- debt instruments that are held within a business model whose objective is to collect the contractual cash flows, and that have contractual cash flows that are solely payments of principal and interest on the principal amount outstanding, are measured subsequently at amortized cost;
- debt instruments that are held within a business model whose objective is both to collect the contractual cash flows and to sell the debt instruments, and that have contractual cash flows that are solely payments of principal and interest on the principal amount outstanding, are measured subsequently at fair value through other comprehensive income (FVTOCI);
- all other debt instruments and equity investments are measured subsequently at fair value through profit or loss (FVTPL).

Despite the aforegoing, the Group may make the following irrevocable election / designation at initial recognition of a financial asset:

- the Group may irrevocably elect to present subsequent changes in fair value of an equity investment that is neither held for trading nor contingent consideration recognized by an acquirer in a business combination in other comprehensive income.
- the Group may irrevocably designate a debt investment that meets the amortized cost or FVTOCI criteria as measured at FVTPL if doing so eliminates or significantly reduces an accounting mismatch

In the current year, the Group has not designated any debt investments that meet the amortized cost or FVTOCI criteria as measured at FVTPL.

When a debt investment measured at FVTOCI is derecognized, the cumulative gain or loss previously recognized in other comprehensive income is reclassified from equity to profit or loss as a reclassification adjustment. When an equity investment designated as measured at FVTOCI is derecognized, the cumulative gain or loss previously recognized in other comprehensive income is subsequently transferred to retained earnings.

Debt instruments that are measured subsequently at amortized cost or at FVTOCI are subject to impairment. See (b) below.

The directors of the Group reviewed and assessed the Group's existing financial assets as of January 1, 2018 based on the facts and circumstances that existed at that date and concluded that the initial application of K-IFRS 1109 has had the following impact on the Group's financial assets as regards their classification and measurement:

- the Group's investments in redeemable notes were classified as available for sale financial assets under K-IFRS 1039 Financial Instruments: Recognition and Measurement. The notes have been reclassified as financial assets measured at amortized cost because they are held within a business model whose objective is to collect the contractual cash flows and they have contractual cash flows that are solely payments of principal and interest on the principal amount outstanding;

- the Group's investment in corporate bonds that were classified as available-for-sale financial assets under K-IFRS 1039 have been classified as financial assets at FVTOCI because they are held within a business model whose objective is both to collect contractual cash flows and to sell the bonds, and they have contractual cash flows that are solely payments of principal and interest on principal outstanding. The change in the fair value on these redeemable notes continues to accumulate in the investment revaluation reserve until they are derecognized or reclassified;

- the Group's investments in equity instruments (neither held for trading nor a contingent consideration arising from a business combination) that were previously classified as available-for-sale financial assets and were measured at fair value at each reporting date under K-IFRS 1109 have been designated as at FVTOCI. The change in fair value on these equity instruments continues to be accumulated in the investment revaluation reserve;

- there is no change in the measurement of the Group's investments in equity instruments that are held for trading; those instruments were and continue to be measured at FVTPL;

- financial assets classified as held-to-maturity and loans and receivables under K-IFRS 1039 that were measured at amortized cost continue to be measured at amortized cost under K-IFRS 1109 as they are held within a business model to collect contractual cash flows and these cash flows consist solely of payments of principal and interest on the principal amount outstanding

Changes in the classification of financial assets under K-IFRS 1109 are summarized in the table Note(e) below. Gains or losses on held-to-maturity investments of ₩186,408 thousand that were subsequently recognized in other comprehensive income and subsequently reclassified to profit or loss due to changes in the classification of debt instruments and equity instruments are subsequently reclassified to profit or loss Gain (loss) - Gain (loss) on equity instruments designated at fair value ₩(664,894) thousand and profit or loss - Gain (loss) on valuation of fair value financial assets of ₩851,301 thousand Cumulative valuation gains and losses of ₩851,301 thousand were reclassified to accumulated other comprehensive income and accumulated other comprehensive income. In addition, the previously recognized gain ₩(4,380,098) thousand of equity instruments designated as other comprehensive income-fair value measurement items was reclassified to accumulated other comprehensive income by adjusting from retained earnings.

None of the other reclassifications of financial assets have had any impact on the Group's financial position, profit or loss, other comprehensive income or total comprehensive income in the current year.

(b) Impairment of financial assets

In relation to the impairment of financial assets, K-IFRS 1109 requires an expected credit loss model as opposed to an incurred credit loss model under K-IFRS 1039. The expected credit loss model requires the Group to account for expected credit losses and changes in those expected credit losses at each reporting date to reflect changes in credit risk since initial recognition of the financial assets. In other words, it is no longer necessary for a credit event to have occurred before credit losses are recognized.

Specifically, K-IFRS 1109 requires the Group to recognize a loss allowance for expected credit losses on:

(1) Debt investments measured subsequently at amortized cost or at FVTOCI,
(2) Lease receivables,
(3) Accounts receivable and contract assets, and
(4) Financial guarantee contracts to which the impairment requirements of K-IFRS 1109 apply.

In particular, K-IFRS 1109 requires the Group to measure the loss allowance for a financial instrument at an amount equal to the lifetime expected credit losses (ECL) if the credit risk on that financial instrument has increased significantly since initial recognition, or if the financial instrument is a purchased or originated credit-impaired financial asset. However, if the credit risk on a financial instrument has not increased significantly since initial recognition (except for a purchased or originated credit-impaired financial asset), the Group is required to measure the loss allowance for that financial instrument at an amount equal to 12-months ECL. K-IFRS 1109 also requires a simplified approach for measuring the loss allowance at an amount equal to lifetime ECL for Accounts receivable and contract assets and lease receivables in certain circumstances. Accordingly, the Group applied the simplified approach to measure the loss allowance for accounts receivables, deposits, loans.

The Group has assessed whether there has been a significant increase in credit risk since initial recognition of financial instruments that remain recognized on the date of initial application of K-IFRS 1109 (i.e. January 1, 2018), the directors have assessed the credit risk of the respective financial instruments on the date of their initial recognition. In accordance with K-IFRS 1109, the Group recognizes an expected credit loss of a financial instrument by setting a provision for loss when the credit rating of a customer falls sharply and there is no significant impact on the recognition of loss provisions.

As of January 1, 2018, Differences in between the ending provision for impairment in accordance with K-IFRS 1039 and the provision in accordance with K-IFRS 1037 (for the financial guarantee contracts) to the opening loss allowance determined in accordance with K-IFRS 1109 are disclosed in each relevant annotation.

The consequential amendments to K-IFRS 1107 have also resulted in more extensive disclosures about the Group's exposure to credit risk in the consolidated financial statements (Note 7, 18 and 34).

(c) Classification and measurement of financial liabilities

A significant change introduced by K-IFRS 1109 in the classification and measurement of financial liabilities relates to the accounting for changes in the fair value of a financial liability designated as at FVTPL attributable to changes in the credit risk of the issuer.

Specifically, K-IFRS 1109 requires that the changes in the fair value of the financial liability that is attributable to changes in the credit risk of that liability be presented in other comprehensive income, unless the recognition of the effects of changes in the liability's credit risk in other comprehensive income would create or enlarge an accounting mismatch in profit or loss. Changes in fair value attributable to a financial liability's credit risk are not subsequently reclassified to profit or loss, but are instead transferred to retained earnings when the financial liability is derecognized. Previously, under K-IFRS 1039, the entire amount of the change in the fair value of the financial liability designated as at FVTPL was presented in profit or loss.

The application of K-IFRS 1109 has had no impact on the classification and measurement of the Group's financial liabilities.

In Note (e), the details of the change in classification according to the application of K-IFRS 1109 are described.

(d) General hedge accounting

The new general hedge accounting requirements retain the three types of hedge accounting. However, greater flexibility has been introduced to the types of transactions eligible for hedge accounting, specifically broadening the types of instruments that qualify for hedging instruments and the types of risk components of non-financial items that are eligible for hedge accounting. In addition, the effectiveness test has been replaced with the principle of an 'economic relationship'. Retrospective assessment of hedge effectiveness is also no longer required. Enhanced disclosure requirements about the Group's risk management activities have also been introduced.

In accordance with K-IFRS 1109's transition provisions for hedge accounting, the Group has applied the K-IFRS 1109 hedge accounting requirements prospectively from the date of initial application on January 1, 2018. The Group's qualifying hedging relationships in place as at January 1, 2018 also qualify for hedge accounting in accordance with K-IFRS 1109 and were therefore regarded as continuing hedging relationships. No rebalancing of any of the hedging relationships was necessary on January 1, 2018. As the critical terms of the hedging instruments match those of their corresponding hedged items, all hedging relationships continue to be effective under K-IFRS 1109's effectiveness assessment requirements. The Group has also not designated any hedging relationships under K-IFRS 1109 that would not have met the qualifying hedge accounting criteria under K-IFRS 1039.

K-IFRS 1109 requires hedging gains and losses to be recognized as an adjustment to the initial carrying amount of non-financial hedged items (basis adjustment). In addition, transfers from the hedging reserve to the initial carrying amount of the hedged item are not reclassification adjustments under K-IFRS 1001 Presentation of Financial Statements and hence they do not affect other comprehensive income. Hedging gains and losses subject to basis adjustments are categorised as amounts that will not be subsequently reclassified to profit or loss in other comprehensive income. This is consistent with the Group's practice prior to the adoption of K-IFRS 1109.

Consistent with prior periods, when a forward contract is used in a cash flow hedge or fair value hedge relationship, the Group has designated the change in fair value of the entire forward contract, i.e. including the forward element, as the hedging instrument.

(e) Disclosures in relation to the initial application of K-IFRS 1109

The additional loss allowance on the initial application of K-IFRS 1109 is due to a change in the measurement of loss allowance related to each financial asset. No financial assets or financial liabilities designated as financial assets at FVTPL in accordance with K-IFRS 1039 are subject to reclassification and there are no financial assets or financial liabilities that the Group elected to reclassify as it applies K-IFRS 1109.

The table below shows information related to financial assets and financial liabilities that have been reclassified as a result of transition to K-IFRS 1109 and K-IFRS 1039 (Unit: Korean won in thousands):

	Classification		Carrying value	
	K-IFRS 1039	K-IFRS 1109	K-IFRS 1039	K-IFRS 1109
Marketable securities(*1)	AFS financial assets	Financial assets measured at FVOCI	₩ 1,944,773	₩ 1,944,773
Non-marketable securities(*1)	AFS financial assets	Financial assets measured at FVOCI	17,798,438	17,798,438
Equity investments (*2)	AFS financial assets	Financial assets measured at FVTPL	4,086,357	4,086,357
Derivative assets	Financial assets at FVTPL	Financial assets measured at FVTPL	1,715,664	1,715,664
Deposit of financial institutions	Loans and receivables	Financial assets measured at amortized cost	77,613,666	77,613,666
Accounts receivable and other receivables	Loans and receivables	Financial assets measured at amortized cost	843,028,660	843,028,660
Derivative liabilities	Financial liabilities at FVTPL	Financial liabilities measured at FVTPL	1,864,318	1,864,318
Accounts payable and other accounts payable	Financial liabilities measured at amortized cost	Financial liabilities measured at amortized cost	558,862,583	558,862,583
Borrowing and debenture	Financial liabilities measured at amortized cost	Financial liabilities measured at amortized cost	527,291,860	527,291,860

(*1) Among AFS financial assets as of and for the year ended December 31, 2017, Marketable equity securities and Unmarketable equity securities were designated as Financial assets measured at FVTOCI by applying the irrevocable election at the date of initial application.
(*2) It was classified as Unmarketable equity securities of AFS financial assets on December 31, 2017 but are classified as financial assets measured at FVTPL under K-IFRS 1109.

- K-IFRS 1115 – Revenue from Contracts with Customers (Enactment)

In the current year, the Group has applied K-IFRS 1115 Revenue from Contracts with Customers which is effective for an annual period that begins on or after January 1, 2018. K-IFRS 1115 introduced a 5-step approach to revenue recognition. Far more prescriptive guidance has been added in K-IFRS 1115 to deal with specific scenarios Details of the new requirements as well as the accounting policy the Group applied are noted in (16) Revenue recognition and their impact on the Group's consolidate financial statements are described below.

The Group has applied K-IFRS 1115 in accordance with the fully retrospective transitional approach using the expedient in K-IFRS 1115 allowing both non-disclosure of the amount of the transaction price allocated to the remaining performance obligations, and an explanation of when it expects to recognize that amount as revenue for all reporting periods presented before the date of initial application, i.e. January 1, 2018. Furthermore, as a practical expedient, the Group elects to retrospectively restate only contracts that are not completed at the date of initial application. For contracts that were modified before the initial application date, the Group does not retrospectively restate the contract for those contract modifications.

- K-IFRS 1102—Share-based Payment (Amendment)

This amendments include: 1) when measuring the fair value of share-based payment, the effects of vesting and non-vesting conditions on the measurement of cash-settled share-based payment should be consistent with the measurement of equity-settled share-based payment, 2) Share-based payment transaction in which the Group settles the share-based payment arrangement net by withholding a specified portion of the equity instruments per statutory tax withholding requirements would be classified as equity-settled in its entirety, (it otherwise would be classified as equity-settled without the net settlement feature,) and 3) when a cash-settled share-based payment changes to an equity-settled share-based payment because of modifications of the terms and conditions, the original liability recognized is derecognized and the equity-settled share-based payment is recognized at the modification date fair value. Any difference between the carrying amount of the liability at the modification date and the amount recognized in equity at the same date would be recognized in profit and loss immediately. The application of K-IFRS 1102 has not had a significant impact on the financial position and/or financial performance of the Group.

- K-IFRS 1040 – Investment Property (Revised)

This amendment assesses whether real estate meets (or fails to meet) the definition of an investment property and replaces it with investment property (or from investment property) where observable evidence supports that a change in use that has occurred is clear. The amendment also provides evidence that there is a change in the use of the circumstances other than those listed in K-IFRS 1040 and that the use of the property under construction can be changed (not limited to assets). There is no significant impact on the financial position and/or financial performance of the Group.

- Annual Improvements to K-IFRS Standards 2014-2016 Cycle

This amendment includes certain amendments to K-IFRS 1101 'First-time adoption of K-IFRS and K-IFRS 1028, Investments in associates and joint ventures. In accordance with K-IFRS 1028, a venture capital investment organization or a similar entity may elect each of its associates and joint ventures individually as a profit or loss or fair value measurement and make it clear that you need to do it when you first recognize an investment. In addition, when the equity method is applied to associates and joint ventures, which are not investment companies, they are permitted to apply the fair value measurement applied to subsidiaries as they are, and it is clear that you can choose for each.

Since the Group does not adopt K-IFRS for the first time and is not a venture capital investment organization, we believe that the amendment will have no impact on the consolidated financial statements. In addition, the Group does not have any interest in affiliates or joint ventures that are investment companies.

- K-IFRS 2122—Foreign Currency Transactions and Advance Consideration (Enactment)

This interpretation is the first time an entity recognizes an asset, cost, or revenue (or a portion thereof), eliminating the non-monetary assets or non-monetary liabilities incurred. It deals with how to determine the trading date to determine the applicable exchange rate.

The interpretation stipulates that the transaction date is the first day of recognizing non-monetary assets or non-monetary liabilities, either as a prepayment of a consideration or as an auction. The interpretation states that if the advance payment or the athlete's auction is made several times, the transaction date for each advance payment or the athlete's auction is determined separately.

As the Group has already accounted for prepayments in foreign currencies or the consideration given to them by the Group in a manner consistent with the interpretation, it is expected that the interpretation will not affect the Group's consolidated financial statements.

The effect of changes in accounting policies on the financial statements due to New Standards and Interpretations is as follows.

	2018.01.01		
	Before the change	Adjustment	After the change
ASSETS			
Current assets	₩ 1,466,670,144	₩ (2,743,417)	₩ 1,463,926,727
Other accounts receivable(*1)	42,453,542	9,906,242	52,359,784
Unclaimed constructions(*1)	130,124,740	(130,124,740)	-
Due from customers for contract work (*1)	-	117,475,081	117,475,081
Non-current assets	893,039,643	-	893,039,643
AFS financial assets	23,829,568	(23,829,568)	-
Financial assets measured at FVTPL	-	4,086,357	4,086,357
Financial assets measured at FVOCI	-	19,743,211	19,743,211
TOTAL ASSETS	₩ 2,359,709,787	₩ (2,743,417)	₩ 2,356,966,370
LIABILITIES			
Current liabilities	₩ 999,420,985	₩ (2,743,417)	₩ 996,677,568
Due to customers for contract work (*1)	44,440,723	(44,440,723)	-
Contract liabilities (*1)	-	43,428,247	43,428,247
Other provisions (*1)	36,890,101	(1,730,941)	35,159,160
TOTAL LIABILITIES	1,339,327,731	(2,743,417)	1,336,584,314
SHAREHOLDERS' EQUITY:			
Capital	47,198,411	-	47,198,411
Capital surplus	39,519,782	-	39,519,782
Accumulated other comprehensive income (*2)	(3,396,109)	(5,231,400)	(8,627,509)
Retained earnings (*2)	936,968,190	5,231,400	942,199,590
Non-controlling interests	91,782	-	91,782
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY	₩ 1,020,382,056	₩ -	₩ 1,020,382,056

(*1) Changes in the financial statement presentation of the provision for contract loss and provision for damages accrued at due from(to) customers for contract work due to introduction of K-IFRS1115(Note 2).
(*2) Changes in the financial statement presentation of financial assets classified as AFS financial assets to financial assets measured at FVTPL due to introduction of K-IFRS1109.

On the other hand, the effect of these changes on each item of equity as of the date of initial application is as follows:

	Accumulated other comprehensive income		Retained earnings	
December 31, 2017 (Report Amount)	₩	(3,396,109)	₩	936,968,190
First application of K-IFRS1109				
Effects of classification and measurement		(5,231,400)		5,231,400
January 1, 2018 (first application date)	₩	(8,627,509)	₩	942,199,590

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

- K-IFRS 1116—Leases (Enactment)

a) General impact of application of K-IFRS 1116 Leases

K-IFRS 1116 provides a comprehensive model for the identification of lease arrangements and their treatments in the fconsolidated inancial statements for both lessors and lessees. K-IFRS 1116 will supersede the current lease guidance including K-IFRS 1017 and the related interpretations when it becomes effective for accounting periods beginning on or after January 1, 2019.

The lessees have an option to choose between the full retrospective application for each reporting date and modified retrospective application at the initial application date.

The Group plans to apply modified retrospective approach as of January 1, 2019 in accordance with K-IFRS 1116. Therefore, the cumulative effect of applying K-IFRS 1116 will be adjusted in the retained earnings (or, where appropriate, other components of equity) at the date of initial application, and the comparative consolidated financial statements will not be restated.

The lessee and lessor must account for each lease element of the lease, consolidated from the non-lease element ("non-lease element") in a lease contract. The lessee is required to recognize lease assets and liabilities that represents the right to use the underlying assets and the obligation to pay the lease payments. However, in the case of short-term lease and small-value-based lease, the exemption provisions of the standard may be selected. In addition, the lessee is not required to consolidated the lease element from the non-lease element in accordance with the simplified approach, and can account for each lease element and related non-lease element as one lease element.

In contrast to lessee accounting, K-IFRS 1116 does not substantially carry forward the lessor accounting requirements in K-IFRS 1017.

b) Impact of the new definition of a lease

The Group will make use of the practical expedient available on transition to K-IFRS 1116 to not reassess whether a contract is or contains a lease. Accordingly, the definition of a lease in accordance with K-IFRS 1117 will continue to apply to those leases entered or modified before January 1, 2019.

The Group will apply the definition of a lease and related guidance set out in K-IFRS 1116 to all lease contracts entered into or modified on or after January 1, 2019 (whether it is a lessor or a lessee in the lease contract).

The change in definition of a lease mainly relates to the concept of control. K-IFRS 1116 distinguishes between leases and service contracts on the basis of whether the use of an identified asset is controlled by the customer. Control is considered to exist if the customer has:

- The right to obtain substantially all of the economic benefits from the use of an identified asset; and
- The right to direct the use of that asset.

The Group has shown that the new definition in K-IFRS 1116 will not change significantly the scope of contracts that meet the definition of a lease for the Group.

c) Impact on Lessee Accounting

Operating leases

K-IFRS 1116 will change how the Group accounts for leases previously classified as operating leases under K-IFRS 1017, which were off consolidated statements of financial position. On initial application of K-IFRS 1116, for all leases (except as short-term leases and leases of low value assets), the Group will:

a) Recognize right-of-use assets and lease liabilities in the consolidated statements of financial position, initially measured at the present value of the future lease payments;
b) Recognize depreciation of right-of-use assets and interest on lease liabilities in the consolidated statements of comprehensive income;
c) Consolidated the total amount of cash paid into a principal portion (presented within financing activities) and interest (presented within operating activities) in the consolidated statements of cash flows.

Under K-IFRS 1116, right-of-use assets will be tested for impairment in accordance with K-IFRS 1036 Impairment of Assets. This will replace the previous requirement to recognize a provision for onerous lease contracts.

For short-term leases (lease term of 12 months or less) and leases of low-value assets (such as personal computers and office furniture), the Group will opt to recognize a lease expense on a straight-line basis as permitted by K-IFRS 1116.

Based on our preliminary assessment as of December 31, 2018, the Group expects to increase the amount of license assets amounting to ₩66,353 million and lease liabilities amounting to ₩62,612 million related to the lease contracts excluding short-term lease and small basic lease. Provisions for losses incurred under K-IFRS 1017 are eliminated and there is no lease incentive liability previously recognized in respect of operating leases.

Finance leases

The main differences between K-IFRS 1116 and K-IFRS 1017 with respect to assets formerly held under a finance lease is the measurement of the residual value guarantees provided by the lessee to the lessor. K-IFRS 1116 requires that the Group recognizes as part of its lease liability only the amount expected to be payable under a residual value guarantee, rather than the maximum amount guaranteed as required by K-IFRS 1017. On initial application the Group will present equipment previously included in property, plant and equipment within the line item for right-of-use assets and the lease liability, previously presented within borrowing, will be presented in a consolidated line for lease liabilities.

Based on an analysis of the Group's finance leases as at December 31, 2018 on the basis of the facts and circumstances that exist at that date, the directors of the Group have assessed that the impact of this change will not have an impact on the amounts recognized in the Group's consolidated financial statements.

d) Impact on Lessor Accounting

Under K-IFRS 1116, a lessor continues to classify leases as either finance leases or operating leases and account for those two types of leases differently. However, K-IFRS 1116 has changed and expanded the disclosures required, in particular regarding how a lessor manages the risks arising from its residual interest in leased assets.

Under K-IFRS 1116, an intermediate lessor accounts for the head lease and the sublease as two consolidated contracts. The intermediate lessor is required to classify the sublease as a finance or operating lease by reference to the right-of-use asset arising from the head lease (and not by reference to the underlying asset as was the case under K-IFRS 1017).

Because of this change the Group will reclassify certain of its sublease agreements as finance leases. As required by K-IFRS 1109, an allowance for expected credit losses will be recognized on the finance lease receivables. The leased assets will be derecognized and finance lease receivables recognized. This change in accounting will change the timing of recognition of the related revenue (recognized in finance income).

- K-IFRS 1109 – Prepayment Features with Negative Compensation (Amendment)

The amendments to K-IFRS 1109 clarify that for the purpose of assessing whether a prepayment feature meets the solely payments of principal and interest("SPPI") condition, the party exercising the option may pay or receive reasonable compensation for the prepayment irrespective of the reason for prepayment. In other words, prepayment features with negative compensation do not automatically fail an SPPI test. The amendment applies to annual periods beginning on or after January 1, 2019, with earlier application permitted.

- K-IFRS 1028 – Long-term Interests in Associates and Joint Ventures (Amendment)

The amendment clarifies that K-IFRS 1109, including its impairment requirements, applies to long-term interests. Furthermore, in applying K-IFRS 1109 to long-term interests, an entity does not take into account adjustments to their carrying amount required by K-IFRS 1028 (i.e., adjustments to the carrying amount of long-term interests arising from the allocation of losses of the investee or assessment of impairment in accordance with K-IFRS 1028). The amendments apply retrospectively to annual reporting periods beginning on or after January 1, 2019. Earlier application is permitted.

- Annual Improvements to K-IFRS Standards 2015–2017 Cycle

The Annual Improvements include amendments to four Standards such as K-IFRS 1012 Income Taxes, K-IFRS 1023 Borrowing Costs, K-IFRS 1103 Business Combinations, and K-IFRS 1111 Joint Arrangements.

1. K-IFRS 1012 Income Taxes
   The amendments clarify that an entity should recognize the income tax consequences of dividends in profit or loss, other comprehensive income or equity according to where the entity originally recognized the transactions that generated the distributable profits.

2. K-IFRS 1023 Borrowing Costs
   The amendments clarify that if any specific borrowing remains outstanding after the related asset is ready for its intended use or sale, that the specific borrowing becomes part of the funds that an entity borrows generally when calculating the capitalisation rate on general borrowings.

3. K-IFRS 1103 Business Combinations
   The amendments to K-IFRS 1103 clarify that when an entity obtains control of a business that is a joint operation, the entity applies the requirements for a business combination achieved in stages, including remeasuring its previously held interest (PHI) in the joint operation at fair value. The PHI to be remeasured includes any unrecognized assets, liabilities and goodwill related to the joint operation.

4. K-IFRS 1111 Joint Arrangements
   The amendments to K-IFRS 1111 clarify that when a party that participates in, but does not have joint control of, a joint operation that is a business obtains joint control of such a joint operation, the entity does not remeasure its PHI in the joint operation.

All the amendments are effective for annual periods beginning on or after January 1, 2019 and generally require prospective application. Earlier application is permitted.

- K-IFRS 1019 Employee Benefits Plan Amendment, Curtailment or Settlement (Amendment)

The amendments clarify that the past service cost (or of the gain or loss on settlement) is calculated by measuring the defined benefit liability (asset) using updated assumptions and comparing benefits offered and plan assets before and after the plan amendment (or curtailment or settlement) but ignoring the effect of the asset ceiling (that may arise when the defined benefit plan is in a surplus position). K-IFRS 1019 is now clear that the change in the effect of the asset ceiling that may result from the plan amendment (or curtailment or settlement) is determined in the second step and is recognized in the normal manner in other comprehensive income.

The paragraphs that relate to measuring the current service cost and the net interest on the net defined benefit liability (asset) have also been amended. The Group will now be required to use the updated assumptions from this remeasurement to determine current service cost and net interest for the remainder of the reporting period after the change to the plan. In the case of the net interest, the amendments make it clear that for the period post plan amendment, the net interest is calculated by multiplying the net defined benefit liability (asset) as remeasured under paragraph 99 with the discount rate used in the remeasurement (also taking into account the effect of contributions and benefit payments on the net defined benefit liability (asset)).

The amendments are applied prospectively. They apply only to plan amendments, curtailments or settlements that occur on or after the beginning of the annual period in which the amendments to K-IFRS 1019 are first applied. The amendments to K-IFRS 1019 must be applied to annual periods beginning on or after January 1, 2019, but they can be applied earlier if an entity elects to do so.

- K-IFRS 1115 Revenue from Contracts with Customers (Amendment)

This amendment relates to prevent the revision of meaning 'contract' referred in K-IFRS 1115 paragraph 129.1 to 'individual contract' in relation to 'additional disclosure of contracts based on contract costs incurred to date', so that even if application of K-IFRS 1115 is adopted, the range of disclosure has not been reduced. In addition, K-IFRS 1115 does not distinguish the types of contracts that the service contracts that did not qualify for the application of K-IFRS 1011 in paragraph 45.1 can be qualified in K-IFRS 1115 paragraph 129.1 and it is to clarify that the range of the contracts subject to make disclosure in accordance with paragraph 129.1 can be expanded compared to the previous standard. This amendment is effective for annual periods beginning on or after January 1, 2019 and earlier application is permitted.

- K-IFRS 2123 Interpretation Uncertainty over Income Tax Treatments (Enactment)

K-IFRS 2123 Interpretation sets out how to determine the accounting tax position when there is uncertainty over income tax treatments. The Interpretation requires an entity to:

1. Determine whether uncertain tax positions are assessed separately or as a Company.
2. Assess whether it is probable that a tax authority will accept an uncertain tax treatment used, or proposed to be used, by an entity in its income tax filings:
   A. If yes, the entity should determine its accounting tax position consistently with the tax treatment used or planned to be used in its income tax filings.
   B. If no, the entity should reflect the effect of uncertainty in determining its accounting tax position.

The Interpretation is effective for annual periods beginning on or after January 1, 2019. The Group can apply the Interpretation with either full retrospective application or modified retrospective application without restatement of comparatives retrospectively or prospectively.

The directors of the Group do not anticipate that the application of the amendments in the future will have an impact on the Group's consolidated financial statements.

(2) Basis of Consolidation

1) Basis of measurement

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

2) Functional and reporting currency

The individual financial statements of each group entity are presented in the currency of the primary economic environment in which the entity operates. For the purpose of the consolidated financial statements, the results of operations and financial position of each group entity are expressed in U.S. dollars ("USD"), which is the functional currency of the entity and the presentation currency for the consolidated financial statements.

3) Basis of consolidation

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

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

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

The consolidation of subsidiaries begins when the Parent Company acquires control of the subsidiary and ceases when the parent loses control of the subsidiary. Especially income and expenses of subsidiaries acquired or disposed of during the year are included in the consolidated statements of comprehensive income from the date the Group gains control until the date when the Group ceases to control the subsidiary. Profit or loss and each component of other comprehensive income are attributed to the owners of the Group and to the non-controlling interests. Total comprehensive income of subsidiaries is attributed to the owners of the Group and to the non-controlling interests, even if this results in the non-controlling interests having a deficit balance.

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

All intragroup transactions and related assets and liabilities, income and expenses are eliminated in full on consolidation.

The non-controlling interest of the subsidiary is identified separately from the capital of the entity. If the element of the non-controlling interest in the acquiree at the acquisition date is the current interest and the holder grants rights to the proportionate share of the Group's net assets at the time of liquidation, the non-controlling interest is classified as the amount of identifiable net assets of the acquiree in one of the proportional shares of the present equity instruments. The choice of these metrics is made for each acquisition transaction. All other non-controlling interests are measured at their fair value at the acquisition date. After the acquisition, the carrying amount of the non-controlling interest is the amount initially recognized, reflecting the proportionate share of non-controlling interest in the capital change after acquisition. Even if non-controlling interest becomes negative balance, total comprehensive income is attributed to non-controlling interest.

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

When the Parent Company loses control of a subsidiary, a gain or loss on disposal is calculated as the difference between (i) the aggregate of the fair value of the consideration received and the fair value of any retained interest and (ii) the previous carrying amount of the assets (including goodwill) and liabilities of the subsidiary and any non-controlling interests. When assets of the subsidiary are carried at revalued amounts or fair values and the related cumulative gain or loss has been recognized in other comprehensive income and accumulated in equity, the amounts previously recognized in other comprehensive income and accumulated in equity are accounted for as if the Parent Company had directly disposed of the relevant assets (i.e., reclassified to profit or loss or transferred directly to retained earnings). The fair value of any investment retained in the former subsidiary at the date when control is lost is recognized as the fair value on initial recognition for subsequent accounting under K-IFRS 1198, *Financial Instruments*, or, when applicable, the cost on initial recognition of an investment in an associate or a joint venture.

The Parent Company's investments in subsidiaries as of December 31, 2018 and 2017, are as follows:

			Percentage of ownership and voting right held by the company in the Group (*1)	
Subsidiary	Major business activity	Location	December 31, 2018	December 31, 2017
LG N-sys Inc.(*1)	Manufacturing IT infrastructure	South Korea	-	100.00%
Biztech Partners Co., Ltd	IT software service	South Korea	96.09%	95.90%
Korea Elecom Co., Ltd.	Manufacturing military equipment	South Korea	93.93%	93.93%
Haengbokmaru Co., Ltd.	Coffee bar, etc.	South Korea	100.00%	100.00%
Sejong Green Power Co., Ltd. (*3)	New and Renewable Energy Power Generation	South Korea	19.91%	19.91%
LG CNS PHILIPPINES, Inc.	Management and consultation of IT systems	Philippine	100.00%	100.00%
LG CNS China Inc.	Management and consultation of IT systems	China	100.00%	100.00%
LG CNS Europe B.V.	Management and consultation of IT systems	Netherlands	100.00%	100.00%
LG CNS America, Inc.	Management and consultation of IT systems	USA	100.00%	100.00%
LG CNS India Pvt., Ltd.	Management and consultation of IT systems	India	100.00%	100.00%
PT LG CNS Indonesia	Management and consultation of IT systems	Indonesia	100.00%	100.00%
Entrue Brasil Servicos de T.I. Ltda.	Management and consultation of IT systems	Brazil	100.00%	100.00%
UCESS PHILIPPINES, INC.	Management and consultation of IT systems	Philippine	100.00%	100.00%
LG CNS COLOMBIA SAS	Management and consultation of IT systems	Colombia	100.00%	100.00%
LG CNS MALAYSIA SDN BHD	Management and consultation of IT systems	Malaysia	100.00%	100.00%
SBI-LG Systems Co., Ltd.(*4)	Management and consultation of IT systems	Japan	-	51.00%
LG CNS Saudi Arabia LLC	Management and consultation of IT systems	Saudi Arabia	51.00%	51.00%
LG CNS JAPAN Co., Ltd.	Management and consultation of IT systems	Japan	100.00%	100.00%
Collain Healthcare, LLC(*5)	Management and consultation of IT systems	USA	-	70.00%
LG CNS UZBEKISTAN, LLC	Management and consultation of IT systems	Uzbekistan	51.00%	51.00%
LG CNS VIETRAM CO., LTD. (*6)	Management and consultation of IT systems	Vietnam	100.00%	100.00%
LG CNS FUND I LLC (*7)	Investment Fund	America	100.00%	-

(*1) Merged with LG CNS Co., Ltd. during the year ended December 31, 2018.
(*2) Additionally acquired during the year ended December 31, 2018.
(*3) Acquired potential control during the year ended December 31, 2018.
(*4) Liquidated during the year ended December 31, 2018.
(*5) Disposed during the year ended December 31, 2018
(*6) Established and acquired during the year ended December 31, 2017.
(*7) Established and acquired during the year ended December 31, 2018.

The financial positions and performances of subsidiaries as of December 31, 2018, are as follows (Unit: Korean won in thousands):

	Financial information			
Subsidiary	Asset	Liability	Sales	Net income
BizTech Partners Co., Ltd.	₩ 27,981,555	₩ 12,457,381	₩ 96,566,535	₩ 2,091,359
Korea Elecom Co., Ltd.	8,692,237	9,456,841	1,267,562	1,705,215
Haengbokmaru Co., Ltd.	1,363,167	204,500	2,635,081	424,526
Sejong Green Power Co., Ltd.	36,567,305	40,863,071	1,406,344	(380,009)
LG CNS PHILIPPINES, INC.	-	3,169,039	-	-
LG CNS China Inc.	95,477,309	64,388,431	136,180,935	12,783,404
LG CNS Europe B.V.	18,793,878	14,100,265	27,456,570	956,097
LG CNS America, Inc.	43,014,981	36,328,052	84,729,836	(10,465,682)
LG CNS India Pvt., Ltd.	10,090,861	8,903,472	11,739,495	550,493
PT LG CNS Indonesia	3,685,942	5,970,146	9,839,275	(155,249)
Entrue Brasil Servicos de T.I. Ltda.	1,647,083	436,209	3,987,636	485,948
UCESS PHILIPPINES, INC.	82,892	-	-	-
LG CNS COLOMBIA SAS	20,725,843	21,849,514	13,173,676	(5,852,812)
LG CNS MALAYSIA SDN BHD	4,763,698	6,838,883	6,062,377	(1,299,245)
LG CNS Saudi Arabia LLC	55,289	14,629	-	-
LG CNS JAPAN Co., Ltd.	23,662,745	12,855,463	37,536,144	1,236,521
LG CNS UZBEKISTAN, LLC	292,202	663,871	1,144,146	(136,322)
LG CNS VIETNAM, LLC	11,344,955	10,112,841	21,220,763	623,285
LG CNS FUND I LLC	-	-	-	(275,052)

(3)Business Combination

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

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

① deferred tax assets or liabilities and liabilities or assets related to employee benefit arrangements are recognized and measured in accordance with K-IFRS 1012 Income Taxes and K-IFRS 1019 Employee Benefits respectively;

② liabilities or equity instruments related to share-based payment arrangements of the acquiree or share-based payment arrangements of the Group entered into to replace share-based payment arrangements of the acquiree are measured in accordance with K-IFRS 1102 Share-based Payment at the acquisition date; and

③ assets (or disposal groups) that are classified as held for sale in accordance with K-IFRS 1105 Non-current Assets Held for Sale and Discontinued Operations are measured in accordance with that Standard.

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

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

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

When a business combination is achieved in stages, the Group's previously held interests in the acquired entity are remeasured as its acquisition-date(of which the Group obtains control) fair value and the resulting gain or loss, if any, is recognized in profit or loss or other comprehensive income. Amounts arising from interests in the acquiree prior to the acquisition date that have previously been recognized in other comprehensive income are reclassified to profit or loss under the same standards would be appropriate if that interest was disposed of.

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

(4) Affiliates and joint ventures

An associate is an entity that has significant influence and is not a subsidiary or joint venture. Significant influence is the ability to participate in the financial and operating policies of the investee and not to have control or joint control over those policies.

A joint venture is a joint arrangement in which the parties holding joint control of the agreement have the right to net assets of the arrangement and the joint control is a contractual agreement on the control of the arrangement, It exists only when the consent of the entire sharing parties is required.

Unless an investment in an associate or a joint venture is classified as a held for sale under K-IFRS 1105 "Non-current Assets Held for Sale and Discontinued Operations", the net profit or loss, is included in the consolidated financial statements by applying the equity method of accounting. In applying the equity method, investments in associates and joint ventures are carried at the acquisition cost less any impairment loss on the investments in associates and joint ventures, adjusted for changes in equity in the net assets of associates and joint ventures are presented in the consolidated financial statements. Losses of associates and joint ventures that exceed the interests of the Group in relation to the associates and joint ventures (including long-term investments that actually form part of the net investments of the Group and the joint ventures) Only when the entity has a legal or constructive obligation or is required to make payments on behalf of the joint venture.

Investments in associates and joint ventures are accounted for using the equity method from the date the investee becomes an associate or joint venture. Fair value of identifiable assets, liabilities and contingent liabilities of associates and joint ventures at the acquisition date, net of acquisition costs greater than the Group's interest is recognized as goodwill, and goodwill is included in the carrying amount of the investment. If the Group's interest in the net fair value of the identifiable assets, liabilities and contingent liabilities exceeding the cost of acquisition, even after reassessment, are recognized in profit or loss.

The Group determines whether an impairment loss is recognized in respect of investments in associates and joint ventures in accordance with K-IFRS 1028, 'Investments in associates and joint ventures'. If there is an indication of impairment, the total carrying amount of the associate and joint venture (including goodwill) is compared to the recoverable amount (the greater of net fair value and value in use) in accordance with K- IFRS 1028 I'm doing a test. The recognized impairment loss is not allocated to any assets (including goodwill) that are part of the carrying amount of the associate and the joint venture. The reversal of the impairment loss is recognized in accordance with K-IFRS 1036 as the recoverable amount of the investment asset subsequently increases.

The Group ceases to use the equity method when it ceases to meet the definition of an associate or joint venture. If the entity has retained some of the investment assets of existing associates and joint ventures even after it has lost significant influence over the associates and joint ventures, the fair value of the investment assets at the point when the significant influence is lost, Are considered to be the fair value at the initial recognition of the financial asset in accordance with Note 1109. The difference between the carrying amount and fair value of the investment assets held is recognized in profit or loss, including gains (losses) on disposal of associates (or jointly controlled entities). In addition, the investor accounts for all amounts recognized in other comprehensive income in relation to the associates and joint venture on the same basis as the accounting treatment of associates and joint ventures when the related assets or liabilities are disposed of directly. Therefore, if the gain or loss previously recognized in other comprehensive income is reclassified to profit or loss as a result of the disposal of the related asset or liability, the Group derecognizes gains or losses from equity when the entity has lost significant influence over the associate and the joint venture reclassified to profit or loss (reclassification adjustment).

If the equity method is applied consistently while the ownership interest in the associate or joint venture is reduced but the gain or loss previously recognized in other profit or loss is reclassified to profit or loss as a result of disposal of the related asset or liability, The proportionate portion of the decrease in ownership interest is reclassified to profit or loss. In addition, K-IFRS 1105 is applied when a portion of investments in associates or joint ventures is classified as held for sale.

When an investment in an associate is a joint venture or, conversely, a joint venture is an investment in an associate, the Group continues to apply the equity method and does not remeasure any residual equity.

When an entity transacts with an associate or a joint venture, the gain or loss on the transaction between the associate and the joint venture is included in the consolidated financial statements of the Group Are recognized.

(5) Goodwill

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

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

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

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

The group's accounting policies for goodwill arising from the acquisition of an associate are described in Note 2.(4).

(6) Revenue recognition

The Group recognizes revenue from Sales of goods, Service, and construction contracts

1) Sale of goods
The Group recognizes revenue from sale of goods when significant risks and rewards from ownership of goods have been transferred and retains neither continuing managerial involvement to the degree usually associated with ownership nor effective control over the goods. Therefore, the Group recognizes revenue for the manufactured goods at acceptance and merchandises at delivery. Revenue is recognized by estimating the total amount of returns expected as monthly by using the expected return period and the return rate. And based on past experience, in case of a return condition transaction with a low importance of the amount , the entire amount of the sale is recognized as revenue.

At the point of sale, a refund liability and a corresponding adjustment to revenue is recognized for those products expected to be returned. At the same time, the Group has a right to recover the product when customers exercise their right of return so consequently recognizes a right to returned goods asset and a corresponding adjustment to cost of sales. Previously, these effects were recognized as warranty provisions.

2) Rendering of service
The Group recognizes revenue from rendering of service using percentage-of-completion method when the outcome of the transaction can be estimated reliably, stage of completion at reporting date including costs incurred and the cost to complete the transaction can be measured reliably.

3) Construction contracts
The project that are developed to suit the customer's characteristics are recognized as revenue over time because the assets the Group has created do not have an alternative use to themselves, and they have the right to enforceable payment for performance completed. Therefore, revenue from construction contracts is recognized over time on a cost based input method (i.e., based on the proportion of contract costs incurred for work performed to date relative to the estimated total contract costs). The directors consider that this input method is an appropriate measure of the progress towards complete satisfaction of these performance obligations under K-IFRS 1115.

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 are probable to be recovered. 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.

The amount added from the recognized profit to the accumulated accrued costs exceeding the amount claimed for progress, is classified as contract assets, and the amount claimed for progress exceeding the amount added the recognized profit to the accumulated accrued costs, is indicated as contract liabilities. Amounts received before the related work is performed are included in the consolidated 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 consolidated statements of financial position under trade and other receivables.

(7) Leases

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

1) The Group as lessor
Amounts due from lessees under finance leases are recognized as receivables at the amount of the Group's net investment in the leases. Finance lease interest income is allocated to accounting periods so as to reflect an effective interest rate on the Group's net investment outstanding in respect of the leases. Rental income from operating leases is recognized on a straight-line basis over the term of the relevant lease. Initial direct costs incurred in negotiating and arranging an operating lease are added to the carrying amount of the leased asset and recognized on a straight-line basis over the lease term.

2) The Group as lessee
Assets held under finance leases are initially recognized as assets and liability of the Group at their fair value at the inception of the lease or, if lower, at the present value of the minimum lease payments.

Minimum lease payments are apportioned between the finance charge and the reduction of the outstanding liability. The finance charge is allocated to each period during the lease term so as to produce a constant periodic rate of interest on the remaining balance of the liability. The financial charge, except for the case that it is capitalized as part of the cost of that asset according to the Group's accounting for borrowing costs, is immediately expensed in the period in which it is incurred. Contingent rents are charged 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.

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

(8) Foreign currency translation

The individual financial statements of each of the consolidated entities are presented in the currency of the primary economic environment in which the entity operates (the functional currency). In order to prepare consolidated financial statements, each entity's performance and financial position are expressed in 'Korean won', which is the functional currency of the Group and the presentation currency of the consolidated financial statements.

In preparation of the Group's consolidated financial statements, any transaction that occurred in currency other than its functional currency will be recorded in translated amount using the exchange rate of the transaction. At the end of the reporting period, all monetary assets and liabilities will be translated using the exchange rate at the end of the reporting date. Meanwhile, non-monetary assets and liabilities measured at fair value will be retranslated using the exchange rate on the day of fair value evaluation, whereas non-monetary assets and liabilities measured at historical cost will not be translated.

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; and
- Exchange differences on transactions entered into in order to hedge certain foreign currency risks;
- Foreign exchange differences arising from monetary items that form part of the net investment in a foreign establishment as a bond or obligation that has no plans to settle in the foreseeable future for a foreign operation and is unlikely to be settled. Such exchange differences are recognized in other comprehensive income and reclassified from equity to profit or loss at the time of disposal or partial disposal of the net investment.

In order to prepare consolidated financial statements, the assets and liabilities of foreign entities included in the Group are presented using the exchange rates at the end of the reporting period. Unless the foreign currency exchange rate fluctuates significantly during the year and the exchange rate at the transaction date is not required to be used, the items of profit or loss are translated at the average exchange rate for the period. Foreign exchange differences arising therefrom are recognized in other comprehensive income. To non-controlling interests).

In case of disposing of overseas business sites (ie, the disposal of all of the equity of the Group's overseas business sites, the disposal of loss of control over the subsidiary including the overseas business sites, the partial disposal of the interests of the joint venture, The Group reclassifies all foreign currency exchange differences related to the foreign operations attributable to the parent to the parent's profit or loss. The cumulative exchange differences related to the foreign operations attributable to non-controlling interests are eliminated but not reclassified to profit or loss.

For certain disposals that do not result in a loss of control of a subsidiary, including its foreign operations, the proportionate share of the accumulated foreign exchange differences is reassigned to non-controlling interests and is not reclassified to profit or loss. For all other disposals (ie, a decrease in ownership interest in an associate or joint venture of a group that does not result in significant influence or loss of joint control), the proportionate share of the accumulated foreign exchange differences is recognized in profit or loss which is reclassified.

Fair value adjustments for goodwill and identifiable assets and liabilities arising from the acquisition of foreign operations are recognized in the consolidated statements of income as assets and liabilities at the foreign operations and at the end of the reporting period.

(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.

If borrowings are borrowed at variable interest rates to acquire qualifying assets and the borrowings are subject to qualifying cash flow hedges of interest rate risk, the effective portion of the derivative is recognized in other comprehensive income and reclassified to profit or loss when qualifying assets affect the profit or loss. If borrowings are borrowed at fixed interest rates to acquire qualifying assets and the borrowings are subject to fair value hedges of interest rate risk, capitalized borrowing costs reflect the interest rate to be hedged.

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) Government grants

Government grants are recognized when criteria for government grants are complied with and receipt is reasonably assured. If government grants are awarded for acquisition, and construction of tangible assets, it is recognized by deducting the grant amount from the asset and is depreciated using a systematic and reasonable method over the useful life of the asset.

Other government grants are recognized as revenue using a systematic standard to match the cost it is intended to reimburse. Government grants that reimburse losses incurred in the prior period or government grants awarded without further costs incurred are recognized in profit or loss of the period in which the rights to that grant arise.

Government grants to cover the cost of training employees are recognized in profit or loss over the period required to respond to the related costs and are deducted from related costs. Government grants relating to the acquisition of property, plant and equipment are recognized in profit or loss for their useful lives, net of the carrying amount of the asset.

(11) Retirement benefit cost

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

For defined benefit retirement benefit plans, the cost of providing benefits is determined using the projected unit credit method, with actuarial valuations being carried out at the end of each reporting period. Remeasurement, comprising actuarial gains and losses, the effect of the changes to the asset ceiling (if applicable) and the return on plan assets (excluding interest), is reflected immediately in the consolidated statements 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, income are not reclassified. Past service cost is recognized in profit or loss when the plan amendment or curtailment occurs, or when the Group recognizes related restructuring costs or termination benefits, if earlier.

Net interest is calculated by applying a discount rate to the net defined benefit liability or asset. Defined benefit costs are split into three categories:

- service costs, which includes current service cost, past service cost and gains and losses on curtailments and settlements;
- net interest expense or income; and
- remeasurements

Net interest expense or income is recognized within finance costs, and the remeasurement component in other comprehensive income. Curtailment gains and losses are accounted for as past service costs.

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

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

The welfare contribution of an employee or a third party is reducing the cost of work when such contribution to the system is paid. When it is specified that there will be contributions from an employee or a third party to the formal agreement of the scheme, the accounting will depend on whether the contribution is linked to the service as follows:

- If the contribution is not linked to work services (for example, contributions to reduce underwriting losses from loss of plan assets or loss of insurance premiums), contributions will affect remeasurement of net defined benefit liabilities (assets).
- If the contribution is linked to work services, the contribution reduces the cost of the work. For contributions determined by the number of years of service, we allocate contributions to the total pay for the duration of the service according to the allocation method required by paragraph 70 of K-IFRS 1109. On the other hand, for service years and independent contributions, the Group recognizes these contributions as a reduction in the cost of services rendered during the period in which the related services are provided.

(12) Current tax payable and deferred tax

Income tax expense consists of current tax and deferred tax.

1) Current tax payable

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

A provision is recognized for those matters for which the tax determination is uncertain but it is considered probable that there will be a future outflow of funds to a tax authority. The provisions are measured at the best estimate of the amount expected to become payable. The assessment is based on the judgement of tax professionals within the Group supported by previous experience in respect of such activities and in certain cases based on specialist independent tax advice.

2) Deferred tax

Deferred tax is the tax expected to be payable or recoverable on differences between the carrying amounts of assets and liabilities in the consolidated financial statements and the corresponding tax bases used in the computation of taxable profit, and is accounted for using the liability method. 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 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 Group recognizes a deferred tax liability for all taxable temporary differences associated with investments in subsidiaries, branches and associates, and interests in joint arrangements, except to the extent that the Group is able to control the timing of the reversal of the temporary difference, and it is probable that the temporary difference will not reverse in the foreseeable future. A deferred tax asset for all deductible temporary differences arising from above-mentioned investments is recognized to the extent, and only to the extent, that it is probable that the temporary difference will reverse in the foreseeable future and taxable profit will be available against which the temporary difference can be utilized. The carrying amount of deferred tax assets is reviewed at the end of each reporting period and reduced to the extent 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 is realized, based on tax rates (and tax laws) that have been enacted or substantively enacted by the end of the reporting period. The measurement of deferred tax liabilities and assets reflects the tax consequences that would follow from the manner in which the Group expects, at the end of the reporting period, to recover or settle the carrying amount of its assets and liabilities.

Deferred tax assets and liabilities are offset if, and only if the Group has a legally enforceable right to set off current tax assets against current tax liabilities, and the deferred tax assets and liabilities relate to income taxes levied by the same taxation authority on either the same taxable entity or different taxable entities that intend either to settle current tax liabilities and assets on a net basis, or to realize the assets and settle the liabilities simultaneously, in each future period in which significant amounts of deferred tax liabilities or assets are expected to be settled or recovered.

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

3) Recognition of current tax payable and deferred tax

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

(13) Property, plant and equipment

Property, plant and equipment are stated at cost, less subsequent accumulated depreciation and accumulated impairment losses. The cost of an item of property, plant and equipment is directly attributable to its purchase or construction, which includes any costs directly attributable to bringing the asset to the location, in working condition, as 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 at the carrying amount of an asset, or as an asset, if it is probable that future economic benefits associated with the assets will flow to the Group and the cost of the asset can be measured reliably. Routine maintenance and repairs are expensed as incurred.

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

	Estimated useful lives (years)
Buildings	25–40
Structures	40
Machinery	4
Vehicles	4–10
Tools and equipment	4
Furniture and fixtures	3–25
Others	3–20

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

The Group reviews the depreciation method, the estimated useful lives and residual values of property, plant and equipment at the end of each annual reporting period. If expectations differ from previous estimates, the changes are accounted for as a change in 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 Group and the cost of an asset can be measured reliably. Routine maintenance and repairs are expensed as incurred.

While land is not depreciated, all other investment property is depreciated based on the respective assets estimated useful lives ranging from 25 ~ 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.

An internally generated intangible asset arising from development (or from the development phase of an internal project) is recognized if, and only if, all of the following have been demonstrated:

- the technical feasibility of completing the intangible asset, so that it will be available for use or sale;
- the intention to complete the intangible asset and use or sell it;
- the ability to use or sell the intangible asset;
- how the intangible asset will generate probable future economic benefits;
- the availability of adequate technical, financial and other resources to complete the development and to use or sell the intangible asset; and
- the ability to measure reliably the expenditure attributable to the intangible asset during its development.

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

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

3) Intangible assets acquired in a business combination
Intangible assets that are acquired in a business combination are recognized separately from goodwill and are initially recognized at their fair value at the acquisition date (which is regarded as their cost).

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

4) Derecognition of intangible assets
An intangible asset is derecognized on disposal or when no future economic benefits are expected from its use or disposal. 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) Patent rights and trademarks
Patents and trademarks are initially measured at acquisition cost and amortized at a straight-line method over the estimated useful life.

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

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

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

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

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

(17) Inventories

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

The carrying amount of inventories sold in the period and the amount of any write-down of inventories to net realizable value and all losses of inventories in the period, less the amount of any reversal in the period of any write-down of the inventories, arising from an increase in net realizable value are recognized as expense during the period.

(18) Provisions

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

The amount recognized as a provision is the best estimate of the consideration required to settle the present obligation at the end of the reporting period, taking into account the risks and uncertainties surrounding the obligation. When a provision is measured using the cash flows estimated to settle the present obligation, its carrying amount is the present value of those cash flows (where the effect of the time value of money is material).

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

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

1) Onerous contracts
Present obligations arising under onerous contracts are recognized and measured as provisions. An onerous contract is considered to exist where the Group has a contract under which the unavoidable costs of meeting the obligations under the contract exceed the economic benefits expected to be received from the contract.

2) Restructuring
The consolidation entity has established an official and specific plan for restructuring and recognizes the restructuring provision when the parties affected by the restructuring have legitimate expectations that the group will carry out the restructuring by initiating the implementation of the restructuring plan or issuing key details of the restructuring to the parties affected by the restructuring. Only expenditures that occur directly in connection with restructuring are measured at the amount of restructuring provision that are not related to the ongoing activities of the entity.

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

4) Contingent liabilities acquired in a business combination

Contingent liabilities acquired in a business combination are initially measured at fair value at the acquisition date. At the end of subsequent reporting periods, such contingent liabilities are measured at the higher of the amount that would be recognized in accordance with K-IFRS 1037 *Provisions, Contingent Liabilities and Contingent Assets*, or the amount initially recognized, less cumulative amortization recognized in accordance with K-IFRS 1115 *Revenue*.

(19) Financial Instruments

Financial assets and financial liabilities are recognized in the Group's consolidated statements of financial position when the Group becomes a party to the contractual provisions of the instrument. 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 (other than financial assets and financial liabilities at fair value through profit or loss) are added to or deducted from the fair value of the financial assets or financial liabilities, as appropriate, on initial recognition. Transaction costs directly attributable to the acquisition of financial assets or financial liabilities at fair value through profit or loss are recognized immediately in profit or loss.

(20) Financial assets

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

All recognized financial assets are measured subsequently in their entirety at either amortized cost or fair value, depending on the classification of the financial assets.

1) Classification of financial assets

Debt instruments that meet the following conditions are measured subsequently at amortized cost:

- the financial asset is held within a business model whose objective is to hold financial assets in order to collect contractual cash flows; and
- the contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

Debt instruments that meet the following conditions are measured subsequently at fair value through other comprehensive income (FVTOCI):

- the financial asset is held within a business model whose objective is achieved by both collecting contractual cash flows and selling the financial assets; and
- the contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

By default, all other financial assets are measured subsequently at fair value through profit or loss (FVTPL).
Despite the foregoing, the Group may make the following irrevocable election / designation at initial recognition of a financial asset:

- the Group may irrevocably elect to present subsequent changes in fair value of an equity investment in other comprehensive income if certain criteria are met (see (1-3) below); and
- the Group may irrevocably designate a debt investment that meets the amortized cost or FVTOCI criteria as measured at FVTPL if doing so eliminates or significantly reduces an accounting mismatch (see (1-4) below).

1-1) Amortized cost and 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. For financial assets other than purchased or originated credit-impaired financial assets (i.e. assets that are credit-impaired on initial recognition), 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) excluding expected credit losses, through the expected life of the debt instrument, or, where appropriate, a shorter period, to the gross carrying amount of the debt instrument on initial recognition. For purchased or originated credit-impaired financial assets, a credit-adjusted effective interest rate is calculated by discounting the estimated future cash flows, including expected credit losses, to the amortized cost of the debt instrument on initial recognition.

The amortized cost of a financial asset is the amount at which the financial asset is measured at initial recognition minus the principal repayments, plus the cumulative amortisation using the effective interest method of any difference between that initial amount and the maturity amount, adjusted for any loss allowance. The gross carrying amount of a financial asset is the amortized cost of a financial asset before adjusting for any loss allowance.

Interest income is recognized using the effective interest method for debt instruments measured subsequently at amortized cost and at FVTOCI. For financial assets other than purchased or originated credit-impaired financial assets, interest income is calculated by applying the effective interest rate to the gross carrying amount of a financial asset, except for financial assets that have subsequently become credit-impaired (see below). For financial assets that have subsequently become credit-impaired, interest income is recognized by applying the effective interest rate to the amortized cost of the financial asset. If, in subsequent reporting periods, the credit risk on the credit-impaired financial instrument improves so that the financial asset is no longer credit-impaired, interest income is recognized by applying the effective interest rate to the gross carrying amount of the financial asset.

For purchased or originated credit-impaired financial assets, the Group recognizes interest income by applying the credit-adjusted effective interest rate to the amortized cost of the financial asset from initial recognition. The calculation does not revert to the gross basis even if the credit risk of the financial asset subsequently improves so that the financial asset is no longer credit-impaired.

Interest income is recognized in profit or loss and is included in the "finance income - interest income" line item (see note 25).

1-2) Debt instruments classified as at FVTOCI

The corporate bonds held by the Group are classified as at FVTOCI. Fair value is determined in the manner described in Note 34. The corporate bonds are initially measured at fair value plus transaction costs. Subsequently, changes in the carrying amount of these corporate bonds as a result of foreign exchange gains and losses, impairment gains or losses, and interest income calculated using the effective interest method are recognized in profit or loss. The amounts that are recognized in profit or loss are the same as the amounts that would have been recognized in profit or loss if these corporate bonds had been measured at amortized cost. All other changes in the carrying amount of these corporate bonds are recognized in other comprehensive income and accumulated under the heading of investments revaluation reserve. When these corporate bonds are derecognized, the cumulative gains or losses previously recognized in other comprehensive income are reclassified to profit or loss.

1-3) Equity instruments designated as at FVTOCI

On initial recognition, the Group may make an irrevocable election (on an instrument-by-instrument basis) to designate investments in equity instruments as at FVTOCI. Designation at FVTOCI is not permitted if the equity investment is held for trading or if it is contingent consideration recognized by an acquirer in a business combination.

A financial asset is held for trading if:

- it has been acquired principally for the purpose of selling it in the near term; or
- on initial recognition it is part of a portfolio of identified financial instruments that the Group manages together and has evidence of a recent actual pattern of short-term profit-taking; or
- it is a derivative (except for a derivative that is a financial guarantee contract or a designated and effective hedging instrument).

Investments in equity instruments at FVTOCI are initially measured at fair value plus transaction costs. Subsequently, they are measured at fair value with gains and losses arising from changes in fair value recognized in other comprehensive income and accumulated in the investments revaluation reserve. The cumulative gain or loss is not be reclassified to profit or loss on disposal of the equity investments, instead, it is transferred to retained earnings.

Dividends on these investments in equity instruments are recognized in profit or loss in accordance with K-IFRS 1109, unless the dividends clearly represent a recovery of part of the cost of the investment. Dividends are included in the ‘operating income’ line item (note 25) in profit or loss.

1-4) Financial assets at FVTPL

Financial assets that do not meet the criteria for being measured at amortized cost or FVTOCI are measured at FVTPL. Specifically:

- Investments in equity instruments are classified as at FVTPL, unless the Group designates an equity investment that is neither held for trading nor a contingent consideration arising from a business combination as at FVTOCI on initial recognition (see (1-3) above).
- Debt instruments that do not meet the amortized cost criteria or the FVTOCI criteria (see (1-1) and (1-2) above) are classified as at FVTPL. In addition, debt instruments that meet either the amortized cost criteria or the FVTOCI criteria may be designated as at FVTPL upon initial recognition if such designation eliminates or significantly reduces a measurement or recognition inconsistency (so called ‘accounting mismatch’) that would arise from measuring assets or liabilities or recognising the gains and losses on them on different bases. The Group has not designated any debt instruments as at FVTPL.

Financial assets at FVTPL are measured at fair value at the end of each reporting period, with any fair value gains or losses recognized in profit or loss to the extent they are not part of a designated hedging relationship (see hedge accounting policy). The net gain or loss recognized in profit or loss includes any dividend earned on the financial asset and is included in the ‘operating income’ line item (Note 26). Meanwhile, interest income on financial assets at FVTPL is included in 'financial income - other' (Note 34). Fair value is determined in the manner described in note 25.

2) Foreign exchange gains and losses

The carrying amount of financial assets that are denominated in a foreign currency is determined in that foreign currency and translated at the spot rate at the end of each reporting period. Specifically;

- for financial assets measured at amortized cost that are not part of a designated hedging relationship, exchange differences are recognized in profit or loss in the ‘other gains and losses’ line item (Note 26);

- for debt instruments measured at FVTOCI that are not part of a designated hedging relationship, exchange differences on the amortized cost of the debt instrument are recognized in profit or loss in the 'other gains and losses' line item (Note 26). Other exchange differences are recognized in other comprehensive income in the investments revaluation reserve;
- for financial assets measured at FVTPL that are not part of a designated hedging relationship, exchange differences are recognized in profit or loss in the 'other gains and losses' line item (Note 26); and
- for equity instruments measured at FVTOCI, exchange differences are recognized in other comprehensive income in the investments revaluation reserve.

3) Impairment of financial assets

The Group recognizes a loss allowance for expected credit losses on investments in debt instruments that are measured at amortized cost or at FVTOCI, lease receivables, trade receivables and contract assets, as well as on financial guarantee contracts. The amount of expected credit losses is updated at each reporting date to reflect changes in credit risk since initial recognition of the respective financial instrument.

The Group always recognizes lifetime ECL for trade receivables, contract assets and lease receivables. The expected credit losses on these financial assets are estimated using a provision matrix based on the Group's historical credit loss experience, adjusted for factors that are specific to the debtors, general economic conditions and an assessment of both the current as well as the forecast direction of conditions at the reporting date, including time value of money where appropriate.

For all other financial instruments, the Group recognizes lifetime ECL when there has been a significant increase in credit risk since initial recognition. However, if the credit risk on the financial instrument has not increased significantly since initial recognition, the Group measures the loss allowance for that financial instrument at an amount equal to 12-month ECL.

Lifetime ECL represents the expected credit losses that will result from all possible default events over the expected life of a financial instrument. In contrast, 12-month ECL represents the portion of lifetime ECL that is expected to result from default events on a financial instrument that are possible within 12 months after the reporting date.

3-1) Significant increase in credit risk

In assessing whether the credit risk on a financial instrument has increased significantly since initial recognition, the Group compares the risk of a default occurring on the financial instrument at the reporting date with the risk of a default occurring on the financial instrument at the date of initial recognition. In making this assessment, the Group considers both quantitative and qualitative information that is reasonable and supportable, including historical experience and forward-looking information that is available without undue cost or effort. Forward-looking information considered includes the future prospects of the industries in which the Group's debtors operate, obtained from economic expert reports, financial analysts, governmental bodies, relevant think-tanks and other similar organizations, as well as consideration of various external sources of actual and forecast economic information that relate to the Group's core operations.

In particular, the following information is taken into account when assessing whether credit risk has increased significantly since initial recognition:

- an actual or expected significant deterioration in the financial instrument's external (if available) or internal credit rating;

significant deterioration in external market indicators of credit risk for a particular financial instrument, e.g. a significant increase in the credit spread, the credit default swap prices for the debtor, or the length of time or the extent to which the fair value of a financial asset has been less than its amortized cost;
an actual or expected significant deterioration in the operating results of the debtor;
significant increases in credit risk on other financial instruments of the same debtor;
an actual or expected significant adverse change in the regulatory, economic, or technological environment of the debtor that results in a significant decrease in the debtor's ability to meet its debt obligations.

Irrespective of the outcome of the above assessment, the Group presumes that the credit risk on a financial asset has increased significantly since initial recognition when contractual payments are more than 30 days past due, unless the Group has reasonable and supportable information that demonstrates otherwise.

Despite the aforementioned, the Group assumes that the credit risk on a financial instrument has not increased significantly since initial recognition if the financial instrument is determined to have low credit risk at the reporting date. A financial instrument is determined to have low credit risk if:

(1) The financial instrument has a low risk of default,
(2) The debtor has a strong capacity to meet its contractual cash flow obligations in the near term, and
(3) Adverse changes in economic and business conditions in the longer term may, but will not necessarily, reduce the ability of the borrower to fulfil its contractual cash flow obligations.

The Group considers a financial asset to have low credit risk when the asset has external credit rating of 'investment grade' in accordance with the globally understood definition or if an external rating is not available, the asset has an internal rating of 'performing'. Performing means that the counterparty has a strong financial position and there is no past due amounts.

For financial guarantee contracts, the date that the Group becomes a party to the irrevocable commitment is considered to be the date of initial recognition for the purposes of assessing the financial instrument for impairment. In assessing whether there has been a significant increase in the credit risk since initial recognition of a financial guarantee contracts, the Group considers the changes in the risk that the specified debtor will default on the contract.

The Group regularly monitors the effectiveness of the criteria used to identify whether there has been a significant increase in credit risk and revises them as appropriate to ensure that the criteria are capable of identifying significant increase in credit risk before the amount becomes past due.

3-2) Definition of default

The Group considers the following as constituting an event of default for internal credit risk management purposes as historical experience indicates that the financial assets that meet either of the following criteria are generally not recoverable:

•Significant financial difficulties of issuers or obligors of financial assets.
•Such as a default or delay in interest payment or principal repayment,
•Inevitable conditions of initial borrowing due to economic or legal reasons related to the borrower's financial difficulties.
•Possibility of bankruptcy of borrower or other financial restructuring
•Financial difficulties in the active market for financial assets

Irrespective of the analysis above, the Group considers that default has occurred when a financial asset is more than 180 days past due unless the Group has reasonable and supportable information to demonstrate that a more lagging default criterion is more appropriate.

3-3) Credit-impaired financial assets

A financial asset is credit-impaired when one or more events that have a detrimental impact on the estimated future cash flows of that financial asset have occurred. Evidence that a financial asset is credit-impaired includes observable data about the following events:

(a) significant financial difficulty of the issuer or the borrower;
(b) a breach of contract, such as a default or past due event (see (3-2) above);
(c) the lender(s) of the borrower, for economic or contractual reasons related to the borrower's financial difficulty, having granted to the borrower a concession(s) that the lender(s) would not otherwise consider;
(d) it is becoming probable that the borrower will enter bankruptcy or other financial reorganisation; or
(e) the disappearance of an active market for that financial asset because of financial difficulties.

3-4) Write-off policy

The Group writes off a financial asset when there is information indicating that the debtor is in severe financial difficulty and there is no realistic prospect of recovery, e.g. when the debtor has been placed under liquidation or has entered into bankruptcy proceedings, or in the case of trade receivables, when the amounts are over two years past due, whichever occurs sooner. Financial assets written off may still be subject to enforcement activities under the Group's recovery procedures, taking into account legal advice where appropriate. Any recoveries made are recognized in profit or loss.

3-5) Measurement and recognition of expected credit losses

The measurement of expected credit losses is a function of the probability of default, loss given default (i.e. the magnitude of the loss if there is a default) and the exposure at default. The assessment of the probability of default and loss given default is based on historical data adjusted by forward-looking information as described above. As for the exposure at default, for financial assets, this is represented by the assets' gross carrying amount at the reporting date; for financial guarantee contracts, the exposure includes the amount drawn down as at the reporting date, together with any additional amounts expected to be drawn down in the future by default date determined based on historical trend, the Group's understanding of the specific future financing needs of the debtors, and other relevant forward-looking information.

For financial assets, the expected credit loss is estimated as the difference between all contractual cash flows that are due to the Group in accordance with the contract and all the cash flows that the Group expects to receive, discounted at the original effective interest rate. For a lease receivable, the cash flows used for determining the expected credit losses is consistent with the cash flows used in measuring the lease receivable in accordance with K-IFRS 1017 Leases.

For a financial guarantee contract, as the Group is required to make payments only in the event of a default by the debtor in accordance with the terms of the instrument that is guaranteed, the expected loss allowance is the expected payments to reimburse the holder for a credit loss that it incurs less any amounts that the Group expects to receive from the holder, the debtor or any other party.

If the Group has measured the loss allowance for a financial instrument at an amount equal to lifetime ECL in the previous reporting period, but determines at the current reporting date that the conditions for lifetime ECL are no longer met, the Group measures the loss allowance at an amount equal to 12-month ECL at the current reporting date, except for assets for which simplified approach was used.

The Group recognizes an impairment gain or loss in profit or loss for all financial instruments with a corresponding adjustment to their carrying amount through a loss allowance account, except for investments in debt instruments that are measured at FVTOCI, for which the loss allowance is recognized in other comprehensive income and accumulated in the investment revaluation reserve, and does not reduce the carrying amount of the financial asset in the consolidated statements of financial position.

4) Derecognition of financial assets

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

On derecognition of a financial asset measured at amortized cost, the difference between the asset's carrying amount and the sum of the consideration received and receivable is recognized in profit or loss. In addition, on derecognition of an investment in a debt instrument classified as at FVTOCI, the cumulative gain or loss previously accumulated in the investments revaluation reserve is reclassified to profit or loss. In contrast, on derecognition of an investment in equity instrument which the Group has elected on initial recognition to measure at FVTOCI, the cumulative gain or loss previously accumulated in the investments revaluation reserve is not reclassified to profit or loss, but is transferred to retained earnings.

(21) Financial liabilities and equity instruments

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

2) Equity instruments
An equity instrument is any contract that evidences a residual interest in the assets of an entity after deducting all of its liabilities. Equity instruments issued by the Group are recognized at the proceeds received, net of direct issue costs.
Repurchase of the Group's own equity instruments is recognized and deducted directly in equity. No gain or loss is recognized in profit or loss on the purchase, sale, issue or cancellation of the Group's own equity instruments.

3) Financial liabilities

All financial liabilities are measured subsequently at amortized cost using the effective interest method or at FVTPL.
However, financial liabilities that arise when a transfer of a financial asset does not qualify for derecognition or when the continuing involvement approach applies, and financial guarantee contracts issued by the Group, are measured in accordance with the specific accounting policies set out below.

4) Financial liabilities at FVTPL

Financial liabilities are classified as at FVTPL when the financial liability is (i) contingent consideration of an acquirer in a business combination, (ii) held for trading or (iii) it is designated as at FVTPL.

A financial liability is classified as held for trading if:

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

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

- such designation eliminates or significantly reduces a measurement or recognition inconsistency that would otherwise arise; or
- the financial liability forms part of a group of financial assets or financial liabilities or both, which is managed and its performance is evaluated on a fair value basis, in accordance with the Group's documented risk management or investment strategy, and information about the grouping is provided internally on that basis; or
- it forms part of a contract containing one or more embedded derivatives, and K-IFRS 1109 permits the entire combined contract to be designated as at FVTPL.

Financial liabilities at FVTPL are measured at fair value, with any gains or losses arising on changes in fair value recognized in profit or loss to the extent that they are not part of a designated hedging relationship (see Hedge accounting policy). The net gain or loss recognized in profit or loss incorporates any interest paid on the financial liability and is included in the 'other gains and losses' line item (see note 26) in profit or loss.

However, for financial liabilities that are designated as at FVTPL, the amount of change in the fair value of the financial liability that is attributable to changes in the credit risk of that liability is recognized in other comprehensive income, unless the recognition of the effects of changes in the liability's credit risk in other comprehensive income would create or enlarge an accounting mismatch in profit or loss. The remaining amount of change in the fair value of liability is recognized in profit or loss. Changes in fair value attributable to a financial liability's credit risk that are recognized in other comprehensive income are not subsequently reclassified to profit or loss; instead, they are transferred to retained earnings upon derecognition of the financial liability.

Gains or losses on financial guarantee contracts issued by the Group that are designated by the Group as at FVTPL are recognized in profit or loss.

Fair value is determined in the manner described in Note 34.

5) Financial liabilities measured subsequently at amortized cost

Financial liabilities that are not (i) contingent consideration of an acquirer in a business combination, (ii) held-for-trading, or (iii) designated as at FVTPL, are measured subsequently at amortized cost using the effective interest method.

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

6) 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
- The amount initially recognized, less cumulative amortization recognized in accordance with the K-IFRS 1018, *Revenue*

7) Foreign exchange gains and losses

For financial liabilities that are denominated in a foreign currency and are measured at amortized cost at the end of each reporting period, the foreign exchange gains and losses are determined based on the amortized cost of the instruments. These foreign exchange gains and losses are recognized in the 'other gains and losses' line item in profit or loss (see Note 26) for financial liabilities that are not part of a designated hedging relationship. For those which are designated as a hedging instrument for a hedge of foreign currency risk foreign exchange gains and losses are recognized in other comprehensive income and accumulated in a separate component of equity.

The fair value of financial liabilities denominated in a foreign currency is determined in that foreign currency and translated at the spot rate at the end of the reporting period. For financial liabilities that are measured as at FVTPL, the foreign exchange component forms part of the fair value gains or losses and is recognized in profit or loss for financial liabilities that are not part of a designated hedging relationship.

8) Derecognition of financial liabilities

The Group derecognizes financial liabilities when, and only when, the Group's obligations are discharged, cancelled or have expired. The difference between the carrying amount of the financial liability derecognized and the consideration paid and payable is recognized in profit or loss.

When the Group exchanges with the existing lender one debt instrument into another one with the substantially different terms, such exchange is accounted for as an extinguishment of the original financial liability and the recognition of a new financial liability. Similarly, the Group accounts for substantial modification of terms of an existing liability or part of it as an extinguishment of the original financial liability and the recognition of a new liability. It is assumed that the terms are substantially different if the discounted present value of the cash flows under the new terms, including any fees paid net of any fees received and discounted using the original effective rate is at least 10 percent different from the discounted present value of the remaining cash flows of the original financial liability. If the modification is not substantial, the difference between: (1) the carrying amount of the liability before the modification; and (2) the present value of the cash flows after modification should be recognized in profit or loss as the modification gain or loss within other gains and losses.

(22) Derivative financial instruments

The Group enters into a variety of derivative financial instruments to manage its exposure to interest rate and foreign exchange rate risks, including foreign exchange forward contracts, options and interest rate 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. Derivatives are not offset in the financial statements unless the Group has both legal right and intention to offset. The impact of the Master Netting Agreements on the Group's financial position is disclosed in Note 34. 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

An embedded derivative is a component of a hybrid contract that also includes a non-derivative host – with the effect that some of the cash flows of the combined instrument vary in a way similar to a stand-alone derivative.

Derivatives embedded in hybrid contracts with a financial asset host within the scope of K-IFRS 1109 are not separated. The entire hybrid contract is classified and subsequently measured as either amortized cost or fair value as appropriate.

Derivatives embedded in hybrid contracts with hosts that are not financial assets within the scope of K-IFRS 1109 (e.g. financial liabilities) are treated as separate derivatives when they meet the definition of a derivative, their risks and characteristics are not closely related to those of the host contracts and the host contracts are not measured at FVTPL.

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

2) Hedge accounting

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

At the inception of the hedge relationship, the Group documents the relationship between the hedging instrument and the hedged item, along with its risk management objectives and its strategy for undertaking various hedge transactions. Furthermore, at the inception of the hedge and on an ongoing basis, the Group documents whether the hedging instrument is effective in offsetting changes in fair values or cash flows of the hedged item attributable to the hedged risk, which is when the hedging relationships meet all of the following hedge effectiveness requirements:

- there is an economic relationship between the hedged item and the hedging instrument;
- the effect of credit risk does not dominate the value changes that result from that economic relationship; and
- the hedge ratio of the hedging relationship is the same as that resulting from the quantity of the hedged item that the Group actually hedges and the quantity of the hedging instrument that the Group actually uses to hedge that quantity of hedged item.

If a hedging relationship ceases to meet the hedge effectiveness requirement related to the hedge ratio but the risk management objective for that designated hedging relationship remains the same, the Group adjusts the hedge ratio of the hedging relationship (i.e. rebalances the hedge) so that it meets the qualifying criteria again.

The Group designates the full change in the fair value of a forward contract (i.e. including the forward elements) as the hedging instrument for all of its hedging relationships involving forward contracts.

The Group designates only the intrinsic value of option contracts as a hedged item, i.e. excluding the time value of the option. The changes in the fair value of the aligned time value of the option are recognized in other comprehensive income and accumulated in the cost of hedging reserve. If the hedged item is transaction-related, the time value is reclassified to profit or loss when the hedged item affects profit or loss. If the hedged item is time-period related, then the amount accumulated in the cost of hedging reserve is reclassified to profit or loss on a rational basis – the Group applies straight-line amortization mehod. Those reclassified amounts are recognized in profit or loss in the same line as the hedged item. If the hedged item is a non-financial item, then the amount accumulated in the cost of hedging reserve is removed directly from equity and included in the initial carrying amount of the recognized non-financial item. Furthermore, if the Group expects that some or all of the loss accumulated in cost of hedging reserve will not be recovered in the future, that amount is immediately reclassified to profit or loss.

Note 34 sets out details of the fair values of the derivative instruments used for hedging purposes.
Movements in the hedging reserve in equity are detailed in Note 37.

3) Fair value hedges

The fair value change on qualifying hedging instruments is recognized in profit or loss except when the hedging instrument hedges an equity instrument designated at FVTOCI in which case it is recognized in other comprehensive income.

The carrying amount of a hedged item not already measured at fair value is adjusted for the fair value change attributable to the hedged risk with a corresponding entry in profit or loss. For debt instruments measured at FVTOCI, the carrying amount is not adjusted as it is already at fair value, but the hedging gain or loss is recognized in profit or loss instead of other comprehensive income. When the hedged item is an equity instrument designated at FVTOCI, the hedging gain or loss remains in other comprehensive income to match that of the hedging instrument.

Where hedging gains or losses are recognized in profit or loss, they are recognized in the same line as the hedged item.

The Group discontinues hedge accounting only when the hedging relationship (or a part thereof) ceases to meet the qualifying criteria (after rebalancing, if applicable). This includes instances when the hedging instrument expires or is sold, terminated or exercised. The discontinuation is accounted for prospectively. 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 and other qualifying hedging instruments that are designated and qualify as cash flow hedges is recognized in other comprehensive income and accumulated under the heading of cash flow hedging reserve, limited to the cumulative change in fair value of the hedged item from inception of the hedge. The gain or loss related to the ineffective portion is recognized immediately in profit or loss, and is included in the ‘other gains and losses’ line item.

Amounts previously recognized in other comprehensive income and accumulated in equity are reclassified to profit or loss in the periods when the hedged item affects profit or loss, in the same line as the recognized hedged item. However, when the hedged forecast transaction results in the recognition of a non-financial asset or a non-financial liability, the gains and losses previously recognized in other comprehensive income and accumulated in equity are removed from equity and included in the initial measurement of the cost of the non-financial asset or non-financial liability. This transfer does not affect other comprehensive income. Furthermore, if the Group expects that some or all of the loss accumulated in the cash flow hedging reserve will not be recovered in the future, that amount is immediately reclassified to profit or loss.

The Group discontinues hedge accounting only when the hedging relationship (or a part thereof) ceases to meet the qualifying criteria (after rebalancing, if applicable). This includes instances when the hedging instrument expires or is sold, terminated or exercised. The discontinuation is accounted for prospectively. Any gain or loss recognized in other comprehensive income and accumulated in cash flow hedge reserve at that time remains in equity and is reclassified to profit or loss when the forecast transaction occurs. When a forecast transaction is no longer expected to occur, the gain or loss accumulated in cash flow hedge reserve is reclassified immediately to profit or loss.

5) Hedges of net investments in foreign operations

Hedges of net investments in foreign operations are accounted for similarly to cash flow hedges. Any gain or loss on the foreign currency forward contracts related to the effective portion of the hedge is recognized in other comprehensive income and accumulated in the foreign currency translation reserve. The gain or loss related to the ineffective portion is recognized immediately in profit or loss, and is included in the ‘other gains and losses’ line item.

Gains and losses on the hedging instrument accumulated in the foreign currency translation reserve are reclassified to profit or loss on the disposal or partial disposal of the foreign operation.

3. SIGNIFICANT CONSIDERATION AND MAJOR SOURCES OF ESTIMATION UNCERTAINTIES:

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

Gross contract profit is measured based on the initially agreed contract amount, but during the process of performing contract, this amount can be increased or reduced according to revision of contract condition. Therefore, the measurement of contract profit is influenced by various uncertainty related to the result of future incidents. In case that there is a high probability that the client approves fluctuation of profit amount due to revision of contract condition, or the Group has high probability to fulfill achievement criteria and measure the amount reliably, it is included into contract profit.

(2) Estimated gross contract cost

Contract profit amount is being influenced by progress rate measured based on accumulated contract cost, and gross contract cost will be estimated based on future estimated figures, such as material cost, labor cost and project period. The Group periodically reviews any changes of estimated total contract cost and reflects such changes when it calculates current progress rate at the end of reporting period.

4. OPERATING SEGMENTS:

(1) For management purposes, the Group divided the operating segments of its subsidiaries into levels that are provided to the CEO for decision-making based on the nature of of goods sold or services rendered. The segments are categories for Group's reporting of its business, and accounting policies applied for each segment are same as described in Note 2.

(2) Revenue and profit before tax for each operating segment for the years ended December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

	Sales (*1)		Profit before income tax (*1)	
Operating segment	Year ended December 31, 2018	Year ended December 31, 2017	Year ended December 31, 2018	Year ended December 31, 2017
LG CNS Co,.Ltd.	₩ 2,828,574,073	₩ 2,388,651,947	₩ 148,928,945	₩ 166,792,538
LG N-Sys Inc.(*2)	67,197,081	487,077,118	(378,539)	4,970,280
BizTech Partners Co., Ltd	96,566,535	98,313,995	2,557,455	4,408,084
Korea Elecom Co., Ltd.	1,267,562	24,081,423	1,705,215	(326,641)
Haengbokmaru Co., Ltd.	2,635,081	1,500,353	448,012	-
Sejong Green Power Co., Ltd. (*3)	1,406,344	-	(380,009)	-
LG CNS China Inc.	136,180,935	129,576,878	17,246,903	11,780,625
LG CNS Europe B.V.	27,456,570	29,970,897	842,857	839,499
LG CNS America, Inc.	84,729,836	67,505,521	(9,775,036)	5,006,772
LG CNS India Pvt, Ltd.	11,739,495	10,238,493	638,580	381,621
PT LG CNS Indonesia	9,839,275	13,415,809	(91,101)	(367,724)
Entrue Brasil Servicos de T.I. Ltda.	3,987,636	4,101,170	733,914	313,184
LG CNS COLOMBIA SAS	13,173,676	13,066,653	(5,644,770)	(528,307)
SBI-LG Systems Co., Ltd.(*4)	-	20,392,896	-	(212,680)
LG CNS MALAYSIA SDN BHD	6,062,377	11,197,976	(1,283,351)	(867,619)
LG CNS Saudi Arabia LLC	-	-	-	(129,094)
LG CNS JAPAN Co., Ltd.	37,536,144	103,344,986	402,608	9,322,714
Collain Healthcare, LLC(*5)	3,930,649	4,205,780	9,571,228	(3,560,353)
LG CNS UZBEKISTAN, LLC	1,144,146	5,580,363	(78,077)	(622,552)
LG CNS VIETNAM CO., LTD	21,220,763	28,180,432	623,285	1,392,867
LG CNS FUND I LLC(*6)	-	-	(275,052)	-
Subtotal	3,354,648,181	3,440,402,690	165,793,065	198,805,963
Consolidation adjustments (*1)	(236,992,452)	(437,190,652)	(4,231,432)	(5,211,523)
Total	₩ 3,117,655,729	₩ 3,003,212,038	₩ 161,561,633	₩ 193,594,440

(*1) Revenue by segments is presented before elimination of internal transactions, and profit before income tax by segments is net profit (loss) before distribution of revenue and expenses. Elimination of gain (loss) on internal transaction is presented in the consolidation adjustments.
(*2) Merged with LG CNS Co., Ltd. during the year ended December 31, 2018 and the amount of salse and profit income tax shows before merge.
(*3) Acquired potential control during the year ended December 31, 2018, the amount of salse and profit income tax shows after acquisition.
(*4) Liquidated during the year ended December 31, 2018.
(*5) Disposed during the year ended December 31, 2018, the amount of salse and profit income tax shows before disposal.
(*6) Established and acquired during the year ended December 31, 2018.

(3) Assets of each operating segment of the Group as of December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

Operating segment	December 31, 2018	December 31, 2017
LG CNS Co., Ltd.	₩ 2,296,267,977	₩ 2,013,869,203
LG N-Sys Inc.(*1)	-	351,280,579
BizTech Partners Co., Ltd.	27,981,555	27,089,979
Korea Elecom Co., Ltd.	8,692,237	9,833,299
Haengbokmaru Co., Ltd.	1,363,167	891,252
Sejong Green Power Co., Ltd. (*2)	36,567,305	-
LG CNS China Inc.	95,477,309	82,734,813
LG CNS Europe B.V.	18,793,878	20,307,982
LG CNS America, Inc.	43,014,981	40,708,032
LG CNS India Pvt., Ltd.	10,090,861	8,001,636
PT LG CNS Indonesia	3,685,942	3,549,121
Entrue Brasil Servicos de T.I. Ltda.	1,647,083	1,162,547
UCESS PHILIPPINES, INC.	82,892	83,398
LG CNS COLOMBIA SAS	20,725,843	21,196,269
SBI-LG Systems Co., Ltd.(*3)	-	4,708,765
LG CNS MALAYSIA SDN BHD	4,763,698	6,775,800
LG CNS Saudi Arabia LLC	55,289	52,998
LG CNS JAPAN Co., Ltd.	23,662,745	31,483,256
Collain Healthcare, LLC (*4)	-	1,333,817
LG CNS UZBEKISTAN, LLC	292,202	2,130,675
LG CNS VIETNAM CO., Ltd.	11,344,955	18,064,329
LG CNS FUND I LLC(*5)	-	-
Subtotal	2,604,509,916	2,645,257,750
Consolidation adjustments	(129,189,057)	(285,547,963)
Total	₩ 2,475,320,859	₩ 2,359,709,787

(*1) Merged with LG CNS Co., Ltd. during the year ended December 31, 2018.
(*2) Acquired potential control during the year ended December 31, 2018.
(*3) Liquidated during the year ended December 31, 2018.
(*4) Disposed during the year ended December 31, 2018.
(*5) Established and acquired during the year ended December 31, 2018.

(4) Goods sold and services rendered for each operating segments of the Group for the years ended December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

Operating segment	Inventory sold or services rendered	Year ended December 31, 2018	Year ended December 31, 2017
LG CNS Co., Ltd.	Merchandise	₩ 618,554,336	₩ 388,670,132
	Service	1,015,176,476	944,963,553
	Construction	1,194,843,261	1,055,018,262
LG N-Sys Inc. (*1)	Merchandise	33,698,770	317,233,248
	Service	32,446,539	164,817,563
	Construction	1,051,772	5,026,307
BizTech Partners Co., Ltd	Merchandise	4,329,791	11,282,569
	Service	44,772,886	41,954,240
	Construction	47,463,859	45,077,186
Korea Elecom Co., Ltd.	Merchandise	1,114,759	24,052,123
	Service	152,803	29,300
Haengbokmaru Co., Ltd.	Service	2,635,081	1,500,353
Sejong Green Power Co., Ltd. (*2)	Service	1,406,344	-
LG CNS China Inc.	Merchandise	59,862,806	45,781,869
	Service	48,845,241	50,651,648
	Construction	27,472,888	33,143,361
LG CNS Europe B.V.	Merchandise	3,082,665	7,881,397
	Service	16,028,636	16,726,162
	Construction	8,345,270	5,363,338
LG CNS America, Inc.	Merchandise	10,043,829	11,897,390
	Service	37,544,892	43,432,102
	Construction	37,141,115	12,176,029
LG CNS India Pvt., Ltd.	Merchandise	5,406,362	2,604,184
	Service	6,333,133	7,634,214
	Construction	-	95
PT LG CNS Indonesia	Merchandise	414,007	1,778,864
	Service	4,215,944	3,578,588
	Construction	5,209,325	8,058,357
Entrue Brasil Servicos de T.I. Ltda.	Service	3,987,636	4,101,170
LG CNS COLOMBIA	Service	13,173,676	13,066,653
SBI-LG Systems Co., Ltd.(*3)	Merchandise	-	1,227
	Service	-	20,391,669
LG CNS MALAYSIA SDN BHD	Construction	6,062,377	11,197,976
LG CNS Saudi Arabia LLC		-	-
LG CNS JAPAN Co., Ltd.	Merchandise	457,502	173,182
	Service	6,242,958	2,607,249
	Construction	30,835,685	100,564,555
Collain Healthcare, LLC(*4)	Merchandise	90,218	284,742
	Service	3,840,432	3,921,038
LG CNS UZBEKISTAN, LLC	Construction	1,144,146	5,580,363
LG CNS VIETNAM CO., Ltd.	Merchandise	3,358,406	-
	Service	421,348	-
	Construction	17,441,010	28,180,432
Subtotal		3,354,648,181	3,440,402,690
Consolidation adjustments		(236,992,452)	(437,190,652)
Total		₩ 3,117,655,729	₩ 3,003,212,038

(*1) Merged with LG CNS Co., Ltd. during the year ended December 31, 2018, the amount of sales shows before merger
(*2) Aquired potential control, the amount of sales after acquisition of control.
(*3) Liquidated during the year ended December 31, 2018.
(*4) Disposed during the year ended December 31, 2018.

(5) Details of regional revenue before elimination of internal transactions for the years ended December 31, 2018 and 2017, and non-current assets of the Group as of December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

Region	Revenue		Non-current assets	
	December 31, 2018	December 31, 2017	Year ended December 31, 2018	Year ended December 31, 2017
Korea	₩ 2,997,646,678	₩ 2,999,624,836	₩ 818,459,131	₩ 880,828,501
China	136,180,935	129,576,878	444,924	445,268
Asia	87,542,201	192,350,954	801,185	213,026
North America	88,660,485	71,711,301	1,691,543	6,528,709
Mid-South America	17,161,312	17,167,824	33,488	36,290
Europe	27,456,570	29,970,897	545,103	1,541,219
Total	₩ 3,354,648,181	₩ 3,440,402,690	₩ 821,975,374	₩ 889,593,013

(6) Revenue to customers that comprise more than 10% of the Group's total sales for the years ended December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

Customer	Year ended December 31, 2018	Year ended December 31, 2017
LG Electronics Inc. (*)	₩ 680,258,883	₩ 641,801,663
LG Uplus Corp.(*)	365,899,092	292,190,731
LG Chem Ltd. (*)	375,646,363	260,965,442

(*) Includes transaction to those subsidiaries.

5. CLASSIFICATION OF FINANCIAL INSTRUMENTS AND FAIR VALUE:

Carrying amount and fair value of financial assets and liabilities as of December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

1) FINANCIAL ASSETS

Financial assets	Account	December 31, 2018 Carrying amount	December 31, 2018 Fair value	December 31, 2017 Carrying amount	December 31, 2017 Fair value
Cash and cash equivalents	Cash and cash equivalents	₩ 439,345,857	₩ 439,345,857	₩ 352,557,025	₩ 352,557,025
Financial assets at FVTPL	Derivative assets for trading purposes	1,241,121	1,241,121	1,715,664	1,715,664
	Investments(*1)	7,935,198	7,935,198	-	-
	Public bonds	1,030	1,030	-	-
	Subtotal	9,177,349	9,177,349	1,715,664	1,715,664
Financial assets at FVTPL	Marketable equity securities(*2)	1,936,400	1,936,400	1,944,773	1,944,773
	Unmarketable equity securities (*2)	2,541,698	2,541,698	21,884,795	21,884,795
	Subtotal	4,478,098	4,478,098	23,829,568	23,829,568
Financial assets at amortized cost	Financial institution deposits	39,352,886	39,352,886	77,613,666	77,613,666
	Trade receivables	843,765,935	843,765,935	796,083,614	796,083,614
	Loans	10,943,199	10,943,199	10,154,187	10,154,187
	Other accounts receivable	18,836,079	18,836,079	14,234,699	14,234,699
	Accrued income	2,102,179	2,102,179	902,410	902,410
	Deposits	9,058,428	9,058,428	21,653,750	21,653,750
	Subtotal	924,058,706	924,058,706	920,642,326	920,642,326
	Total	₩ 1,377,060,010	₩ 1,377,060,010	₩ 1,298,744,583	₩ 1,298,744,583

(*1) As explained in Note 2, the equity securities classified as non-marketable at the end of the prior year are classified as financial assets at fair value through profit or loss as those are puttable financial instruments in accordance with K-IFRS 1109

(*2) For equity instruments held for strategic investments other than trading securities, the Group has applied the irrevocable option designated as other comprehensive income - fair value measurement at the date of initial application. Recognizing short-term changes in the fair value of these equity instruments to profit or loss is considered to be inconsistent with the Group's strategy of holding these equity instruments for long-term purposes and realizing potential results over time.

2) FINANCIAL LIABILITIES

Financial liabilities	Account	December 31, 2018 Carrying amount	December 31, 2018 Fair value	December 31, 2017 Carrying amount	December 31, 2017 Fair value
Financial liabilities at FVTPL	Derivative liabilities for trading purposes	₩ 180,750	₩ 180,750	₩ 1,864,318	₩ 1,864,318
Financial liabilities at amortized cost	Trade payables	380,739,060	380,739,060	364,581,804	364,581,804
	Borrowings	50,296,978	50,296,978	18,229,537	18,229,537
	Other accounts payable	41,513,940	41,513,940	96,368,537	96,368,537
	Accrued expenses	115,835,388	115,835,388	96,737,453	96,737,453
	Accrued dividends	749	749	494	494
	Deposits received	941,265	941,265	1,174,295	1,174,295
	Debentures	518,863,575	521,374,578	509,062,323	504,144,095
	Subtotal	1,108,190,955	1,110,701,958	1,086,154,443	1,081,236,215
	Total	₩ 1,108,371,705	₩ 1,110,882,708	₩ 1,088,018,761	₩ 1,083,100,533

6. CASH AND CASH EQUIVALENTS:

Cash and cash equivalents in the consolidated statements of cash flows are equivalent to cash and cash equivalents in the consolidated statements of financial position. Details of cash and cash equivalents as of December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

	December 31, 2018	December 31, 2017
Cash on hand	₩ 9,304	₩ 11,491
Bank deposits	439,336,553	352,545,534
Total	₩ 439,345,857	₩ 352,557,025

7. TRADE AND OTHER RECEIVABLES:

(1) Details of trade and other receivables as of December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

1) December 31, 2018

	Nominal value	Impairment loss	Discount on present value	Net amount	Consolidation adjustment	Consolidated
Trade receivables	₩ 930,720,346	₩ (20,316,244)	₩ (84,472)	₩ 910,319,630	₩ (92,304,209)	₩ 818,015,421
Short-term loans	16,032,529	(4,909,561)	(2,018)	11,120,950	(580,486)	10,540,464
Other account receivable	28,165,890	(789,394)	-	27,276,496	(8,540,416)	18,836,080
Accrued income	2,406,252	(304,073)	-	2,102,179	-	2,102,179
Short-term deposit	3,399,704	(25,929)	(9,442)	3,364,333	(6,720)	3,357,613
Current assets subtotal	980,724,721	(26,328,714)	(112,419)	954,283,588	(101,431,830)	852,851,757
Long-term trade receivables	39,625,789	(13,801,110)	(74,165)	25,750,514	-	25,750,514
Long-term loans	464,517	(27,600)	(34,183)	402,734	-	402,734
Long-term deposit	8,506,584	(2,700,879)	-	5,805,705	(104,889)	5,700,816
Non-current assets subtotal	48,596,890	(16,529,589)	(108,348)	31,958,953	(104,889)	31,854,064
Total	₩ 1,029,321,611	₩ (42,858,303)	₩ (220,767)	₩ 986,242,541	₩ (101,536,719)	₩ 884,705,822

2) December 31, 2017

	Nominal value	Impairment loss	Discount on present value	Net amount	Consolidation adjustment	Consolidated
Trade receivables	₩ 968,618,930	₩ (17,861,832)	₩ (174,286)	₩ 950,582,812	₩ (180,233,584)	₩ 770,349,228
Short-term loans	21,636,217	(6,918,415)	(690)	14,717,112	(5,006,621)	9,710,491
Other accounts receivable	23,198,156	(7,472,798)	-	15,725,358	(1,490,659)	14,234,699
Accrued income	1,209,605	(307,195)	-	902,410	-	902,410
short-term deposit	17,725,071	(101,178)	(11,230)	17,612,663	(6,720)	17,605,943
Current assets Sub-total	1,032,387,979	(32,661,418)	(186,206)	999,540,355	(186,737,584)	812,802,771
Long-term trade receivable	33,812,281	(7,875,705)	(202,188)	25,734,388	-	25,734,388
Long-term borrowings	520,933	(32,600)	(44,638)	443,695	-	443,695
Long-term deposit	7,644,958	(2,891,405)	-	4,753,553	(705,744)	4,047,809
Non-current asstes Sub-total	41,978,172	(10,799,710)	(246,826)	30,931,636	(705,744)	30,225,892
Total	₩ 1,074,366,151	₩ (43,461,128)	₩ (433,032)	₩ 1,030,471,991	₩ (187,443,328)	₩ 843,028,663

(2) Changes in accumulated impairment losses for the years ended December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

	Year ended December 31, 2018(*1)		Year ended December 31, 2017(*2)	
	Trade receivables	Other receivables	Trade receivables	Other receivables
Beginning balance	₩ 25,582,621	₩ 12,373,036	₩ 20,819,926	₩ 12,456,192
Impairment loss	9,621,696	(140,666)	9,732,881	299,846
Reversal of allowance for doubtful accounts	(641,149)	(510,881)	(287,991)	(459,293)
Write-off	(1,039,674)	(8,207,286)	(4,975,552)	-
Variation due to business combination	-	-	(83,504)	(1,890)
Effect of foreign currency translation	(630,037)	-	(200,402)	-
Others	531,664	518,304	577,263	78,181
Ending balance	₩ 33,425,121	₩ 4,032,507	₩ 25,582,621	₩ 12,373,036

(*1) The loss allowance for current and other receivables was measured by lifetime expected credit losses in accordance with the practical expedient of K-IFRS 1109.
(*2) In the current period, K-IFRS 1109 has been applied prospectively, and reversal of allowance for doubtful accounts were in accordance with IAS 39.

The Group measures the loss allowance at an amount equal to lifetime expected credit losses for trade receivables. Expected credit losses on trade receivables are estimated using a provision rate table based on the borrower's past experience of default and are adjusted by assessing the borrower's specific factors and general economic conditions in the industry to which the borrower belongs and current and future prospects at the end of the reporting period. There are no changes in estimation techniques or important assumptions during the current period.

8. INVENTORIES:

(1) Inventories as of December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

	December 31, 2018		
	Acquisition cost	Valuation allowance	Carrying amount
Merchandise	₩ 52,990,301	₩ (1,664,125)	₩ 51,326,176
Work in progress	133,204	-	133,204
Raw materials	1,780,404	(1,299,147)	481,257
Other inventories	407,846	(407,846)	-
Total	₩ 55,311,755	₩ (3,371,118)	₩ 51,940,637

	December 31, 2017		
	Acquisition cost	Valuation allowance	Carrying amount
Merchandise	₩ 50,002,622	₩ (2,608,260)	₩ 47,394,362
Work in progress	59,342	-	59,342
Raw materials	1,791,436	(970,763)	820,673
Other inventories	648,364	(524,729)	123,635
Total	₩ 52,501,764	₩ (4,103,752)	₩ 48,398,012

(2) Inventory costs recognized in operating expenses are ₩626,192,920 thousand (2017: ₩587,508,718 thousand), which include loss and loss reversal arising from valuation of inventories amounting to ₩5,997 thousand (2017: ₩148,116 thousand) and ₩39,853 thousand (2017: ₩413,881 thousand), respectively.

9. OTHER ASSETS:

Details of other assets as of December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

	December 31, 2018		December 31, 2017	
	Current	Non-current	Current	Non-current
Advance payments	₩ 21,200,329	₩ 29,687	₩ 17,969,014	₩ 9,531
Prepaid expenses	14,845,878	3,209,584	14,684,175	2,908,206
Prepaid value-added tax	3,026,196	-	5,860,242	-
Contract asset	155,072,957	-	-	-
Due from customers for contract work	-	-	130,124,740	-
Other current assets	43,151	-	-	-
Total	₩ 194,188,511	₩ 3,239,271	₩ 168,638,171	₩ 2,917,737

10. PROPERTY, PLANT AND EQUIPMENT:

(1) Composition of the Group's property, plant and equipment as of December 31, 2018 and 2017, is as follows (Unit: Korean won in thousands):

1) December 31, 2018

	Land	Buildings	Structures	Machinery	Vehicles	Tools and equipment	Furniture and fixtures	Construction in progress	Others	Total
Acquisition cost	₩ 94,186,511	₩501,988,168	₩ 3,098,787	₩ 31,624,954	₩ 122,084	₩ 1,141,677	₩ 87,498,800	₩ 848,988	₩391,956,367	₩1,112,466,336
Accumulated depreciation	-	(85,624,071)	(262,382)	(4,126,584)	(87,905)	(961,847)	(47,632,879)	-	(295,454,517)	(434,150,185)
Accumulated impairment loss	-	-	-	(12,085,000)	-	-	-	-	(234,631)	(12,319,631)
Government subsidies	-	(950,774)	-	-	-	-	(129,732)	-	(84,312)	(1,164,818)
Total	₩94,186,511	₩415,413,323	₩ 2,836,405	₩ 15,413,370	₩ 34,179	₩ 179,830	₩39,736,189	₩ 848,988	₩96,182,907	₩ 664,831,702

2) December 31, 2017

	Land	Buildings	Structures	Machinery	Vehicles	Tools and equipment	Furniture and fixtures	Construction in progress	Others	Total
Acquisition cost	₩ 96,940,603	₩324,745,323	₩ 758,865	₩ 104,104	₩ 138,742	₩ 1,026,335	₩101,215,542	₩173,331,829	₩388,227,595	₩1,086,488,938
Accumulated depreciation	-	(70,814,027)	(188,908)	(74,760)	(85,998)	(845,270)	(57,503,067)	-	(287,092,022)	(416,604,052)
Accumulated impairment loss	-	-	-	-	-	-	-	-	(482,236)	(482,236)
Government subsidies	-	(945,193)	-	-	-	-	(126,403)	-	(160,200)	(1,231,796)
Total	₩96,940,603	₩252,986,103	₩ 569,957	₩ 29,344	₩ 52,744	₩ 181,065	₩43,586,072	₩ 173,331,829	₩100,493,137	₩ 668,170,854

(2) Changes in property, plant and equipment for the years ended December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

1) Year ended December 31, 2018

	Land	Buildings	Structures	Machinery	Vehicles	Tools and equipment	Furniture and fixtures	Construction in progress	Others	Total
Beginning balance	₩96,940,603	₩252,986,103	₩ 569,957	₩ 29,344	₩ 52,744	₩ 181,065	₩ 43,586,072	₩173,331,829	₩ 100,493,137	₩668,170,854
Acquisition	-	32,114,271	-	-	-	118,342	5,708,274	2,271,968	37,746,415	77,959,270
Disposals	-	-	-	-	(3,831)	-	(18,421)	(22,504,568)	(1,613,678)	(24,140,498)
Depreciation	-	(15,244,788)	(84,305)	(295,590)	(14,834)	(119,577)	(7,652,251)	-	(41,766,472)	(65,177,817)
Transfers	(2,754,092)	140,862,236	2,350,753	-	-	-	-	(152,250,241)	-	(11,791,344)
Government subsidies	-	(40,500)	-	-	-	-	(57,000)	-	-	(97,500)
Changes in the scope of consolidation	-	4,547,665	-	27,764,616	-	-	(141)	-	(5,484)	32,306,656
Impairment loss	-	-	-	(12,085,000)	-	-	-	-	(75,208)	(12,160,208)
Others	-	187,047	-	-	-	-	(1,828,385)	-	1,282,224	(359,114)
Effect of FX changes	-	1,289	-	-	100	-	(1,959)	-	121,973	121,403
Ending balance	₩94,186,511	₩415,413,323	₩2,836,405	₩15,413,370	₩ 34,179	₩ 179,830	₩ 39,736,189	₩ 848,988	₩ 96,182,907	₩664,831,702

2) Year ended December 31, 2017

	Land	Buildings	Structures	Machinery	Vehicles	Tools and equipment	Furniture and fixtures	Construction in progress	Others	Total
Beginning balance	₩102,526,743	₩251,238,563	₩ 685,821	₩ 621,542	₩49,725	₩ 7,020,024	₩ 36,064,573	₩ 97,546,233	₩ 119,709,523	₩615,462,747
Acquisition	-	1,158,528	-	-	22,586	2,221,948	3,844,022	112,612,675	26,394,086	146,253,845
Disposals	(1,485,063)	(1,793,518)	(11,372)	(568,590)	(1)	(1,340,056)	(154,312)	-	(403,844)	(5,756,756)
Depreciation (*1)	-	(10,051,435)	(18,655)	(23,608)	(18,870)	(2,441,050)	(8,923,317)	-	(46,711,219)	(68,188,154)
Transfers	(512,726)	19,779,055	(27,923)	-	-	-	13,008,892	(36,791,764)	2,303,211	(2,241,255)
Government subsidies	-	-	-	-	-	-	(85,999)	-	(14,052)	(100,051)
Impairment loss (*1)	(3,588,351)	(7,343,113)	(57,914)	-	-	(5,279,801)	(152,883)	-	(785,941)	(17,208,003)
Others	-	-	-	-	-	-	42,650	(35,315)	507,590	514,925
Effect of FX changes	-	(1,977)	-	-	(696)	-	(57,554)	-	(506,217)	(566,444)
Ending balance	₩96,940,603	₩252,986,103	₩ 569,957	₩ 29,344	₩ 52,744	₩ 181,065	₩ 43,586,072	₩173,331,829	₩ 100,493,137	₩668,170,854

(*1) Depreciation and impairment amounting to of ₩2,833,785 thousand and ₩16,723,287 thousand, respectively were reclassified and included in profit or loss from discontinued operations.

(3) Government subsidies

Changes in government subsidies for the years ended December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

1) Year ended December 31, 2018

	Buildings	Furniture and fixtures	Others	Total
Beginning balance	₩ 945,193	₩ 126,403	₩ 160,200	₩1,231,796
Receipt	40,500	57,000	-	97,500
Offsetting depreciation	(34,919)	(53,671)	(75,888)	(164,478)
Gain on disposal	₩ 950,774	₩ 129,732	₩ 84,312	₩1,164,818

2) Year ended December 31, 2017

	Buildings	Furniture and fixtures	Others	Total
Beginning balance	₩ 978,575	₩ 67,404	₩ 317,346	₩1,363,325
Receipt	-	85,999	14,052	100,051
Offsetting depreciation	(33,382)	(27,000)	(171,198)	(231,580)
Disposal	-	-	-	-
Gain (loss) on disposal(*1)	₩ 945,193	₩ 126,403	₩ 160,200	₩1,231,796

(4) Composition of disposal for the years ended December 31, 2018 and 2017, is as follows (Unit: Korean won in thousands):

1) Year ended December 31, 2018

	Vehicles	Furniture and fixtures	Construction in progress	Others	Total
Book value before disposal	₩ 3,831	₩ 18,421	₩ 22,504,568	₩ 1,613,678	₩ 24,140,498
Disposal amount	5,280	27,291	22,504,568	1,844,090	24,381,229
Gain (loss) on disposal	₩ 1,449	₩ 8,870	₩ -	₩ 230,412	₩ 240,731

2) Year ended December 31, 2017

	Land	Buildings	Structures	Machinery	Tools and equipment	Furniture and fixtures	Construction in progress	Others	Total
Book value before disposal	₩ 1,485,063	₩ 1,793,518	₩ 11,372	₩ 568,590	₩ 1	₩ 1,340,056	₩ 154,312	₩ 403,844	₩ 5,756,756
Disposal amount	1,863,394	1,806,351	11,422	31,846	273	1,269,270	62,679	582,106	5,627,341
Gain (loss) on disposal(*)	₩ 378,331	₩ 12,833	₩ 50	₩(536,744)	₩ 272	₩ (70,786)	₩ (91,633)	₩ 178,262	₩ (129,415)

(*) 60,082 thousand was included included in profit or loss from discontinued operations.

11. INVESTMENT PROPERTY:

(1) Composition of investment property as of December 31, 2018 and 2017, is as follows (Unit: Korean won in thousands):

1) Year ended December 31, 2018

	Land	Buildings	Structures	Total
Acquisition cost	₩ 4,246,795	₩ 16,284,688	₩ 137,970	₩ 20,669,453
Accumulated depreciation	-	(3,908,406)	(26,369)	(3,934,775)
Carrying amounts	₩ 4,246,795	₩ 12,376,282	₩ 111,601	₩ 16,734,678

2) Year ended December 31, 2017

	Land	Buildings	Structures	Total
Acquisition cost	₩ 1,173,835	₩ 6,563,502	₩ 34,358	₩ 7,771,695
Accumulated depreciation	-	(2,443,039)	(12,851)	(2,455,890)
Carrying amounts	₩ 1,173,835	₩ 4,120,463	₩ 21,507	₩ 5,315,805

(2) Changes in investment property for the year ended December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

1) Year ended December 31, 2018

	Land	Buildings	Structures	Total
Acquisition cost	₩ 1,173,835	₩ 4,120,463	₩ 21,507	₩ 5,315,805
Accumulated depreciation	-	(369,783)	(2,688)	(372,471)
Transfers	3,072,960	8,625,602	92,782	11,791,344
Carrying amounts	₩ 4,246,795	₩ 12,376,282	₩ 111,601	₩ 16,734,678

2) Year ended December 31, 2017

	Land	Buildings	Structures	Total
Acquisition cost	₩ 661,109	₩ 2,805,428	₩ 6,192	₩ 3,472,729
Accumulated depreciation	512,726	1,700,606	27,923	2,241,255
Transfers	-	(385,571)	(12,608)	(398,179)
Carrying amounts	₩ 1,173,835	₩ 4,120,463	₩ 21,507	₩ 5,315,805

(3) Details of the fair value of investment property as of December 31, 2018, are as follows (Unit: Korean won in thousands):

		December 31, 2018		
Description	Date of revaluation	Land	Buildings and structures	Total
Book value of investment property:				
Incheon IT center (*1)		₩ 3,352,192	₩13,678,797	₩ 17,030,989
Sangam DDMC (*2)		₩13,461,406	₩37,452,199	₩ 50,913,605
Results of valuation:				
Incheon IT center (*3 and 4)	2009-01-01	₩15,391,110	₩ 9,169,094	₩ 24,560,204
Sangam DDMC (*3 and 4)	2014-10-01	₩	260,635,000	₩260,635,000

(*1) Includes the value of investment property occupied by the owner (land: ₩2,691,083 thousand and buildings and structures: ₩10,981,107 thousand).

(*2) Includes the value of investment property occupied by the owner (land: ₩9,875,719 thousand and buildings and structures: ₩27,476,133 thousand).

(*3) It is the whole valuation amount of Incheon IT Center and Sangam DDMC. Sangam DDMC is an appraisal value of the entire real estate, including land, buildings and structures. The amount of appraisal value allocated to the holding area ratio of the consolidated entity is ₩78,190,500 thousand.

(*4) Fair value assessment was performed by independent third parties, Nara Appraisal Co., Ltd., Samchang Appraisal Co., Ltd. and Daeil Appraisal Board, which used an average costing approach and cost approach method of standard appraised value of land and buildings. The changes in fair value between the date of the assessment and the end of the reporting period are not determined to be significant, and therefore, fair value reassessment was not performed as of December 31, 2018.

12. INTANGIBLE ASSETS:

(1) Composition of the Group's intangible assets as of December 31, 2018 and 2017, is as follows (Unit: Korean won in thousands):

1) December 31, 2018

	Development costs	Industrial property rights	Membership	Goodwill	Construction in progress	Computer software and others	Total
Acquisition cost	₩ 41,193,613	₩ 1,777,943	₩ 31,127,682	₩ 15,241,785	₩ 46,001	₩ 77,986,919	₩ 167,373,943
Accumulated depreciation	(27,564,096)	(525,009)	-	-	-	(61,316,767)	(89,405,872)
Accumulated impairment loss	(6,850,481)	(1,307)	(3,969,319)	(13,576,472)	(46,001)	(196,363)	(24,639,943)
Government subsidies	-	-	-	-	-	(53,016)	(53,016)
Total	₩ 6,779,036	₩ 1,251,627	₩ 27,158,363	₩ 1,665,313	₩ -	₩ 16,420,773	₩ 53,275,112

2) December 31, 2017

	Development costs	Industrial property rights	Membership	Goodwill	Construction in progress	Computer software and others	Total
Acquisition cost	₩ 36,456,584	₩ 1,478,379	₩ 31,103,688	₩ 14,462,342	₩ 7,318,033	₩ 80,021,739	₩ 170,840,765
Accumulated amortization	(27,847,060)	(458,188)	-	-	-	(67,522,101)	(95,827,349)
Accumulated impairment loss	(6,850,481)	(1,307)	(3,869,319)	(12,797,029)	(46,001)	(196,363)	(23,760,500)
Government subsidies	-	-	-	-	-	(124,471)	(124,471)
Total	₩ 1,759,043	₩ 1,018,884	₩ 27,234,369	₩ 1,665,313	₩ 7,272,032	₩ 12,178,804	₩ 51,128,445

(2) Changes in intangible assets for the years ended December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands)

1) Year ended December 31, 2018

	Development costs	Industrial property rights	Membership	Goodwill	Construction in progress	Computer software and others	Total
Beginning balance	₩1,759,043	₩1,018,884	₩27,234,369	₩1,665,313	₩ 7,272,032	₩12,178,804	₩51,128,445
Acquisition	(563)	-	24,528	-	-	10,085,319	10,109,284
Increase due to internal development	-	-	-	-	698,137	-	698,137
Disposals	(28,753)	(20)	-	-	-	(690,846)	(719,619)
Changes in scope of consolidation	-	-	-	779,443	-	-	779,443
Amortization	(2,921,646)	(201,904)	-	-	-	(5,162,750)	(8,286,300)
Transfers	7,970,169	-	-	-	(7,970,169)	-	-
Impairment loss	-	-	(100,000)	(779,443)	-	-	(879,443)
Other	-	434,667	-	-	-	-	434,667
Effect of FX change	786	-	(534)	-	-	10,246	10,498
Ending balance	₩6,779,036	₩1,251,627	₩27,158,363	₩1,665,313	₩ -	₩16,420,773	₩53,275,112

2) Year ended December 31, 2017

	Development costs	Industrial property rights	Membership	Goodwill	Construction in progress	Computer software and others	Total
Beginning balance	₩7,499,928	₩2,393,643	₩28,675,899	₩2,184,569	₩ 340,095	₩14,686,529	₩55,780,663
Acquisition	-	1,741	394,492	-	6,931,937	3,418,464	10,746,634
Disposals	(181,479)	(297,525)	(1,830,256)	(519,256)	-	(36,734)	(2,865,250)
Amortization (*1)	(5,352,227)	(378,044)	-	-	-	(5,780,617)	(11,510,888)
Government subsidies	-	-	-	-	-	(18,600)	(18,600)
Impairment loss (*1)	(197,977)	(1,509,593)	-	-	-	(77,567)	(1,785,137)
Other	-	808,662	-	-	-	35,187	843,849
Effect of FX change	(9,202)	-	(5,766)	-	-	(47,858)	(62,826)
Ending balance	₩1,759,043	₩1,018,884	₩27,234,369	₩1,665,313	₩ 7,272,032	₩12,178,804	₩51,128,445

(*1) Amortization and impairment loss of ₩8,973 thousand and impairment loss of ₩1,583,753 , respectively, were included in profit or loss from discontinued operations.

(3) Details of accumulated impairment loss of goodwill as of December 31, 2018 and 2017, are as follows:

1) Carrying value of goodwill that is allocated to cash-generating unit before recognizing the impairment loss is as follows (Unit: Korean won in millions):

	Year ended December 31, 2018	Year ended December 31, 2017
Biztech Partners Co., Ltd	₩ 1,665,313	₩ 1,665,313

2) Recoverable amount of cash-generating unit is determined based on the calculation of usage value, and which is calculated using the estimation of cash flow after after tax from business plan of five years, as approved by the management. Cash flow that exceeds five years is estimated in the range that does not exceed the long-term average growth rate of the industry that the cash-generating unit is involved in.

(4) Government subsidies

Changes in government subsidies for the years ended December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

1) Year ended December 31, 2018

	Computer software and others	Total
Beginning balance	₩ 124,471	₩ 124,471
Receipt	-	-
Offsetting amortization	(54,714)	(54,714)
Others	(16,741)	(16,741)
Ending balance	₩ 53,016	₩ 53,016

2) Year ended December 31, 2017

	Computer software and others	Total
Beginning balance	₩ 274,703	₩ 274,703
Receipt	18,600	18,600
Offsetting amortization	(168,832)	(168,832)
Ending balance	₩ 124,471	₩ 124,471

(5) Composition of disposal for the years ended December 31, 2018 and 2017, is as follows (Unit: Korean won in thousands):

1) Year ended December 31, 2018

	Software	Industrial property rights	Development costs	Total
Book value before disposal	₩ 690,846	₩ 20	₩ 28,753	₩ 719,619
Disposal amount	501	-	221,960	222,461
Loss on disposal (*)	₩ (690,345)	₩ (20)	₩ 193,207	₩ (497,158)

2) Year ended December 31, 2017

	Membership	Software	Industrial property rights	Development costs	Goodwill	Total
Book value before disposal	₩ 1,830,256	₩ 36,734	₩ 297,525	₩ 181,479	₩ 519,256	₩ 2,865,250
Disposal amount	1,775,000	14,959	305,174	-	-	2,095,133
Loss on disposal (*)	₩ (55,256)	₩ (21,775)	₩ 7,649	₩ (181,479)	₩ (519,256)	₩ (770,117)

(*) Loss on disposal of ₩1,352 thousand classified as profit or loss of discontinued operations is included.

(6) All the costs related to research and development for the years ended December 31, 2018 and 2017 (₩33,731,258 thousand and ₩24,147,829 thousand, respectively), are recorded as selling and administrative expenses. And the costs related to research and development for the year ended December 31, 2017 (₩7,385,091 thousand), is included in profit or loss of discontinued operations.

13. INVESTMENTS IN ASSOCIATES:

(1) Compositions of the Group's investments in associates as of December 31, 2018 and 2017, are as follows:

				Number of shares held and investments in capital		Number of shares issued		2018	2017
Companies	Location of incorporation	Major operation	Closing date	Common stock	Preferred stock	Common stock	Preferred stock	Percentage of ownership	Percentage of ownership
Korea Smart Card Co., Ltd.	South Korea	System software development and supply	Dec. 31	3,927,167	-	11,934,085	-	32.91%	32.91%
Songdo U-Life LLC (*1)	South Korea	Health care, integrated wireless environment, integrated smart cards and building management	Dec. 31	5,880	-	35,880	-	16.39%	16.39%
RECAUDO BOGOTA S.A.S.	Colombia	Public system development and service	Dec. 31	2,126	-	10,630	-	20.00%	20.00%
Sejong Green Power Co., Ltd. (*2)	South Korea	New renewable energy development	Dec. 31	-	-	-	-	-	19.91%
Hellas SmarTicket Societe Anonyme	Greece	Public system development and service	Dec. 31	22,500	-	75,000	-	30.00%	30.00%
Ulleungdo Natural Energy Co., Ltd.	South Korea	New and renewable energy	Dec. 31	1,600,000	-	5,360,000	-	29.85%	29.85%
Daegu clean energy Co., Ltd.	South Korea	New renewable energy development	Dec. 31	25,000	-	100,000	-	25.00%	25.00%
KEPCO-LG CNS Mangilao Holdings LLC (*3)	USA	New and renewable energy	Dec. 31	-	-	-	-	-	-

(*1) The Group has significant influence as contractual right by which the Group is able to appoint one member of the board of directors, even though the percentage of shares owned is less than 20%.

(*2) It has been classified to subsidiary from associate due to notification of the exercise of the right to demand the sale of shares (Note 2).

(*3) Established during the prior period. As of December 31, the Group didn't actually commit the payment of investment capital, but lent loans according to rate of equity by stakeholder contract. The Group has significant influence since contractual right exists to appoint two out of six member of the board of directors.

(2) Changes in investments in associates for the years ended December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

1) Year ended December 31, 2018

Companies	Beginning balance	Acquisition	Dividend	Gain (loss) on valuation of equity method investments	Other changes in equity using equity method	Ending balance
Korea Smart Card Co., Ltd.	₩ 45,634,814	₩ -	₩ -	₩ 2,889,904	₩ (738,155)	₩ 47,786,563
Songdo U-Life LLC	7,913,633	-	-	(464,691)	(6,737,609)	711,333
RECAUDO BOGOTA S.A.S.(*1)	2,575,022	-	-	(1,378,317)	(1,196,705)	-
Sejong Green Power Co., Ltd.(*2)	-	-	-	-	-	-
Hellas SmarTicket Societe Anonyme	2,919,873	-	-	830,619	(12,596)	3,737,896
Ulleungdo Natural Energy Co., Ltd.	6,370,641	-	-	(1,747,882)	(64,459)	4,558,300
Daegu Clean Energy Co., Ltd.	10,029	-	-	5,264	(15,293)	-
KEPCO-LG CNS Mangilao Holdings LLC (*3)	-	-	-	-	-	-
Total	₩ 65,424,012	₩ -	₩ -	₩ 134,897	₩ (8,764,817)	₩ 56,794,092

(*1) Equity method loss which was not recognized is ₩230,429 thousand for RECAUDOBOGOTAS.A.S..
(*2) It has been classified to subsidiary from associate due to notification of the exercise of the right to demand the sale of shares (Note 2).
(*3) As of December 31, 2018, the Group recorded an equity method loss of ₩658,208 thousand and other comprehensive income of ₩77,723 thousand, which exceeded the carrying amount of investments in associates, amounting to ₩7,788,547 thousand.

2) Year ended December 31, 2017

Companies	Beginning balance	Acquisition	Dividend	Gain (loss) on valuation of equity method investments	Other changes in equity using equity method	Ending balance
Korea Smart Card Co., Ltd.	₩ 42,110,307	₩ -	₩ -	₩ 4,054,997	₩ (530,490)	₩ 45,634,814
Songdo U-Life LLC	7,914,905	-	-	(1,272)	-	7,913,633
RECAUDO BOGOTA S.A.S.	3,999,627	-	-	1,226,662	(2,651,267)	2,575,022
Sejong Green Power Co., Ltd.	1,164,818	-	-	(921,556)	(243,262)	-
Hellas SmarTicket Societe Anonyme	2,748,776	-	-	145,578	25,519	2,919,873
Ulleungdo Natural Energy Co., Ltd.	6,895,165	-	-	(524,803)	279	6,370,641
Daegu Clean Energy Co., Ltd.	125,000	-	-	(114,971)	-	10,029
KEPCO-LG CNS Mangilao Holdings LLC (*)	-	-	-	-	-	-
Total	₩ 64,958,598	₩ -	₩ -	₩ 3,864,635	₩ (3,399,221)	₩ 65,424,012

(*) Equity method losses of ₩82,535 thousand and other comprehensive income of ₩4,355 thousand, which exceed the carrying amount of investment in associates, were recognized as provision for short-term loans and receivables, net of the loan amounting to ₩7,277,099 thousand.

(3) A summary of financial information of the associates as of December 31, 2018, is as follows (Unit: Korean won in thousands):

	December 31, 2018								
Companies	Current assets	Non-current assets	Total assets	Current liabilities	Non-current liabilities	Total liabilities	Owners of the Parent Company	Non-controlling interests	Total equity
Korea Smart Card Co., Ltd.	₩291,050,368	₩189,537,460	₩480,587,828	₩326,669,793	₩ 35,400,906	₩362,070,699	₩118,517,129	₩ -	₩118,517,129
Songdo U-Life LLC	6,177,297	17,977,513	24,154,810	15,652	-	15,652	24,139,158	-	24,139,158
RECAUDO BOGOTA S.A.S.	41,241,007	153,356,266	194,597,273	11,831,757	179,289,319	191,121,076	3,476,197	-	3,476,197
Hellas SmarTicket Societe Anonyme	21,502,407	33,027,309	54,529,716	15,391,021	26,679,042	42,070,063	12,459,653	-	12,459,653
Ulleungdo Natural Energy Co., Ltd.	17,096,775	37,041	17,133,816	7,016	1,618,391	1,625,407	15,508,409	-	15,508,409
Daegu Clean Energy Co., Ltd.	32,070	357,162	389,232	328,058	-	328,058	61,174	-	61,174
KEPCO-LG CNS Mangilao Holdings LLC	394,177	25,013,390	25,407,567	27,342,516	-	27,342,516	(1,934,949)	-	(1,934,949)

(4) A summary of profit and loss of associates for the year ended December 31, 2018, is as follows (Unit: Korean won in thousands):

	Year ended December 31, 2018				
Companies	Revenue	Profit (loss) from continuing operations	Income tax expense	Other comprehensive income (loss)	Total comprehensive income (loss) for the year
Korea Smart Card Co., Ltd.	₩ 261,324,499	₩ 7,507,611	₩ 4,615,965	₩ 188,382	₩ 12,228,324
Songdo U-Life LLC	-	(465,695)	-	-	5,850
RECAUDO BOGOTA S.A.S.	51,166,266	(1,251,932)	(1,899,349)	(5,983,525)	(8,775,906)
Hellas SmarTicket Societe Anonyme	8,371,510	483,224	1,119,205	(41,988)	2,695,031
Ulleungdo Natural Energy Co., Ltd.	-	(1,019,041)	-	-	(5,855,415)
Daegu Clean Energy Co., Ltd.	-	(185,481)	-	-	(190,094)
KEPCO-LG CNS Mangilao Holdings LLC	-	(89)	-	(37,970)	(1,674,347)

(5) Adjustments to book value of investments in associates from net asset value of associates as of December 31, 2018, are as follows (Unit: Korean won in thousands):

	Korea Smart Card Co., Ltd.	Songdo U-Life LLC	RECAUDO BOGOTA S.A.S.	Hellas SmarTicket Societe Anonyme	Ulleungdo Natural Energy Co., Ltd.	Daegu Clean Energy Co., Ltd.
Net assets of associates (A)	₩118,517,129	₩ 24,139,158	₩ 3,476,197	₩ 12,459,653	₩ 15,508,409	₩ 61,174
Ownership rate of the Group (B)	32.91%	16.39%	20.00%	30.00%	29.85%	25.00%
Controlling interest of net assets (A x B)	39,000,550	3,955,901	695,239	3,737,896	4,629,369	15,294
(+) Goodwill	8,776,706	3,493,041	-	-	-	-
(-) Elimination of intercompany transactions	9,307	(6,737,609)	(695,239)	-	(71,069)	(15,294)
Ending balance	₩ 47,786,563	₩ 711,333	₩ -	₩ 3,737,896	₩ 4,558,300	₩ -

14. DEBENTURES AND BORROWINGS:

(1) Details of the Group's short-term borrowings as of December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

	Creditor	Annual interest rate (%)	December 31, 2018	December 31, 2017
Foreign currency short-term borrowings	Korea Exchange Bank and others	3.40~8.00	₩ 22,031,548	₩ 18,229,537
Ending balance			₩ 22,031,548	₩ 18,229,537

(2) Details of the Group's long-term borrowings as of December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

	Annual interest rate (%)	Maturity date	December 31, 2018		December 31, 2017	
			Current	Non-current	Current	Non-current
Korean currency long-term borrowings:						
KT capital	6.40	2033-12-31	₩ -	₩ 28,265,430	₩ -	₩ -
Total			₩ -	₩ 28,265,430	₩ -	₩ -

(3) Details of the Group's debentures from long-term borrowings as of December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

Company	Description	Issue date	Maturity date	Annual interest rate (%)	December 31, 2018	December 31, 2017
LG CNS Co., Ltd.	The seventh public offering of debentures	2013-05-07	2018-05-07	2.96	-	100,000,000
	In ninth, first public offering of debentures	2015-04-16	2018-04-16	1.88	-	50,000,000
	In ninth, second public offering of debentures	2015-04-16	2020-04-16	2.07	100,000,000	100,000,000
	In ninth, third public offering of debentures	2015-04-16	2022-04-16	2.44	50,000,000	50,000,000
	In tenth, first public offering of debentures	2018-04-11	2020-04-11	2.10	110,000,000	110,000,000
	In tenth, second public offering of debentures	2018-04-11	2020-04-11	2.45	40,000,000	40,000,000
	In eleventh, first public offering of debentures	2018-04-11	2021-04-11	2.55	90,000,000	-
	In eleventh, second public offering of debentures	2018-04-11	2023-04-11	2.83	110,000,000	-
	In second, second public offering of debentures(*)	2015-05-29	2020-05-29	2.89	20,000,000	-
LG N Sys Co., Ltd.(*)	In second, first public offering of debentures	2015-05-29	2018-05-29	2.32	-	40,000,000
	In second, second public offering of debentures	2015-05-29	2020-05-29	2.89	-	20,000,000
	Subtotal				520,000,000	510,000,000
	Discount on debentures				(1,136,425)	(937,677)
	Current portion of debentures				-	(189,928,993)
	Total				₩ 518,863,575	₩ 319,133,330

(*) Merged LG CNS Co., Ltd.during the year ended December 31, 2018. The 2-2 public offering of debentures issued by LG N Sys Co., Ltd. were succeeded by LG CNS Co., Ltd.

15. PROVISIONS:

(1) Changes in provisions for the years ended December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

1) Year ended December 31, 2018

	Beginning balance	Transfer(*2)	Increase	Usage	Reversal	Others(*3)	Ending balance
Provision for construction (product) warranties	₩18,152,966	₩ -	₩10,595,422	₩ (11,186,596)	₩ (1,720,364)	₩ 48,825	₩15,890,253
Restoration liabilities (*1)	5,451,391	-	226,940	(3,168,716)	(34,210)	1,067	2,476,472
Others	36,890,101	2,077,942	18,066,479	(7,336,797)	(3,882,403)	(11,726,558)	34,088,764
Total	₩60,494,458	₩2,077,942	₩28,888,841	₩ (21,692,109)	₩ (5,636,977)	₩(11,676,666)	₩52,455,489

(*1) Increases in valuation of present value for the year ended December 31, 2018, amounting to ₩226,940 thousand are included in increase of provisions
(*2) The change in the presentation of the provision for loss on contracts is reflected in the financial statements of K-IFRS1115.(Note 2)
(*3) Amounting to ₩3,809 thousand of related notes receivable, which are offset against future cash receipts are included.

2) Year ended December 31, 2017

	Beginning balance	Increase	Usage	Reversal	Others	Ending balance
Provision for construction (product) warranties	₩11,983,375	₩18,350,787	₩ (9,151,275)	₩ (715,158)	₩(2,314,763)	₩18,152,966
Restoration liabilities (*)	5,494,209	1,120,988	(590,899)	(561,140)	(11,767)	5,451,391
Others	36,755,545	13,542,694	(11,839,513)	(1,497,179)	(71,446)	36,890,101
Total	₩54,233,129	₩33,014,469	₩ (21,581,687)	₩ (2,773,477)	₩(2,397,976)	₩60,494,458

(*) Increases in valuation of present value for the year ended December 31, 2017, amounting to ₩1,120,988 thousand are included in increase of provisions.

(2) Nature of provision and expected timing for outflow of economic benefits as of December 31, 2018, are as follows (Unit: Korean won in thousands):

	Within 12 months	After 12 months	Total
Provision for construction (product) warranties (*1)	₩ 15,890,253	₩ -	₩ 15,890,253
Restoration liabilities (*2)	30,878	2,445,594	2,476,472
Others (*3)	34,088,764	-	34,088,764
Total	₩ 50,009,895	₩ 2,445,594	₩ 52,455,489

(*1) Provisions estimation for construction warranties, which would be expected in postservice revenue.
(*2) Provisions estimation measured at present value of future restoration costs on leased assets.
(*3) Provisions estimation in relation to hardware and system integration constructions.

16. RETIREMENT BENEFIT PLAN:

(1) Defined contribution plan

The Group operates a defined contribution plan for its employees. The obligation of the Group is to make payments to third-party funds, and the benefits for employees are determined by the payments made to the funds and the investment earnings from the funds. Plan assets are managed by the third party, and are segregated from the Group's assets. The contribution to the defined contribution plan for the years ended December 31, 2018 and 2017, is ₩33,294,902 thousand and ₩29,642,934 thousand, respectively. Other accounts payable in relation to defined contribution plans as of December 31, 2018 and 2017, is ₩5,145,695 thousand and ₩3,269,766 thousand, respectively.

(2) Defined benefit plan

The Group operates a defined benefit plan for its employees; according to the plan, the employees will be paid their average salary amount of the final three months multiplied by the number of years vested, adjusted for payment rate and other. The valuation of related plan assets and the defined benefit liability is performed by an independent reputable actuary using the projected unit credit method on its present value, relevant current service cost and past service costs.

1) As of December 31, 2018 and 2017, amounts recognized in the consolidated statements of financial position related to retirement benefit obligation are as follows (Unit: Korean won in thousands):

	December 31, 2018	December 31, 2017
Present value of defined benefit obligation	₩ 17,675,722	₩ 34,731,500
Fair value of plan assets	(15,944,859)	(28,608,946)
Net defined benefit liability	₩ 1,730,863	₩ 6,122,554

2) Changes in defined benefit obligations for the years ended December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

	Year ended December 31, 2018	Year ended December 31, 2017
Beginning balance	₩ 34,731,500	₩ 36,177,875
Current service cost	3,011,235	4,852,967
Past service cost	(980,302)	-
Interest cost	577,288	827,915
Actuarial gain or loss	536,540	(2,858,630)
Benefits paid	(5,126,304)	(6,246,509)
Gain or loss on settlement	(15,105,042)	-
Affiliates transfer	36,204	1,992,449
Others	(5,397)	(14,567)
Ending balance	₩ 17,675,722	₩ 34,731,500

3) Income and loss related to defined benefit plan for the years ended December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

	Year ended December 31, 2018	Year ended December 31, 2017
Service cost:	₩ 2,030,933	₩ 4,852,967
Current service cost	3,011,235	4,852,967
Past service cost	(980,302)	-
Net interest on the net defined benefit liability:	139,714	139,745
Interest cost on defined benefit obligation	577,288	827,915
Comprising interest on plan assets	(437,574)	(688,170)
Others	29,712	62,012
Total	₩ 2,200,359	₩ 5,054,724

For the years ended December 31, 2018 and 2017, ₩580,975 thousand and ₩1,099,734 thousand, respectively, are included in cost of good sales and ₩1,619,384 thousand and ₩3,925,424 thousand, respectively, are included in selling and administrative expenses. And ₩29,566 thousand, was included as reclassified account of profit or loss from discontinued operations.

4) Changes in plan assets for the years ended December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

	Year ended December 31, 2018		Year ended December 31, 2017	
Beginning balance	₩	28,608,946	₩	30,094,487
Comprising interest on plan assets		437,574		688,170
Remeasurements-return on plan assets		(151,732)		(231,813)
Benefits paid		(4,215,442)		(5,907,272)
Effect of foreign currency translation		(189)		(1,316)
Contributions from the employer		5,268,883		2,000,000
Affiliates transfer		104,400		2,028,702
Variation due to system clearing		(14,049,479)		-
Others		(58,102)		(62,012)
Ending balance	₩	15,944,859	₩	28,608,946

5) All the plan assets are invested in financial instruments that guarantee principal and interest rate as of December 31, 2018 and 2017.

6) Actuarial assumptions used as of December 31, 2018 and 2017, are as follows:

	December 31, 2018	December 31, 2017
Discount rate (%)	2.3%–7.0%	2.7%–6.7%
Expected rate of salary increase (%)	3.8%–9.8%	3.8%–9.8%

7) The sensitivity analysis of the defined benefit obligation as of December 31, 2018, is as follows (Unit: Korean won in thousands):

	Center scenario		(+) 1%		(-) 1%	
Change in discount rate	₩	17,675,722	₩	16,970,656	₩	18,410,038
Change in rate of salary increase		17,675,722		18,380,485		16,983,950

(*) The above sensitivity is estimated based on the assumption that all other respective assumptions remain unchanged.

8) Remeasurements related to net defined benefit liability for the years ended December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

	Year ended December 31, 2018		Year ended December 31, 2017	
Actuarial losses arising from changes in demographic assumptions	₩	(71,562)	₩	(27,668)
Actuarial gains arising from changes in financial assumptions		308,748		(3,013,668)
Actuarial losses arising from experience		307,910		(178,620)
Return on plan assets, excluding amounts included in interest income		151,732		231,813
Actuarial losses arising from transfer in/out adjustments		(8,556)		361,326
Total	₩	688,272	₩	(2,626,817)

9) Estimated contribution that will be paid in the next fiscal year is as follows (Unit: Korean won in thousands):

		Year ended December 31, 2019
Estimated contribution to plan assets	₩	4,040,191

(*) The projected amount for 2019 is calculated assuming that the reserve for institutional assets will be maintained at the end of 2019, compared to the reserve for retirement benefits at the end of 2018.

17. OTHER LIABILITIES:

Other liabilities as of December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

	December 31, 2018				December 31, 2017			
	Current		Non-current		Current		Non-current	
Advance receipts	₩	37,415,656	₩	-	₩	40,565,304	₩	-
Withholding value-added tax		39,015,585		-		36,979,976		-
Withholdings		33,247,687		-		29,419,792		-
Unearned income		41,810		-		26,577		-
Government subsidies		70,118,760		-		-		-
Due to customers for contract work		-		-		44,440,723		-
Other long-term employee liabilities		-		8,572,047		-		8,048,512
Total	₩	179,839,498	₩	8,572,047	₩	151,432,372	₩	8,048,512

18. CONTRACT ASSETS AND LIABILITIES:

(1) Contract assets as of December 31, 2018 and due from customers for contract work as of December 31, 2017 are as follows. (Unit: Korean won in thousands):

	December 31, 2018		December 31, 2017	
Construction contract	₩	161,884,681	₩	135,620,816
Accumulated loss		(6,811,724)		(5,496,076)
Total		155,072,957		130,124,740

There are no changes in estimates or assumptions used in assessing the loss allowance for contract assets in construction contracts during the year.

(2) Changes in loss allowance of contract assets for the years ended December 31, 2018 are as follows(Unit: Korean won in thousands):

	December 31, 2018	
Beginning balance	₩	5,496,076
Variation of loss allowance		1,315,648
Ending balance	₩	6,811,724

(3) Contract liabilities as of December 31, 2018 and due to customers for contract work as of December 31, 2017 are as follows. (Unit: Korean won in thousands):

	December 31, 2018	December 31, 2017
Construction contract	₩ 70,118,760	₩ 44,440,723

The contract liability related to the construction contract is the balance received from the customer in accordance with the construction contract. And it occurs when the amount received under the milestone exceeds the revenue recognized until then under the cost-based input method. There was no significant change in the contract liability balance during the year.

(4) The following shows how much of the revenue recognized in the current reporting period relates to carryforward contract liabilities. No revenue related to performance obligations carried out in a prior year is recognized in current reporting period. (Unit: Korean won in millions)

	December 31, 2018
Construction contract	₩ 39,419,814

(5) As of January 1, 2018, when the adoption date of K-IFRS 1115, the following shows changes in estimates of contractual amounts and contractual costs related to contracts that recognize revenue over a period of time using the cost basis method and effects on profit and loss, contract assets and liabilities of current and future periods:

	Variance in the estimated total contract revenue	Variance in the estimated total contract costs	Effect on profit or loss	Effect on future income	Variance in due from customers for contract work	Contract loss provision liabilities
LGCNS Co.,LTD Head office	₩27,818,882	₩ 29,466,341	₩ (4,774,755)	₩ 3,127,296	₩ (4,774,755)	₩ 1,256,328
Head office etc.	4,697,880	5,879,189	(5,461,720)	4,280,411	(5,441,932)	94,282
Total	₩32,516,762	₩ 35,345,530	₩(10,236,475)	₩7,407,707	₩ (10,216,687)	₩ 1,350,610

(6) During the current period, the following are the details of major contracts in which the amount of contract is 5% or more of the sales of the prior period as contracts recognized profit using cost-based input method.

	Contract date	Completion period on the contract	Progress rate	Contract assets(liabilities)	Receivables from construction
LGCNS	2010-11-30	2015-11-30	98.07%	₩ -	₩ 1,429,644

19. ISSUED CAPITAL:

Details of the Parent Company’s issued capital as of December 31, 2018, are as follows (Unit: Korean won in thousands):

Type of stock	Number of shares authorized	Number of shares issued	Number of shares owned by related party	Par value (in Korean won)	Amount of issued capital	Amount of capital surplus
Common stock	400,000,000	87,197,353	₩ 76,142,992	₩ 500	₩ 47,198,441	₩ 46,625,595

(*) As the Parent Company purchased ₩7,199,469 shares via tender offer at ₩12,000 per share and retired them before the prior year, the issued capital and the number of stocks issued multiplied by face value are not equal.

20. CAPITAL SURPLUS:

Composition of capital surplus as of December 31, 2018 and 2017, is as follows (Unit: Korean won in thousands):

	December 31, 2018		December 31, 2017	
Paid-in capital in excess of par value	₩	46,625,595	₩	46,625,595
Gains on sale of treasury stock		454,597		454,597
Consolidated capital surplus		(7,564,554)		(7,560,410)
Total	₩	39,515,638	₩	39,519,782

21. ACCUMULATED OTHER COMPREHENSIVE INCOME (LOSS):

(1) Details of accumulated other comprehensive income (loss) as of December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

	December 31, 2018		December 31, 2017	
Changes in capital change in equity method	₩	2,743,474	₩	3,915,288
Gain on valuation of AFS financial assets		-		851,302
Loss on valuation of AFS financial assets		-		(664,894)
Loss on valuation of financial assets at FVOCI		(14,507,630)		-
Gain or loss on translation of foreign operations		(6,029,914)		(7,497,805)
Gain on disposal of financial assets at FVOCI		78,832		-
Loss on disposal of financial assets at FVOCI		(229,216)		-
Total	₩	(17,944,454)	₩	(3,396,109)

(2) Changes in capital change in equity method for the years ended December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

	Year ended December 31, 2018		Year ended December 31, 2017	
Beginning balance	₩	3,915,288	₩	2,543,139
Changes in capital change in equity method		(1,161,313)		1,380,027
Income tax effect		(10,501)		(7,878)
Ending balance	₩	2,743,474	₩	3,915,288

(3) Changes in gain on financial assets at FVOCI for the years ended December 31, 2018 and AFS financial assets for the years ended December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

	Year ended December 31, 2018		Year ended December 31, 2017	
Beginning balance	₩	851,301	₩	780,658
Effect of changes in accounting policy		(851,301)		-
Beginning balance - restated		-		780,658
Changes in gain on valuation of AFS financial assets		-		93,175
Income tax effect		-		(22,531)
Ending balance	₩	-	₩	851,301

(4) Changes in loss on financial assets at FVOCI for the years ended December 31, 2018 and AFS financial assets for the years ended December 31, 2017, are as follows (Unit: Korean won in thousands):

	Year ended December 31, 2018		Year ended December 31, 2017	
Beginning balance	₩	(664,894)	₩	(501,453)
Effect of changes in accounting policy		(4,380,099)		-
Beginning balance - restated		(5,044,993)		(501,453)
Changes in loss from valuation of AFS financial assets		-		(215,621)
Changes in fair value of equity instruments designated as financial assets at FVTOCI		(12,483,690)		-
Income tax effect		3,021,053		52,180
Ending balance	₩	(14,507,630)	₩	(664,894)

(5) The changes in gain (loss) on translation of foreign operations for the years ended December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

	Year ended December 31, 2018		Year ended December 31, 2017	
Beginning balance	₩	(7,497,804)	₩	(4,116,458)
Changes in gain or loss on translation of foreign operations		1,467,890		(3,381,347)
Ending balance	₩	(6,029,914)	₩	(7,497,805)

(6) The changes in loss on valuation of cash flow hedge derivatives for the years ended December 31, 2017 is as follows (Unit: Korean won in thousands):

	Year ended December 31, 2018		Year ended December 31, 2017	
Beginning balance	₩	-	₩	(173,083)
Loss on valuation on hedging instruments entered into for cash flow hedges:		-		173,083
Interest rate swap		-		228,341
Income taxes by loss on valuation of cash flow hedging derivatives		-		(55,258)
Ending balance	₩	-	₩	-

22. RETAINED EARNINGS AND DIVIDENDS:

Changes in retained earnings for the years ended December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

	Year ended December 31, 2018		Year ended December 31, 2017	
Beginning balance	₩	936,968,190	₩	851,320,684
Profit for the year attributable to owners of the Parent Company		107,913,077		101,531,454
Dividends (*1)		(18,311,444)		(14,387,563)
Remeasurements of net defined benefit liability		(686,182)		2,691,855
Related income tax		147,342		(582,282)
Changes in retained earnings using the equity method		(706,151)		(3,605,958)
K-IFRS 1109 Adjustment		5,231,400		-
Ending balance	₩	1,030,556,232	₩	936,968,190

(*1) Details of dividends for the years ended December 31, 2018 and 2017, are as follows:

	Year ended December 31, 2018		Year ended December 31, 2017	
Number of authorized shares		87,197,353		87,197,353
Treasury stock		-		-
Number of shares for dividend		87,197,353		87,197,353
Dividend per share (Unit: In Korean won)	₩	210	₩	165
Total dividends (Unit: Korean won in thousands)	₩	18,311,444	₩	14,387,563

23. OPERATING INCOME AND LOSS:

(1) T he Group recognizes revenue by transferring goods and services over a period of time or at a time in the following major business unit. The division of major business unit is consistent with the information of revenue disclosure by reporting segment in accordance with K-IFRS 1108.: (Unit: Korean won in thousands):

	Year ended December 31, 2018		Year ended December 31, 2017	
Revenue recognized at a point in time				
Sales of merchandise				
Equipment supply	₩	551,932,608	₩	536,798,510
Others		140,278,582		91,587,481
Sales of finished goods				
Equipment supply	₩	1,114,759	₩	22,622,691
Sub total	₩	693,325,949	₩	651,008,682
Revenue recognized over the period				
Service revenue				
Maintenance work	₩	1,156,216,356	₩	1,148,638,530
Construction contract revenue				
Development service	₩	869,741,477	₩	820,531,083
Revenue from construction contract		398,371,947		383,033,743
Sub total	₩	2,424,329,780	₩	2,352,203,356
Total	₩	3,117,655,729	₩	3,003,212,038

(2) Details of operating income or loss for the years ended December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

	Year ended December 31, 2018	Year ended December 31, 2017
Sales of merchandise	₩ 692,211,190	₩ 628,385,991
Sales of finished goods	1,114,759	22,622,691
Service revenue	1,156,216,356	1,148,638,530
Construction revenue	1,268,113,424	1,203,564,826
REVENUE	3,117,655,729	3,003,212,038
Sales of merchandise	622,064,070	566,087,964
Sales of finished goods	4,128,850	21,420,754
Service revenue	997,455,717	969,568,265
Construction revenue	1,079,393,437	1,020,850,594
COST OF SALES	2,703,042,074	2,577,927,577
GROSS PROFIT	414,613,655	425,284,461
Salaries and wages	95,950,795	87,794,523
Severance benefits	7,195,530	7,245,222
Welfare	17,471,060	17,139,667
Depreciation	3,306,963	3,063,500
Amortization of intangible assets	2,401,792	1,694,147
Research and development expenses	33,731,258	16,762,738
Commission	11,975,302	10,743,788
Training expenses	5,732,189	4,294,500
Service contract expenses	7,972,791	7,153,344
Rent expense	4,814,060	8,505,016
Bad debt expenses	8,980,547	9,413,395
Increase in provision	(1,391,606)	(651,636)
Others	29,414,410	36,476,353
SELLING AND ADMINISTRATIVE EXPENSES	227,555,091	209,634,557
OPERATING INCOME	₩ 187,058,564	₩ 215,649,904

24. CLASSIFICATION OF EXPENSES BY NATURE:

1) Year ended December 31, 2018 (Unit: Korean won in thousands):

Account	Changes in inventories	Selling and administrative expenses (*)	Manufacturing cost	Nature of expenses
Changes in inventories:	₩ (3,882,041)	₩ -	₩ 961,562,297	₩ 957,680,256
Finished goods	-	-	-	-
Work in progress	(73,862)	-	-	(73,862)
Merchandise	(3,931,813)	-	625,995,883	622,064,070
Other inventories	123,634	-	335,566,414	335,690,048
Used raw material	-	-	1,461,772	1,461,772
Employee benefits	-	120,617,385	543,253,491	663,870,876
Depreciation and amortization	-	5,708,755	68,127,833	73,836,588
Commission expenses	-	11,975,302	92,660,241	104,635,543
Lease expenses	-	4,814,060	16,662,693	21,476,753
Outsourcing service	-	7,972,791	802,244,827	810,217,618
Other expenses and consolidation adjustments	-	76,466,798	220,950,961	297,417,759
Total	₩ (3,882,041)	₩ 227,555,091	₩ 2,706,924,115	₩ 2,930,597,165

(*) Consolidation adjustments are reflected on each account of selling and administrative expenses.

2) Year ended December 31, 2017 (Unit: Korean won in thousands):

Account	Changes in inventories	Selling and administrative expenses (*)	Manufacturing cost	Nature of expenses
Changes in inventories:	₩ 10,006,028	₩ -	₩ 726,187,970	₩ 736,193,998
Finished goods	4,246,858	-	-	4,246,858
Work in progress	2,729,989	-	-	2,729,989
Merchandise	(1,032,723)	-	567,120,687	566,087,964
Other inventories	4,061,904	-	159,067,283	163,129,187
Used raw material	-	-	10,508,609	10,508,609
Employee benefits	-	112,179,412	488,517,406	600,696,818
Depreciation and amortization	-	4,757,647	72,531,568	77,289,215
Commission expenses	-	10,743,788	72,059,195	82,802,983
Lease expenses	-	8,505,016	16,815,772	25,320,788
Outsourcing service	-	7,153,344	921,172,501	928,325,845
Other expenses and consolidation adjustments	-	66,295,350	260,128,528	326,423,878
Total	₩ 10,006,028	₩ 209,634,557	₩ 2,567,921,549	₩ 2,787,562,134

(*) Consolidation adjustments are reflected on each account of selling and administrative expenses.

25. FINANCIAL REVENUES AND FINANCIAL EXPENSES:

(1) Financial revenues for the years ended December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

	Year ended December 31, 2018	Year ended December 31, 2017
Interest income	₩ 8,635,815	₩ 5,545,268
Dividend income	83,960	50,653
Gain on foreign currency transactions (non-operating)	854,278	621,870
Gain on foreign currency translation (non-operating)	420,358	276,125
Gain on disposal of AFS securities	-	263
Gain on valuation of financial assets at FVOCI	95,324	-
Total	₩ 10,089,735	₩ 6,494,179

(2) Interest income included in financial revenues for the years ended December 31, 2018 and 2017, is as follows (Unit: Korean won in thousands):

	Year ended December 31, 2018	Year ended December 31, 2017
Interest income by effective interest method		
Financial assets measured at amortized cost(*1)	₩ 8,635,815	₩ 5,545,268
Total	₩ 8,635,815	₩ 5,545,268

(*1) Comparative figure for the year ended December 31, 2017 is composed of interest incomes from loan and receivables

(3) Financial expenses for the years ended December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

	Year ended December 31, 2018	Year ended December 31, 2017
Interest expense	₩ 15,345,828	₩ 13,288,707
Loss on foreign currency transactions (non-operating)	319,935	4,949,845
Loss on foreign currency translation (non-operating)	296,816	865,080
Loss on sale of derivative instruments	-	248,630
Loss on disposal of AFS financial assets	-	193
Impairment loss on AFS financial assets	-	4,317,727
Financial guarantee cost	1,160,916	-
Loss on disposal of financial assets at FVTPL	89	-
Total	₩ 17,123,584	₩ 23,670,182

(4) Interest expense included in financial expenses for the years ended December 31, 2018 and 2017, is as follows (Unit: Korean won in thousands):

	Year ended December 31, 2018	Year ended December 31, 2017
Bank overdrafts and loan interest	₩ 1,984,926	₩ 1,902,817
Interest expense on debentures	13,364,731	12,320,945
Other interest expense	464,709	1,197,106
Less: Capitalized interest expense included in qualified assets (*)	(468,538)	(2,132,161)
Total	₩ 15,345,828	₩ 13,288,707

(*) Capitalized interest rates used for the years ended December 31, 2018 and 2017, are 2.51% and 2.22%, respectively.

26. OTHER NON-OPERATING INCOME AND EXPENSES:

Other non-operating income and expenses for the years ended December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

	Year ended December 31, 2018	Year ended December 31, 2017
OTHER NON-OPERATING INCOME:	₩ 21,068,477	₩ 34,073,019
Rental income	473,146	332,487
Commission	162,961	216,183
Gain on foreign currency transaction (operating)	4,790,155	8,489,073
Gain on foreign currency translation (operating)	1,383,094	6,831,587
Gain on disposal of tangible assets	471,375	767,823
Gain on disposal of intangible assets	216,911	9,000
Gain on transactions of derivatives (operating)	7,101,281	14,414,323
Gain on valuation of derivatives (operating)	1,270,864	1,719,052
Gain on disposals of investments in subsidiaries	1,978,715	37,667
Miscellaneous income	1,224,892	676,978
Other reversal of allowance for doubtful accounts	510,881	459,293
Others	1,484,202	119,553
OTHER NON-OPERATING EXPENSES:	39,090,783	42,734,580
Impairment losses on tangible assets	75,208	484,717
Impairment losses on intangible assets	879,443	201,385
Impairment loss on investments in associates	6,823,984	1,168,933
Loss on foreign currency transaction (operating)	5,610,897	8,468,045
Loss on foreign exchange translation (operating)	3,386,400	12,208,499
Loss on disposal of tangible assets	230,644	837,155
Loss on disposal of intangible assets	714,069	777,765
Loss on transactions of derivatives (operating)	13,467,144	10,542,080
Loss on valuation of derivatives (operating)	5,423,750	1,835,613
Losses on disposal of shares of subsidiaries	592,425	-
Miscellaneous loss	154,926	354,188
Other bad debt expenses	(140,666)	299,846
Donations and contributions	977,063	2,929,965
Others	895,496	2,626,389

27. CATEGORIZED PROFIT AND LOSS OF FINANCIAL INSTRUMENT:

Net gains (losses) by financial instrument for the years ended December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

	Year ended December 31, 2018	Year ended December 31, 2017
Financial assets:		
Financial asset at FVTPL	₩ -	₩ 16,085,882
AFS financial assets	-	(4,359,796)
Loans and receivables(*)	-	(16,640,507)
Financial asset at FVTPL	8,474,541	-
Financial asset at FVOCI	(9,385,837)	-
Financial assets at amortized cost (*)	2,130,223	-
Subtotal	1,218,927	(4,914,421)
Financial liabilities:		
Financial liabilities at FVTPL	-	(12,578,830)
Derivative liabilities designated as hedging instruments	-	173,082
Financial liabilities measured at amortized cost	-	(10,109,018)
Financial liabilities at FVTPL	(13,647,895)	-
Financial liabilities at amortized cost	(15,740,843)	-
Subtotal	(29,388,738)	(22,514,766)
Total	₩ (28,169,811)	₩ (27,429,187)

(*) Net gain or loss arising from cash and cash equivalents is included.

28. INCOME TAX:

(1) Composition of income tax expense for the years ended December 31, 2018 and 2017, is as follows (Unit: Korean won in thousands):

	Year ended December 31, 2018	Year ended December 31, 2017
Current income tax payable	₩ 51,448,635	₩ 44,810,490
Adjustment related to prior income tax expense	(1,801,969)	1,557,820
Tax expenses related to the variation of temporary difference:	2,014,811	17,781,845
Effect of translation	27,160	(160,992)
Beginning deferred tax assets due to temporary differences	43,137,370	61,695,976
Ending deferred tax assets due to temporary differences	44,307,613	43,137,370
Tax effect related to change in other comprehensive income	3,157,894	(615,769)
Others	(608,227)	351,215
Income tax expense	₩ 51,053,250	₩ 64,501,370
Continuing operations	₩ 51,053,250	₩ 74,719,567
Discontinued operations	-	(10,218,197)

(2) Reconciliation between accounting income and income tax expense of the Group for the years ended December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

	Year ended December 31, 2018	Year ended December 31, 2017
Income(loss) from continuing operations before income tax expense	₩ 161,561,633	₩ 193,594,440
Income(loss) from discontinued operations before income tax expense	-	(28,987,517)
Income(loss) before income tax expense	161,561,633	164,606,923
Tax expense calculated on book income	38,119,082	39,372,875
Adjustments:	12,934,168	35,346,692
Non-taxable income	(5,789,055)	(1,303,985)
Non-deductible expense	3,739,532	1,338,425
Income tax for the past period adjustments recognized in the current period	(6,065,408)	939,832
Tax deduction	(4,993,837)	(3,543,624)
Effect of unrecognized deferred income tax assets	-	1,225,905
Others	26,042,936	36,690,139
Income tax expense(benefit)	₩ 51,053,250	₩ 74,719,567

(3) Income tax directly reflected in shareholders' equity for the years ended December 31, 2018 and 2017, is as follows (Unit: Korean won in thousands):

	Year ended December 31, 2018	Year ended December 31, 2017
Revenues and expenses related to change in other comprehensive income (loss):		
Loss on valuation of cash flow hedge derivatives	₩ -	₩ (55,258)
Valuation through equity method	(10,501)	(7,878)
Valuation of AFS financial assets	3,021,053	29,649
Remeasurements of net defined benefit liability	147,342	(582,282)
Total deferred tax directly reflected in equity	₩ 3,157,894	₩ (615,769)

(4) Changes in deferred tax assets (liabilities) for the year ended December 31, 2018, are as follows (Unit: Korean won in thousands):

	Beginning balance	Reflected in income (loss)	Ending balance
Temporary differences:			
Cash flow hedging	₩ 29,028	₩ (209,875)	₩ (180,847)
Property, plant and equipment	4,125,929	3,216,845	7,342,774
Intangible assets	1,511,791	(319,539)	1,192,252
AFS financial assets	2,414,588	3,030,568	5,445,156
Provisions	26,646,490	(4,662,375)	21,984,115
Doubtful receivables	1,018,779	(897,935)	120,844
Others	9,964,187	2,887,731	12,851,918
Tax deficit and tax credits:			
Tax deficit	-	-	-
Others	735,868	577,554	1,313,422
Consolidation adjustments	(3,309,290)	471,838	(2,837,451)
Deferred income tax assets	₩ 43,137,370	₩ 4,094,813	₩ 47,232,183

(5) As of December 31, 2018 and 2017, temporary differences not recognized as deferred tax (except for assets (liabilities) related to investment assets and equity interest) are as follows (Unit: Korean won in thousands):

	December 31, 2018	December 31, 2017
Temporary differences	₩ 9,840,332	₩ 13,302,835
Tax deficit	36,281,677	34,491,054
Unused tax credit	-	185,307

(6) As of December 31, 2018 and 2017, temporary differences not recognized as deferred tax assets (liabilities) related to investment asset and equity interest are as follows (Unit: Korean won in thousands):

	December 31, 2018	December 31, 2017
Investments in subsidiaries	₩ (16,071,265)	₩ (126,422,068)
Investments in associates	14,271,331	(4,637,224)
Total	₩ (1,799,934)	₩ (131,059,292)

29. EARNING PER SHARE:

(1) Basic EPS, which is referred to net profit per one common stock, is measured by dividing profit (loss) for the year attributable to common stocks of the Parent Company by weighted-average numbers of common shares outstanding during a specified period.

(2) EPS for the years ended December 31, 2018 and 2017, is calculated as follows (Unit: Korean won in thousands, except for EPS):

1) Year ended December 31, 2018

	Continuance of operating EPS	Discontinuance of operating EPS	Total EPS
Profit for the year attributable to owners of the Parent Company	₩ 107,913,077	₩ -	₩ 107,913,077
Less: Net profit of preferred stock	-	-	-
Profit available for dividend attributable to preferred owners	-	-	-
Profit for the year attributable to common stock owners of the Parent company	107,913,077	-	107,913,077
Weighted-average number of common shares outstanding (after treasury stock)	87,197,353	-	87,197,353
EPS (in Korean won) (*)	₩ 1,238	₩ -	₩ 1,238

(*) There are no potential common shares of the Parent company, and therefore, diluted EPS is equal to EPS.

2) Year ended December 31, 2017

	Continuance of operating EPS	Discontinuance of operating EPS	Total EPS
Profit for the year attributable to owners of the Parent Company	₩ 120,300,773	₩ (18,769,319)	₩ 101,531,454
Less: Net profit of preferred stock	-	-	-
Profit available for dividend attributable to preferred owners	-	-	-
Profit for the year attributable to common stock owners of the Parent Company	120,300,773	(18,769,319)	101,531,454
Weighted-average number of common shares outstanding (after treasury stock)	87,197,353	87,197,353	87,197,353
EPS (in Korean won) (*)	₩ 1,380	₩ (215)	₩ 1,165

(*) There are no potential common shares of the Parent company, and therefore, diluted EPS is equal to EPS.

30. RELATED-PARTY TRANSACTIONS:

(1) Details of related parties of the Group as of December 31, 2018 and 2017, are as follows:

1) December 31, 2018

Parent Company (including the ultimate controlling party and its associates)	Subsidiaries, joint ventures and associates of the Parent Company (domestic) (*2)	Subsidiaries, joint ventures and associates of the Parent Company (foreign) (*2)
The ultimate controlling party and its subsidiaries:		
LG Corp.		LG Holdings Japan Co., Ltd. and two others (*1)
	S&I Corporation Co., Ltd. and four others (*1,5)	Serveone (Nanjing) Co., Ltd. and five others(*6)
	LG Management Development Institute	
	LG Sports Ltd.	
Associates and joint ventures:		
LG CNS Co., Ltd.	Korea Smart Card Co., Ltd. and two others	T-money America Inc. and two others
	Songdo U-Life LLC and two others	RECAUDO BOGOTA S.A.S.
	Ulleungdo Natural Energy Co., Ltd.	Hellas SmarTicket Societe Anonyme
	Daegu Clean Energy Co., Ltd.	KEPCO-LG CNS Mangilao Holdings LLC and two others
Associates and joint ventures of the ultimate controlling party:		
LG Electronics Inc.	Hi Plaza Inc.	LG Electronics Mexico S.A.DE C.V. and others
	Hi-M Solutec Co., Ltd.	
	HITeleservice Co., Ltd.	
	New Growth Venture Fund	
	New Growth Venture Fund II	
	Ace R&A Co., Ltd.	
	Hientech Co., Ltd.	
	LG-Hitachi Water Solutions Co., Ltd.	
	LG Innotek Co., Ltd.	
	LG Innotek Alliance Fund	
	Innowith Co., Ltd.	
	Hanuri Co., Ltd.	
	Robostar Co., Ltd. And others	
LG Chem Ltd.	Haengboknuri Co., Ltd.	LG Chem America, Inc. and others
	FarmHannong Co., Ltd.	
	Ugimagkorea Co., Ltd. (*4)	
LG Hausys, Ltd.	LG Hausys ENG, Ltd.	LG Hausys America, Inc. and others
	Greennuri Co., Ltd.	
LG Uplus Corp.	CS Leader	DACOM AMERICA, INC.
	Ain Teleservice	
	Medialog Corp.	
	CS ONE Partner	
	With U Co., Ltd.	
LG Household & Health Care Ltd.	Coca-Cola Beverage Co.	Beijing LG Household Chemical Co., Ltd. and others
	Hankook Beverage Co., Ltd.	
	TheFaceShop Co., Ltd.	
	HTB Co., Ltd.	
	K&I Co., Ltd.	
	C&P Cosmetics Co., Ltd.	
	Balkeunnuri. Co., Ltd.	
	Fmg Co., Ltd.	
	OBM RAP Co., Ltd.	
	LG Farouk	
	Ulleung Mountain Chu Spring Water Development Company	
	TAI GUK PHARM Co., Ltd.	
	JS Pharmaceutical Co., Ltd.	
GIIR Corporation	HS Ad Co., Ltd.	GIIR America Inc. and others
	L.Best Co., Ltd.	
LG Hitachi Co., Ltd.		

Parent Company (including the ultimate controlling party and its associates)	Subsidiaries, joint ventures and associates of the Parent Company (domestic) (*2)	Subsidiaries, joint ventures and associates of the Parent Company (foreign) (*2)
LG MMA Corp.		
LG Fuel Cell Systems Inc.	LG Fuel Cell Systems (Korea) Inc.	
Silicon Works Co. Ltd.		Silicon Works Inc. and others
LG International (*3)	Dangjin Tank Terminal Co., Ltd.	LG International (America) Inc. and others
	Pantos Co., Ltd.	PANTOS LOGISTICS (CHINA) CO., LTD. and others
	Pantos Logistics Busan Co., Ltd.	
	Helistar Air Co., Ltd.	
	Hanul-tari Co., Ltd.	
Conglomerate of many companies (*7):		
LG Display Co., Ltd.	Nanumnuri Co., Ltd.	LG Display Nanjing Co., Ltd. and others
Globla Dynasty Natural Resource Private Equity Fund		
Sal de Vida Korea Corp.		
LG TOSTEM BM Co., Ltd.		
SEETEC Co., Ltd.		
Migenstory Co., Ltd. (*8)		
Clean Soul Ltd.		
DACOM Crossing		

(*1) Direct shareholding of the relationship between corporate subsidiaries is included.
(*2) Joint ventures of associates are excluded.
(*3) Reclassified from Conglomerate of many companies to Associates and joint ventures of the ultimate controlling party due to acquisition of stock during the year ended December 31, 2017.
(*4) Reclassified from the parent company to a related entity due to acquisition of stock during the year ended December 31, 2018.
(*5) Serveone Co., Ltd. changed its name to S&I Corporation Co., Ltd. and the subsidiary, Serveone Co., Ltd., was newly established.
(*6) S & I Vietnam subsidiary was newly established.
(*7) These companies are not related parties as defined in paragraph 9 of K-IFRS 1024. However, the companies are designated by the Fair Trade Commission as a related party, in accordance with the resolution of the Securities and Futures Commission, in accordance with the substantive relationship stipulated in paragraph 10 of K-IFRS 1024.
(*8) Company name is changed from Genstory Co., Ltd. to Migenstory Co., Ltd. during the year ended December 31, 2017.

2) December 31, 2017

Parent Company (including the ultimate controlling party and its associates)	Subsidiaries, joint ventures and associates of the Parent Company (domestic) (*2)	Subsidiaries, joint ventures and associates of the Parent Company (foreign) (*2)
The ultimate controlling party and its subsidiaries:		
LG Corp.	LG Management Development Institute	LG Holdings Japan Co., Ltd. and two others (*1)
	LG Sports Ltd.	
	Lusem Co., Ltd.	
	Serveone Co., Ltd. and four others (*1)	Serveone (Nanjing) Co., Ltd. and four others
Associates and joint ventures:		
LG CNS Co., Ltd.	Korea Smart Card Co., Ltd. and the other	T-money America Inc. and two others
	Songdo U-Life LLC and two others	RECAUDO BOGOTA S.A.S.
	Daegu Clean Energy Co., Ltd	Hellas SmarTicket Societe Anonyme
.	Sejong Green Power Co., Ltd.	KEPCO-LG CNS Mangilao Holdings LLC and two others
	Ulleungdo Natural Energy Co., Ltd.	
Associates and joint ventures of the ultimate controlling party:		
LG Electronics Inc.	Hi Plaza Inc.	LG Electronics Mexico S.A.DE C.V. and others
	Hi-M Solutec Co., Ltd.	
	HITeleservice Co., Ltd.	

Parent Company (including the ultimate controlling party and its associates)	Subsidiaries, joint ventures and associates of the Parent Company (domestic) (*2)	Subsidiaries, joint ventures and associates of the Parent Company (foreign) (*2)
	New Growth Venture Fund	
	New Growth Venture Fund Ⅱ	
	Ace R&A Co., Ltd.	
	Hientech Co., Ltd.	
	LG-Hitachi Water Solutions Co., Ltd.	
	LG Innotek Co., Ltd.	
	LG Innotek Alliance Fund	
	Innowith Co., Ltd.	
	Hanuri Co., Ltd.	
LG Chem Ltd.	Haengboknuri	LG Chem America, Inc. and others
	FarmHannong Co., Ltd.	
	FarmHwaong Co., Ltd.	
	Sarangnuri Co., Ltd.	
LG Hausys, Ltd.	LG Hausys ENG, Ltd.	LG Hausys America, Inc. and others
LG Uplus Corp.	CS Leader Co., Ltd.	DACOM AMERICA, INC.
	Ain Teleservice Co., Ltd.	
	Medialog Corp.	
	CS ONE Partner Co., Ltd.	
	With U Co., Ltd.	
LG Household & Health Care Ltd.	Coca-Cola Beverage Co., Ltd.	Beijing LG Household Chemical Co., Ltd. and others
	TheFaceShop Co., Ltd.	
	Korean Beverage Co., Ltd	
	HTB Co., Ltd.	
	OBM RAP Co., Ltd.	
	LG Farouk	
	Ulleung Mountain Chu Spring Water Development Company	
	C&P Cosmetics Co., Ltd.	
	K&I Co., Ltd.	
	Zenisce Co., Ltd.	
	Balkeunnuri. Co., Ltd.	
GIIR Corporation	HS Ad Co., Ltd.	GIIR America Inc. and others
	L.Best Co., Ltd.	
LG Hitachi Co., Ltd.		
LG MMA Corp.		
LG Fuel Cell Systems Inc.	LG Fuel Cell Systems (Korea) Inc.	
Silicon Works Co. Ltd.		Silicon Works Inc.
LG International	Dangjin Tank Terminal Co., Ltd.	LG International (America) Inc. and others
	Pantos Co., Ltd.	PANTOS LOGISTICS (CHINA) CO., LTD. and others
	Pantos Logistics Busan Co., Ltd.	
	Helistar Air Co., Ltd.	
Conglomerate of many companies		
LG Display Co., Ltd.	Nanumnuri Co., Ltd.	LG Display Nanjing Co., Ltd. and others
Globla Dynasty Natural Resource Private Equity Fund		
Sal de Vida Korea Corp.		
LG TOSTEM BM Co., Ltd.		
SEETEC Co., Ltd.		
Migenstory Co., Ltd.		
Clean Soul Ltd.		
DACOM Crossing		
Jiheung Co., Ltd.		

(*1) Direct shareholding of the relationship between corporate subsidiaries is included.
(*2) Joint ventures of associates are excluded.

(2) Transactions between the Parent Company and its subsidiaries are eliminated for the purpose of the Group's consolidated financial statements. Details of the transaction between the Group and its other related parties for the years ended December 31, 2018 and 2017, are as follows (Unit: Korean won in millions):

1) Transactions with related parties for the years ended December 31, 2018 and 2017, are as follows (Unit: Korean won in millions):

	Year ended December 31, 2018			
	Revenue and others	Purchase of raw material	Acquisitions of property, plant and equipment	Other purchase
Associates:				
Korea Smart Card Co., Ltd. (*1)	₩ 26,546	₩ -	₩ -	₩ 3,211
Sejong Green Power Co., Ltd.(*3)	4,705	-	-	-
Ulleungdo Natural Energy Co., Ltd.	2,804	-	-	-
Subtotal	34,055	-	-	3,211
The ultimate controlling party and its subsidiaries:				
LG Corp.	3,588	-	-	13,613
S&I Corp. (*1,5)	56,855	-	12,528	21,817
LG Siltron Inc. (*2)	-	-	-	-
LG Sports Ltd.	1,110	-	-	40
LG Management Development Institute	6,678	-	-	5,192
Lusem Co., Ltd.	89	-	-	-
LG Holdings Japan Co., Ltd.	-	-	-	297
Subtotal	68,320	-	12,528	40,959
Associates of the ultimate controlling party and its subsidiaries:				
LG Chem Ltd. (*1)	375,646	3,612	857	61,153
LG Household & Health Care Ltd. (*1)	54,223	-	-	4,234
LG Hausys, Ltd. (*1)	25,765	-	945	3,118
LG Electronics Inc. (*1)	680,259	-	25	112,960
GIIR Corporation (*1)	7,492	-	499	790
LG Uplus Corp. (*1)	365,899	-	-	25,550
LG MMA Corp.	5,472	-	-	-
LG Hitachi Co., Ltd.	92	-	-	1,074
Silicon Works Co. Ltd.	7,658	-	-	-
LG Fuel Cell Systems Inc.	20	-	-	-
LG Fuel Cell Systems Korea Co. Ltd.	79			-
LG International Corp. (*4)	36,100	-	-	1,358
Subtotal	1,558,705	3,612	2,327	210,237
Conglomerate of many companies:				
LG Display Co., Ltd.	278,330	-	-	-
LG TOSTEM BM Co., Ltd.	29	-	-	-
SEETEC	-	-	-	-
DACOM Crossing	98	-	-	-
Subtotal	278,457	-	-	-
Total	₩ 1,939,537	₩ 3,612	₩ 14,855	₩ 254,407

	Year ended December 31, 2017			
	Revenue and others	Purchase of raw material	Acquisitions of property, plant and equipment	Other purchase
Associates:				
Korea Smart Card Co., Ltd. (*1)	₩ 22,170	₩ -	₩ -	₩ 1,097
Sejong Green Power Co., Ltd.(*3)	5,722	-	-	-
Ulleungdo Natural Energy Co., Ltd.	358	-	-	-
Subtotal	28,250	-	-	1,097
The ultimate controlling party and its subsidiaries:				
LG Corp.	3,618	-	-	13,165
S&I Corp. (*1,5)	83,634	-	54,602	16,076
LG Siltron Inc. (*2)	5,118	-	-	-
LG Sports Ltd.	1,506	-	-	41
LG Management Development Institute	5,292	-	-	4,880
Lusem Co., Ltd.	1,647	-	-	-
LG Holdings Japan Co., Ltd.	-	-	-	300
Subtotal	100,815	-	54,602	34,462
Associates of the ultimate controlling party and its subsidiaries:				
LG Chem Ltd. (*1)	260,965	15,347	-	16,028
LG Household & Health Care Ltd. (*1)	39,660	-	509	10,475
LG Hausys, Ltd. (*1)	21,871	-	-	450
LG Electronics Inc. (*1)	641,802	136	1	77,196
GIIR Corporation (*1)	9,648	-	229	908
LG Uplus Corp. (*1)	292,191	-	580	23,065
LG MMA Corp.	3,625	-	-	-
LG Hitachi Co., Ltd.	803	-	-	757
Silicon Works Co. Ltd.	2,733	-	-	-
LG Fuel Cell Systems Inc.	216	-	-	-
LG International Corp. (*5)	32,444	-	-	2,466
Subtotal	1,305,958	15,483	1,319	131,345
Conglomerate of many companies:				
LG Display Co., Ltd.	282,506	-	-	323
LG TOSTEM BM Co. Ltd.	30	-	-	-
SEETEC Co. Ltd.	66	-	-	-
DACOM Crossing	174	-	-	-
Subtotal	282,776	-	-	323
Total	₩ 1,717,799	₩ 15,483	₩ 55,921	₩ 167,227

(*1) Transactions with its subsidiaries are included.
(*2) LG Siltron Inc. is sold during the current year, and transactions before disposal are included.
(*3) Reclassified from the associate company to a subsidiary due to acquisition of stock during the year ended December 31, 2018.
(*4) Reclassified from Conglomerate of many companies to Associates and joint ventures of the ultimate controlling party due to acquisition of stock during the year ended December 31, 2018. Transactions occurred under classification of Conglomerate of many companies are included.
(*5) Divided and changed its name to S&I Corporation in Serveone Co., Ltd.

2) Outstanding receivables and payables from transactions with related parties as of December 31, 2018 and 2017, are as follows (Unit: Korean won in millions):

	December 31, 2018			
	Accounts receivable and others (*1)	Loans	Accounts payables and others (*2)	Borrowings
Associates:				
Korea Smart Card Co., Ltd. (*3)	₩ 4,884	₩ -	₩ 543	₩ -
RECAUDO BOGOTA S.A.S.	17,688	-	-	-
Sejong Green Power Co., Ltd.(*4,5)	-	-	-	-
Ulleungdo Natural Energy Co., Ltd.	-	-	-	-
KEPCO-LGCNS Mangilao Holdings LLC (*6)	-	7,594	-	-
Subtotal	22,572	7,594	543	-
The ultimate controlling party and its subsidiaries:				
LG Corp.	5,178	-	422	-
S&I Corp. (*3,8)	31,451	-	3,339	-
LG Sports Ltd.	74	-	-	-
LG Management Development Institute	5,943	-	321	-
Lusem Co., Ltd.	-	-	-	-
LG Holdings Japan Co., Ltd.	329	-	-	-
Subtotal	42,974	-	4,082	-
Associates of the ultimate controlling party and its subsidiaries:				
LG Chem Ltd. (*3)	167,655	-	13,263	-
LG Household & Health Care Ltd. (*3)	4,191	-	559	-
LG Hausys, Ltd. (*3)	3,722	-	137	-
LG Electronics Inc. (*3)	185,664	-	20,065	-
GIIR Corporation (*3)	3,901	-	143	-
LG Uplus Corp. (*3)	165,623	-	1,057	-
LG MMA Corp.	952	-	-	-
LG Hitachi Co., Ltd.	45	-	164	-
LG Fuel Cell Systems Inc.	12	-	-	-
Silicon Works Co. Ltd.	825	-	-	-
LG International Corp. (*7)	5,776	-	125	-
Subtotal	538,366	-	35,512	-
Conglomerate of many companies:				
LG Display Co., Ltd.	95,703	-	1	-
LG TOSTEM BM	-	-	-	-
Subtotal	95,703	-	1	-
Total	₩ 699,617	₩ 7,594	₩ 40,139	₩ -

	December 31, 2017			
	Accounts receivable and others (*1)	Loans	Accounts payables and others (*2)	Borrowings
Associates:				
Korea Smart Card Co., Ltd. (*3)	₩ 2,038	₩ -	₩ 165	₩ -
RECAUDO BOGOTA S.A.S.	17,110	-	-	-
Sejong Green Power Co., Ltd.(*4,5)	5,437	-	-	-
Ulleungdo Natural Energy Co., Ltd.	84	-	-	-
KEPCO-LGCNS Mangilao Holdings LLC (*6)	-	7,277	-	-
Subtotal	24,669	7,277	165	-
The ultimate controlling party and its subsidiaries:				
LG Corp.	5,918	-	580	-
S&I Corp. (*3,8)	50,695	-	30,777	-
LG Sports Ltd.	69	-	-	-
LG Management Development Institute	4,308	-	254	-
Lusem Co., Ltd.	65	-	-	-
LG Holdings Japan Co., Ltd.	308	-	-	-
Subtotal	61,363	-	31,611	-
Associates of the ultimate controlling party and its subsidiaries:				
LG Chem Ltd. (*3)	114,455	-	20,209	-
LG Household & Health Care Ltd. (*3)	3,027	-	301	-
LG Hausys, Ltd. (*3)	4,906	-	40	-
LG Electronics Inc. (*3)	166,786	-	16,800	-
GIIR Corporation (*3)	2,623	-	280	-
LG Uplus Corp. (*3)	99,269	-	819	-
LG MMA Corp.	580	-	-	-
LG Hitachi Co., Ltd.	209	-	328	-
LG Fuel Cell Systems Inc.	133	-	-	-
Silicon Works Co. Ltd.	449	-	-	-
LG International Corp. (*7)	15,418	-	454	-
Subtotal	407,855	-	39,231	-
Conglomerate of many companies:				
LG Display Co., Ltd.	115,899	-	4	-
LG TOSTEM BM	3	-	-	-
Subtotal	115,902	-	4	-
Total	₩ 609,789	₩ 7,277	₩ 71,011	₩ -

(*1) Receivables from related parties are trade receivables, other receivables and prepaid expenses.
(*2) Payables to related parties are trade payables and other payables.
(*3) Transactions with subsidiaries are included.
(*4) As a result of the agreements described in Note 30 (6), the Group has set aside a provision of ₩ 7,934,415 thousand during the year ended December 31, 2017.
(*5) Reclassified from the associate company to a subsidiary due to acquisition of stock during the year ended December 31, 2018.
(*6) Included related-party due to acquiring investments in associates during the year ended December 31, 2017.
(*7) Reclassified from Conglomerate of many companies to Associates and joint ventures of the ultimate controlling party due to acquisition of stock during the year ended December 31, 2018. Transactions occurred under classification of Conglomerate of many companies are included.
(*8) Divided and changed its name to S&I Corporation in Serveone Co., Ltd.

(3) Fund transactions with the related parties for the years ended December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

	Year ended December 31, 2018					
	Payment in cash (reduction of capital)	Sale of interests	Loans		Borrowings	
			Loans	Payback	Borrowings	Repayments
Associates of the ultimate controlling party:						
LG Fuel Cell Systems Inc.	₩ 1,191,322	₩ -	₩ -	₩ -	₩ -	₩ -

	Year ended December 31, 2017					
	Payment in cash (reduction of capital)	Sale of interests	Loans		Borrowings	
			Loans	Payback	Borrowings	Repayments
Associates:						
KEPCO-LGCNS Mangilao Holdings LLC	₩ -	₩ -	₩7,609,914	₩ -	₩ -	₩ -
Associates of the ultimate controlling party:						
LG Fuel Cell Systems Inc.	₩ 5,641,252	₩ -	₩ -	₩2,271,321	₩ -	₩ -

(4) Details of payment guarantee provided to a special person related for the year ended December 31, 2018, are as follows (Unit: Korean won in thousands):

	Details	Guarantee office	Limit amount	Guarantee period
Hellas SmarTicket Societe Anonyme	Payment guarantee	Export-Import Bank Of KOREA	EUR 28,000,000	2016-03-04– 2027-03-04

(5) The compensation and benefits for the Group's key management (registered executives, including non-permanent and non-registered executives) who have significant control and responsibility of planning, operating and controlling the activities of the Group for the years ended December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

	Year ended December 31, 2018	Year ended December 31, 2017
Short-term employee benefits	₩ 20,323,450	₩ 19,635,037
Severance benefits	2,004,504	2,225,688
Other long-term employee payroll	4,478	4,520
Total	₩ 22,332,432	₩ 21,865,245

31. FUNDING ARRANGEMENTS AND PLEDGING:

(1) Financing agreements as of December 31, 2018, are as follows (Unit: Korean won and U.S. dollars in thousands):

		Credit limit	
Category(*)	Financial institution	In U.S. dollars	In Korean won
Comprehensive import and export	Woori Bank	$ 5,800,000	₩ -
Comprehensive import and export	Shinhan Bank	5,000,000	-
Comprehensive import and export	KEB Hana Bank	35,000,000	-
Forward exchange	Woori Bank	3,000,000	-
Forward exchange	KEB Hana Bank	19,100,000	-
Forward exchange	Shinhan Bank	15,000,000	-
Forward exchange	HSBC Bank	20,000,000	-
Forward exchange	JP Morgan Bank	10,000,000	-
Forward exchange	Kookmin Bank	20,000,000	-
E-payment loan limit	Woori Bank	-	9,600,000
E-payment loan limit	KEB Hana Bank	-	35,000,000
E-payment loan limit	Shinhan Bank	-	10,000,000
E-payment loan limit	Corporation bank	-	30,000,000
E-payment loan limit	NH Bank	-	4,000,000
Working capital loan	Shinhan Bank	-	1,900,000
Overdraft	Woori Bank	-	5,000,000
Others	Woori Bank	-	5,000,000

(*) Credit limit of comprehensive import and export referred above includes identical agreement to individual contracts.

(2) Restricted financial assets as of December 31, 2018, are as follows (Unit: Korean won in thousands:

	December 31, 2018	Note
Financial institution deposits	₩ 12,500,000	Subcontract win-win support fund, Chungcheongbukdo creating financial funds
Long-term other receivable	12,500	Overdraft guarantee
Total	₩ 12,512,500	

(3) Details of pledging

1) Performance guarantee

The Group provided a performance guarantee of contracts and warranties to customers by taking guarantee insurance as of December 31, 2018, as follows (Unit: Korean won in thousands):

	Amounts of guarantees	Insurance company
Guarantee of contract warranties, etc.	₩ 92,493,914	Seoul Guarantee Insurance Company
	286,387,350	Korea Software Financial Cooperative
	7,545,848	Engineering Financial Cooperative
	14,164,194	Korea Export-Import Bank
	108,224,027	KEB Hana Bank and others
Total	₩ 508,815,333	

2) Collateral

	Details
Korea Software Financial Cooperative	₩1,300 million of capital stock investment provided a combination as mortgage
Engineering Financial Cooperative	₩779 million of capital stock investment provided a combination as mortgage
Ssangyong Information & Communications Corp.	Provided the patent as collateral (amount limit: ₩6,500 million)
Shinhan Bank	Provided land and buildings as collateral (book value: ₩2,877 million and amount limit: ₩4,500 million) Pledged on fire insurance of buildings and machinery (pledge 0.82 million)

32. OPERATING LEASE CONTRACTS:

(1) The Group as lessee

1) The Group entered into operating lease contracts with regard to building, vehicle and office equipment. The payment schedule related to the major operating lease contracts as of December 31, 2018 and 2017, is as follows (Unit: Korean won in thousands):

	December 31, 2018			
	Within 1 year	1 year–5 years	After 5 years	Total
Real estate leasing	₩ 12,673,755	₩ 29,074,044	₩ 30,963,274	₩ 72,711,073
Furniture leasing	23,469	7,020	-	30,489
Vehicles leasing	99,322	206,569	-	305,891
Others leasing	48,737	13,800	-	62,537
Total	₩ 12,845,283	₩ 29,301,433	₩ 30,963,274	₩ 73,109,990

	December 31, 2017			
	Within 1 year	1 year–5 years	After 5 years	Total
Real estate leasing	₩ 12,676,552	₩ 28,787,994	₩ 37,345,275	₩ 78,809,821
Furniture leasing	34,617	7,080	-	41,697
Vehicles leasing	233,606	473,963	-	707,569
Others leasing	31,500	927	-	32,427
Total	₩ 12,976,275	₩ 29,269,964	₩ 37,345,275	₩ 79,591,514

2) The Group's lease payments recognized related to operating lease contracts for the years ended December 31, 2018 and 2017, are ₩21,476,753 thousand and ₩25,320,788 thousand, respectively. In addition, amounts recognized in profit or loss from discontinued operations for the years ended December 31, 2017, is ₩473,843 thousand.

(2) The Group as lessor

1) The major operating lease contracts as of December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

December 31, 2018				
Lessee	Contents	Within 1 year	1 year–5 years	Total
CJ ENM Co,. Ltd	Real estate leasing	₩ 293,654	₩ 538,365	₩ 832,019
Palm & Vision and others	Real estate leasing	431,660	537,243	968,903
Total		₩ 725,314	₩ 1,075,608	₩ 1,800,922

December 31, 2017				
Lessee	Contents	Within 1 year	1 year–5 years	Total
LG Uplus Corp.	Telecommunications equipment and others	₩ 1,007,129	₩ 2,014,258	₩ 3,021,387
Yeongnam Protech and others	Real estate leasing	323,570	177,740	501,310
Total		₩ 1,330,699	₩ 2,191,998	₩ 3,522,697

2) The Group's lease revenues recognized relating to operating lease contracts for the years ended December 31, 2018 and 2017, are ₩810,833 thousand and ₩1,340,085 thousand, respectively. In addition, amounts recognized in profit or loss from discontinued operations for the years ended December 31, 2017, is ₩110,717 thousand.

33. PENDING LITIGATIONS AND DISPUTES:

Pending litigations and disputes as of December 31, 2018, are as follows (Unit: Korean won in thousands and CNY):

Plaintiff	Defendant	Amount of lawsuit	Description
Kookmin Bank Co., Ltd.	The Group and others	₩ 48,902,750	Claims for unfair joint activities
Industrial Bank of Korea	The Group and others	13,298,811	Claims for unfair joint activities
Woori FIS	The Group and others	21,313,900	Claims for unfair joint activities
National Agricultural Cooperative Federation and others	The Group	78,755,530	Claims for unfair joint activities
National Federation of Fisheries Cooperatives	The Group	1,693,134	Claims for unfair joint activities
KEB Hana Bank	The Group and others	200,000	Claims for unfair joint activities
Republic of Korea	The Group and others	5,000,000	Damage claim related to defense network hacking
The Group	KT CO., LTD.	3,421,163	Litigation with the issue of transfer of ownership registration
The Group	Korea customs service	7,399,894	Litigation with the issue of service payment lawsuit
The Group	Asan Social Welfare Foundation	10,000,000	Request for unpaid Asan hospital service payment
Asan Social Welfare Foundation	The Group	37,933,444	Request for compensation for loss ts gained by the infringer
Bankruptcy Trustee of Major Tech Co., Ltd.	The Group and others	317,652	Litigation with the issue of Majortech reimburses claims
Bankruptcy Trustee of Major Tech Co., Ltd.	The Group and others	194,440	Claims for unfair joint activities
The Group	Republic of Korea	50,000	Litigation with the issue of acceptance of extension of contract period
The Group	Beijing Intermediate Interest Co., Ltd.	CNY 763,800	Litigation with the issue of charge for accounts receivable
The Group	Henan Jilan Guqi Co., Ltd.	CNY 2,058,368	Litigation with the issue of charge for accounts receivable

34. RISK MANAGEMENT:

(1) Capital risk management

The Group performs capital management to maintain the ability of providing profits to shareholders and parties in interest continuously, and to maintain optimum capital structure to reduce capital expenses. In order to maintain such optimum structure, the Group may adjust dividend payments, redeem paid-in capital to shareholders, issue stocks to reduce liability or sell assets.

The Group's capital structure consists of net liability, which is borrowings, less cash and cash equivalents and equity; the overall capital risk management policy of the Group is unchanged from prior period. In addition, items managed as capital by the Group as of December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

	December 31, 2018	December 31, 2017
Total borrowings	₩ 569,160,553	₩ 527,291,860
Less cash and cash equivalents	(439,345,857)	(352,557,025)
Borrowings, net	129,814,696	174,734,835
Total equity	1,096,372,511	1,020,382,056
Debt ratio	11.84%	17.12%

(2) Financial risk management

The Group is exposed to various financial risks, such as market (foreign exchange, interest rate and price), credit and liquidity, related to financial instruments. The purpose of risk management of the Group is to identify potential risks related to financial performance and reduce, eliminate and evade those risks to the degree acceptable to the Group. The Group makes use of derivative financial instruments to hedge certain risks, such as foreign exchange and interest rate. Overall, financial risk management policy of the Group is the same as the prior period.

1) Foreign currency risk
The Group is exposed to foreign currency risk, as it makes transactions denominated in foreign currencies. The book value of the Group's monetary assets and liabilities denominated in foreign currencies that are not the functional currency as of December 31, 2018, is as follows (Unit: Korean won in thousands):

	Assets	Liabilities
USD	₩ 154,446,367	₩ 50,838,608
EUR	15,895,153	7,183,698
JPY	793,320	-
CNY	539,623	132,563
Others	48,832,467	899,328
Total	₩ 220,506,930	₩ 59,054,197

The Group internally assesses the foreign currency risk from changes in exchange rates on a regular basis. The Group's sensitivity to a 10% increase and 10% decrease in Korean won (functional currency of the Group) against major foreign currencies as of December 31, 2018, is as follows (Unit: Korean won in thousands):

	10% increase against foreign currency	10% decrease against foreign currency
USD	₩ 7,834,318	₩ (7,834,318)
EUR	660,328	(660,328)
JPY	60,134	(60,134)
CNY	30,855	(30,855)
Others	3,626,477	(3,626,477)
Total	₩ 12,212,112	₩ (12,212,112)

The above sensitivity analysis is conducted for monetary assets and liabilities denominated in foreign currencies other than functional currency as of December 31, 2018.

As of December 31, 2018, the Group entered into cross-currency forward contracts to manage its foreign currency exchange rate risk related to its expected sale and purchase. The evaluation of unsettled currency forward contracts as of December 31, 2018, is as follows (Unit: Korean won in thousands):

	Notional amount	Valuation gain and loss (I/S)		Valuation gain and loss (B/S)	Fair value	
		Gain	Loss		Assets	Liabilities
Currency forward	₩210,500,789	₩1,270,864	₩180,750	₩ -	₩ 1,241,1	₩ 180,750

2) Interest rate risk

The Group is exposed to interest rate risk due to its borrowings with floating interest rates.

Carrying value of assets and liabilities exposed to interest rate risk as of December 31, 2018, is as follows (Unit: Korean won in thousands):

	December 31, 2018
Borrowings	₩ 50,296,978

The Group internally assesses the interest rate risk from changes in interest rates on a regular basis. The effect of changes in interest rates of 1% to net income and net assets as of December 31, 2018, is as follows (Unit: Korean won in thousands):

	1% increase		1% decrease	
	Net income	Net assets	Net income	Net assets
Borrowings	₩ (373,488)	₩ -	₩ 373,48	₩ -

3) Price risk

The Group is exposed to price risks from AFS equity instruments. As of December 31, 2018, fair value of AFS equity instruments is ₩4,478,098 thousand; when all the other variables are constant and when the price of equity instrument changes by 10%, the effect on equity will be ₩339,440 thousand (effect after tax).

4) Credit risk

Credit risk refers to risk of financial losses to the Group when the counterparty defaults on the obligations of the contract.

Credit risk arises from AFS financial assets (bond); financial institutions; limit of payment guarantee; as well as credit risks of customers, including loans and receivables. As for banks and financial institutions, the Group makes transactions with reputable financial institutions and, therefore, the credit risk from it is limited. For ordinary transactions, customers' financial status, credit history and other factors are considered to evaluate their credit status. The Group does not have policies to manage credit limits of each customer.

The maximum exposure to credit risk of loans and receivables and AFS financial assets is similar to that of the carrying amount of those accounts.

The exposure to the credit risk by major industries as of December 31, 2018, to which the Group's customers belong, is as follows (Unit: Korean won in thousands):

	Manufacturing	Financial service	Other Service	Public institutions	Others	Total	Consolidation adjustments	Consolidated
Financial assets at FVTPL	₩ -	₩ 928,051	₩ -	₩ -	₩8,249,298	₩ 9,177,349	₩ -	₩ 9,177,349
Financial asstes at amortized cost	640,807,881	228,750,046	60,415,401	33,155,368	62,466,729	1,025,595,425	(101,536,718)	924,058,707
Limit of payment guarantee	-	-	142,979,994	-	-	142,979,994	(107,163,514)	35,816,480
Total	₩640,807,881	₩229,678,097	₩203,395,395	₩ 33,155,368	₩70,716,026	₩ 1,177,752,767	₩(208,700,232)	₩ 969,052,535

5) Liquidity risk

The Group manages liquidity risk by establishing short-, medium- and long-term funding plan and continuously monitoring actual cash outflow and its budget to match the maturity profiles of financial assets and liabilities. Management of the Group believes that financial liability may be redeemed by cash flow arising from operating activities and financial assets.

Maturity analysis of non-derivative financial liabilities according to their remaining maturity as of December 31, 2018, is as follows (Unit: Korean won in thousands):

	Within 1 year	1 year–5 years	After 5 years	Total (*1)
Non-interest-bearing financial instruments	₩ 538,211,930	₩ 910,393	₩ -	₩ 539,122,323
Floating-rate financial instrument	20,653,559	-	-	20,653,559
Fixed-interest rate financial instruments	44,835,772	549,523,650	21,707,850	616,067,272
Counterindemnity agreement about operations	35,816,480	-	-	35,816,480
	₩ 639,517,741	₩ 550,434,043	₩ 21,707,850	₩ 1,211,659,634

(*1) The above-maturity analysis is based on the book value and the earliest maturity date by which the payments should be made.

Maturity analysis of derivative financial assets (liabilities) according to their remaining maturity as of December 31, 2018, is as follows (Unit: Korean won in thousands):

		Within 1 year	1 year–5 years	Total
Derivatives for trading:				
Foreign currency derivatives (*)	Inflows	₩ 207,546,815	₩ -	₩ 207,546,815
	Outflow	(206,799,514)	-	(206,799,514)
Foreign currency derivatives	Outflow	(313,070)	-	(313,070)
Derivative instruments designated for hedges:				
Interest swap derivatives	Outflow	-	-	-
Total		₩ 434,231	₩ -	₩ 434,231

(*) As the cash flows from the foreign currency derivative contracts are settled gross, the cash flows are disclosed separately.

(3) Estimation of fair value

The fair values of financial instruments (i.e., financial assets held for trading and AFS financial assets) traded on active markets are determined with reference to quoted market prices. The Group uses the current bid price as the quoted market price for its financial assets.

The fair values of financial instruments not traded on an active market (i.e., over-the-counter derivatives) are determined using a valuation technique. The Group uses various valuation techniques using assumptions based on current market conditions. The fair values of long-term liabilities and AFS financial liabilities are determined using prices from observable current market transactions and dealer quotes for similar instruments. Where such prices are not available, a discounted cash flow analysis or other valuation technique is performed to measure their fair values.

The fair values of trade receivables and trade payables are approximated at their carrying value, less impairment loss. The Group estimates the fair values of financial liabilities as the present value of future contractual cash flows discounted based on current market rates applied to similar financial instruments.

Annual interest rate in order to measure at fair value is as follows:

	December 31, 2018	December 31, 2017
Debentures	2.28% (3 years)	2.55%–3.80% (3 years)
	2.46% (5 years)	2.92%–3.51% (5 years)
	2.74% (7 years)	3.26% (7 years)

Financial instruments that are measured subsequent to initial recognition at fair value are grouped into Levels 1 to 3 based on the degree to which the fair value is observable, as described below.

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

1) Financial instruments that are measured subsequent to initial recognition at fair value by fair value hierarchy levels as of December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

	December 31, 2018				
	Carrying amount	Level 1	Level 2	Level 3	Total
Financial assets:					
Derivatives for trading	₩ 1,241,121	₩ -	₩ 1,241,121	₩ -	₩ 1,241,121
Equity investments	7,935,198	-	-	7,935,198	7,935,198
Public bonds	1,030	-	-	1,030	1,030
Marketable equity securities	1,936,400	1,936,400	-	-	1,936,400
Unmarketable equity securities	2,541,698	-	-	2,541,698	2,541,698
Total	₩ 13,655,447	₩ 1,936,400	₩ 1,241,121	₩ 10,477,926	₩ 13,655,447
Financial liabilities:					
Derivatives for trading	₩ 180,750	₩ -	₩ 180,750	₩ -	₩ 180,750
Total	₩ 180,750	₩ -	₩ 180,750	₩ -	₩ 180,750

	December 31, 2017				
	Carrying amount	Level 1	Level 2	Level 3	Total
Financial assets:					
Derivatives for trading	₩ 1,715,664	₩ -	₩ 1,715,664	₩ -	₩ 1,715,664
Marketable equity securities	1,944,773	1,944,773	-	-	1,944,773
Unmarketable equity securities	4,086,357	-	-	4,086,357	4,086,357
Total	₩ 7,746,794	₩ 1,944,773	₩ 1,715,664	₩ 4,086,357	₩ 7,746,794
Financial liabilities:					
Derivatives for trading	₩ 1,864,318	₩ -	₩ 1,864,318	₩ -	₩ 1,864,318
Total	₩ 1,864,318	₩ -	₩ 1,864,318	₩ -	₩ 1,864,318

There is no significant transfer between Level 1 and Level 2 during the current period and the prior period.

2) Valuation method and input variables of financial instruments, which are included in Level 2 of the financial instruments, that are measured at fair value in the consolidated statements of financial position are as follows (Unit: Korean won in thousands):

	Fair value	Valuation technique	Input factor
Financial assets:			
Derivative instrument for trading	₩ 1,241,121	Discounted cash flow	Forward exchange rate
Total	₩ 1,241,121		
Financial liabilities:			
Derivative instrument for trading	₩ 180,750	Discounted cash flow	Forward exchange rate
Total	₩ 180,750		

3) The levels of the fair value of financial instruments without subsequent measurement at fair value as of December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

	December 31, 2018				
	Book value	Level 1	Level 2	Level 3	Total
Financial assets:					
Financial institution deposits	₩ 39,352,886	₩ -	₩ -	₩ 39,352,886	₩ 39,352,886
Trade receivables (*)	843,765,935	-	-	843,765,935	843,765,935
Loans (*)	10,943,199	-	-	10,943,199	10,943,199
Other accounts receivable (*)	18,836,079	-	-	18,836,079	18,836,079
Accrued income (*)	2,102,179	-	-	2,102,179	2,102,179
Deposits (*)	9,058,428	-	-	9,058,428	9,058,428
Total	₩ 924,058,706	₩ -	₩ -	₩ 924,058,706	₩ 924,058,706
Financial liabilities:					
Trade payables (*)	₩ 380,739,060	₩ -	₩ -	₩ 380,739,060	₩ 380,739,060
Borrowings	50,296,978	-	-	50,296,978	50,296,978
Other accounts payable (*)	41,513,940	-	-	41,513,940	41,513,940
Accrued expenses (*)	115,835,388	-	-	115,835,388	115,835,388
Dividend payables (*)	749	-	-	749	749
Deposits received	941,265	-	941,265	-	941,265
Long-term borrowings	518,863,575	-	521,374,578	-	521,374,578
Total	₩ 1,108,190,955	₩ -	₩ 522,315,843	₩ 588,386,115	₩ 1,110,701,958

(*) Short-term receivables and short-term payment obligations that have been shown as Level 3, where the discount effect is not important, are measured at the original amount.

	December 31, 2017				
	Book value	Level 1	Level 2	Level 3	Total
Financial assets:					
Financial institution deposits	₩ 77,613,666	₩ -	₩ -	₩ 77,613,666	₩ 77,613,666
Trade receivables (*)	796,083,614	-	-	796,083,614	796,083,614
Loans (*)	10,154,187	-	-	10,154,187	10,154,187
Other accounts receivable (*)	14,234,699	-	-	14,234,699	14,234,699
Accrued income (*)	902,410	-	-	902,410	902,410
Deposits (*)	21,653,750	-	-	21,653,750	21,653,750
Total	₩ 920,642,326	₩ -	₩ -	₩ 920,642,326	₩ 920,642,326
Financial liabilities:					
Trade payables (*)	₩ 364,581,804	₩ -	₩ -	₩ 364,581,804	₩ 364,581,804
Borrowings	18,229,537	-	-	18,229,537	18,229,537
Other accounts payable (*)	96,368,537	-	-	96,368,537	96,368,537
Accrued expenses (*)	96,737,453	-	-	96,737,453	96,737,453
Dividend payables (*)	494	-	-	494	494
Deposits received	1,174,295	-	1,174,295	-	1,174,295
Long-term borrowings	509,062,323	-	504,144,095	-	504,144,095
Total	₩ 1,086,154,443	₩ -	₩ 505,318,390	₩ 575,917,825	₩ 1,081,236,215

(*) Short-term receivables and short-term payment obligations that have been shown as Level 3, where the discount effect is not important, are measured at the original amount.

4) Changes in Level 3 financial assets for the years ended December 31, 2018 and 2017, are as follows (Unit: Korean won in thousands):

	Year ended December 31, 2018							
	Beginning balance	Effect of accounting policy change	Beginning balance – Rewrite	Net income	Comprehensive income	Purchases	Disposal	Ending balance
Unmarketable equity securities	₩ -	₩ 14,044,921	₩14,044,921	₩ -	₩ (13,140,545)	₩ 1,908,375	₩ (271,053)	₩ 2,541,698
Investments	4,086,357	3,753,517	7,839,874	95,324	-	-	-	7,935,198
Public bonds	-	-	-	-	-	1,030	-	1,030
Total financial assets	4,086,357	17,798,438	21,884,795	95,324	(13,140,545)	1,909,405	(271,053)	10,477,926
Derivative liabilities for trading purposes	-	-	-	-	-	-	-	-
Total financial liabilities	-	-	-	-	-	-	-	-

	Year ended December 31, 2017							
	Beginning balance	Effect of accounting policy change	Beginning balance –Rewrite	Net income	Comprehensive income	Purchases	Disposal	Ending balance
Investments	₩ 3,993,182	₩ -	₩ 3,993,182	₩ -	₩ 93,175	₩	₩ -	₩ 4,08(

Total recognized gains and losses in other comprehensive income (loss) are related to non-listed shares that are currently held, and it will be reflected in the change in unrealized gains on AFS assets (see Note 21).

5) A description of the valuation techniques and the inputs used in the fair value measurement of financial instruments classified as Level 2 and Level 3 is as follows:

- Currency forward and interest rate swap

In principle, the fair value of currency forward was measured based on forward currency rates whose period is coincident with the residual period of the currency forward and that are advertised in the market at the end of the reporting period. If forward currency rates whose period is coincident with the residual period are not advertised in the market, the fair value of currency forward was measured by estimating the forward currency rates whose period is similar to the residual period of the currency forward. Estimation of the forward currency was performed using interpolation to advertised periodical forward currency rates. Discount rates used to measure the fair value of currency forward were determined based on yield curve from yields advertised in the market.

Discount rates and forward rates used to measure the fair value of interest rate swaps were determined based on the applicable yield curves derived from interest rates that are advertised in the market at the end of the reporting period. The fair value of interest rate swaps measured on the amount of money that is discounted at an appropriate discount rate to future cash flows of interest rate swaps was estimated based on the forward rate that is obtained by the method described above.

As discussed above, the input variables used to measure the fair value of the currency forward are derived from the forward exchange rate observable in the market at the end of the reporting period. Therefore, the Group measures the fair value of the currency forward at Level 2 in the fair value hierarchy Classified.

- Debenture
Fair value of corporate bonds is measured using the discounted cash flow method. The discount rate used for cash flow discounts was determined based on the swap rate and credit spread announced in the market for bonds with similar creditworthiness and maturities to fair value corporate bonds. Since the discount rate, which is the input variable that significantly affects the fair value of corporate bonds, is derived based on market observable information, the Groupy classifies fair value measurements of corporate bonds as Level 2 in the fair value hierarchy.

- Unlisted stocks and unlisted stock-linked securities
The fair value of unlisted stocks and unlisted equity securities is measured using the cash flow discount model. In order to estimate the future cash flow, we use the assumptions and estimates of sales growth rate, pre-tax profit margin, weighted average cost of capital, Some assumptions not based on price or percentage are used. The weighted average cost of capital used to discount future cash flows is calculated using the Capital Asset Pricing Model (CAPM). The Group has classified the fair value measurements of unlisted stocks at Level 3 in the fair value hierarchy based on the assumption that the effect of the above assumptions and estimates on the fair value of unlisted stocks is significant.

6) A description of the valuation processes in the fair value measurement for Level 2 and Level 3 that the Group is carrying out is as follows:

Undesirable inputs that are used to estimate Level 3 fair value measurement are derived in a manner that is described below.

- Stock price volatility and stock price correlation used in measuring the fair value of financial instruments associated with stocks, such as investment convertible bonds, stock-linked securities and conversion rights consideration, are estimated based on the stock price changes observed in the market for a certain period before the end of the reporting period

- Pretax profit margin and sales growth rate, which are used to measure the fair value of non-listed shares, are estimated based on the average value of pretax operating margin and sales growth rate of comparable listed companies.

- Weighted-average cost of capital discount rate that is used to measure the fair value of non-listed shares is estimated by the weighted-average, after-tax, outside capital cost; capital cost estimates of the share value beta is reflected for the purpose of the issuer of the shares; and capital structure based on the equity beta of comparable public companies and has been derived based on the capital asset pricing model.

7) There is no significant change in business and economic environment affecting the fair value of the financial assets and liabilities during the current year.

35. DISPOSAL OF INVESTMENTS IN SUBSIDIARY:

The Group has liquidated SBI-LG Systems Co.,Ltd.,a subsidiary of the Company during the year ended December 31, 2018 and the Group entered into a sale agreement for the ATM business and completed the divestiture and disposal to ATEC Co., Lte. during the year ended December 31, 2017..

(1) Fair value of disposal proceeds is as follows (Unit: Korean won in thousands):

	December 31, 2017	
	ATEC CO. LTD.	
Disposal proceeds received as cash and cash equivalents	₩	37,535,165

(2) The book value of the subsidiary's assets and liabilities on the day of loss of control is as follows (Unit: Korean won in thousands):

	December 31, 2017	
	ATEC CO. LTD.	
Current assets:	₩	39,620,668
Cash and cash equivalents		2,033,723
Other current financial assets		13,520,117
Other current assets		1,243,909
Inventories		22,822,919
Non-current assets:		4,988,719
Other non-current financial assets		1,298,491
Other non-current assets		95,376
Property, plant and equipment and intangible asset		3,594,852
Current liabilities:		6,711,635
Other current financial liabilities		4,451,983
Other current liabilities		2,259,652
Non-current liabilities:		362,587
Other non-current liabilities		362,587
Total value of disposed net assets	₩	37,535,165

(3) Gain on disposal of investments in subsidiaries is as follows (Unit: Korean won in thousands):

	December 31, 2018	
	ATEC CO. LTD.	
Fair value of disposal proceeds	₩	37,535,165
Book value of disposed net assets		37,535,165
Cumulative translation differences in net assets and related hedging instruments of subsidiary reclassified from equity at the time of loss of control		-
Percentage of ownership		100.00%
Gain (loss) on disposal of investments in subsidiaries	₩	-

(4) Net cash flows from disposal of investments in subsidiary are as follows (Unit: Korean won in thousands):

	December 31, 2018	
	ATEC CO. LTD.	
Disposal proceeds received as cash and cash equivalents	₩	28,312,700
Less: Disposal of cash and cash equivalents		2,033,723
Net cash flows	₩	26,278,977

36. DISCONTINUED OPERATIONS:

(1) The Group resolved at the board of directors' meeting on September 5, 2017, to sell financial automation business. The sale is based on long-term policy to improve concentration on business ability and to promote efficient distribution of business resources. The Group entered into an agreement with the buyer and the business was sold during the year ended December 31, 2018.

(2) Profit from discontinued operations (Unit: Korean won in thousands)

		Year ended December 31, 2017
Sales	₩	74,931,187
Operating income or loss		(7,048,964)
Profit or loss before tax		(28,987,517)
Income tax expense		(10,218,198)
Profit or loss from discontinued operations		(18,769,319)
Profit or loss from discontinued operations:		
Impairment of post-tax impairment due to discontinued operations (B)		-
Income from discontinued operations (A + B)		(18,769,319)

(3) Cash flows arising from discontinued operations (Unit: Korean won in thousands)

		Year ended December 31, 2017
Cash flows from operating activities	₩	(18,765,277)
Cash flows from investing activities		(2,386,719)
Cash flows from financing activities		-
Net cash flows	₩	(21,151,995)

37. NON-CASH INVESTING AND FINANCING ACTIVITIES:

(1) Significant non-cash investing and financing activities for the years ended December 31, 2018 and 2017, are as follows:

	Year ended December 31, 2018	Year ended December 31, 2017
Write-off of trade receivables	₩ 22,073,421	₩ 4,975,552
Transfer to current portion of other receivables	-	15,167,341
Transfer from other assets to property, plant and equipment	-	808,663
Increase in other account payable from acquisition of property, plant and equipment and intangible assets	(51,182,979)	35,019,279
Reclassification of intangible assets under development to asset	160,220,410	36,791,764
Other accounts receivable from disposal of investments in subsidiaries and other	-	9,461,220
Transfer to current portion of long-term borrowing and debentures	-	189,806,674
Replacement of account between property, plant and equipment and investment property	11,791,344	-
Total	₩ 142,902,196	₩ 292,030,493

(2) Liabilities adjustments from financing activities for the year ended December 31, 2018, are as follows:

			Non-cash changes		
	Beginning Balance	Cash flow	Changes in exchange rates	Changes in fair value	Ending Balance
Short-term borrowings	₩ 18,229,537	₩ 3,923,995	₩(121,984)	₩ -	₩ 22,031,548
Current portion of long-term borrowings	189,928,993	(190,000,000)	-	71,007	-
Long-term borrowings	319,133,330	199,283,352	-	446,893	518,863,575
Total	₩ 527,291,860	₩ 13,207,347	₩(121,984)	₩ 517,900	₩ 540,895,123

38. SUBSEQUENT EVENTS:

The Company acquired 80.09% of the Sejong Green Power Co., Ltd.'s remaining shares as of January 7, 2019.

39. APPROVAL OF CONSOLIDATED FINANCIAL STATEMENTS:

The consolidated financial statements were approved by the board of directors on February 7, 2019, and are expected to be finally approved at the shareholders' meeting on March 22, 2019.