LG CNS CO., LTD. AND ITS SUBSIDIARIES

CONSOLIDATED FINANCIAL STATEMENTS
AS OF AND FOR THE YEARS ENDED
DECEMBER 31, 2019 AND 2018

ATTACHMENT: INDEPENDENT AUDITORS' REPORT

LG CNS CO., LTD.

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INDEPENDENT AUDITORS' REPORT

English Translation of Independent Auditors' Report Originally Issued in Korean on March 17, 2020

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, 2019 and December 31, 2018, 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, 2019 and December 31, 2018, 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.

- 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 17, 2020

<u>Notice to Readers</u>

This report is effective as of March 17, 2020, 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, 2019 AND 2018

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, 2019 AND 2018

	Korean won	
	December 31, 2019	December 31, 2018
	(In thousands)	
ASSETS		
CURRENT ASSETS:		
Cash and cash equivalents (Notes 5, 6 and 34)	₩ 490,309,547	₩ 439,345,857
Financial institution deposits (Notes 5, 31 and 34)	35,390,763	39,352,886
Financial assets measured at FVTPL(Notes 5, and 34)	-	1,030
Current derivative assets (Notes 5 and 34)	2,249,593	1,241,121
Trade receivables, net (Notes 5,7, 30 and 34)	804,274,258	818,015,421
Other receivables, net (Notes 5,7, 30 and 34)	26,707,666	34,836,336
Income tax refund receivables (Note 28)	6,140,718	6,937,009
Other current assets (Notes 9 and 18)	247,962,893	194,188,511
Inventories, net (Note 8)	57,359,850	51,940,637
Total current assets	1,670,395,288	1,585,858,808
NON-CURRENT ASSETS:		
Financial institution deposits (Notes 5, 31 and 34)	285,461	-
Financial assets measured at FVOCI(Notes 5 and 34)	9,924,235	4,478,098
Financial assets measured at FVTPL(Notes 5 and 34)	11,021,048	7,935,198
Long-term trade receivables, net (Notes 5, 7, 30 and 34)	26,309,223	25,750,514
Long-term other receivables, net (Notes 5, 7, 30, and 34)	5,446,603	6,103,550
Investments in associates (Note 13)	62,662,009	56,794,092
Deferred tax assets, net (Note 28)	46,179,476	50,319,836
Other non-current assets (Note 9)	139,578	3,239,271
Property, plant and equipment, net (Notes 10)	621,366,395	664,831,702
Investment property, net (Notes 11)	28,495,371	16,734,678
Intangible assets (Notes 12)	69,692,205	53,275,112
Right-of-use assets (Note 32)	63,391,368	-
Total non-current assets	944,912,972	889,462,051
TOTAL ASSETS	₩ 2,615,308,260	₩ 2,475,320,859

(Continued)

See notes

LG CNS CO., LTD. AND ITS SUBSIDIARIES
CONSOLIDATED STATEMENTS OF FINANCIAL POSITION (CONTINUED)
AS OF DECEMBER 31, 2019 AND 2018

	Korean won	
	December 31, 2019	December 31, 2018
	(In thousands)	
LIABILITIES AND SHAREHOLDERS' EQUITY		
CURRENT LIABILITIES:		
Current derivative liabilities (Notes 5 and 34)	₩ 275,703	₩ 180,750
Trade payables (Notes 5, 30 and 34)	348,748,377	380,739,060
Other payables (Notes 5, 30 and 34)	157,676,291	157,350,077
Short-term borrowings (Notes 5, 14, 34 and 37)	24,620,328	22,031,548
Current portion of debentures and long-term borrowings (Notes 5, 14, 34 and 37)	229,933,714	-
Current tax liabilities (Note 28)	12,639,374	24,891,093
Current provisions (Note 15)	46,038,780	50,009,895
Other liabilities (Notes 17 and 18)	201,158,120	179,839,498
Current lease liabilities(Note 5, 32, 34 and 37)	12,131,342	-
Total current liabilities	1,033,222,029	815,041,921
NON-CURRENT LIABILITIES:		
Long-term other payables (Notes 5, 30, 34 and 37)	1,436,045	941,265
Long-term borrowings (Notes 5, 14 and 34)	289,453,043	547,129,005
Net defined benefit liability (Note 16)	950,325	1,730,863
Deferred tax liability (Note 28)	5,010,662	3,087,653
Provisions (Note 15)	2,550,569	2,445,594
Other liabilities (Note 17)	10,513,150	8,572,047
Lease liabilities (Note 5, 32, 34 and 37)	49,334,170	-
Total non-current liabilities	359,247,964	563,906,427
TOTAL LIABILITIES	1,392,469,993	1,378,948,348
SHAREHOLDERS' EQUITY:		
Equity attributable to owners of the Parent Company:		
Isuued capital (Note 19)	47,198,411	47,198,411
Capital surplus (Note 20)	36,693,312	39,515,638
Accumulated other comprehensive loss (Note 21)	(16,034,562)	(17,944,454)
Retained earnings (Note 22)	1,152,845,965	1,030,556,232
	1,220,703,126	1,099,325,827
Non-controlling interests	2,135,141	(2,953,316)
TOTAL SHAREHOLDERS' EQUITY	1,222,838,267	1,096,372,511
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY	₩2,615,308,260	₩ 2,475,320,859

(Concluded)

See notes

LG CNS CO., LTD. AND ITS SUBSIDIARIES
CONSOLIDATED STATEMENTS OF INCOME
FOR THE YEARS ENDED DECEMBER 31, 2019 AND 2018

	Korean won			
	Year ended December 31, 2019		Year ended December 31, 2018	
	(In thousands)			
Sales (Notes 4, 23 and 30)	₩	3,283,314,264	₩	3,117,655,729
Cost of sales (Notes 8, 23, 24 and 30)		(2,818,591,153)		(2,703,042,074)
Gross profit		464,723,111		414,613,655
Selling and administrative expenses (Notes 23, 24, 30 and 32)		(251,874,581)		(227,555,091)
Operating income		212,848,530		187,058,564
Financial income (Note 25)		8,904,225		10,089,735
Financial expenses (Note 25)		(18,309,168)		(17,123,584)
Gain or loss from investment in associates (Note 13)		4,510,770		(440,776)
Other operating income (Note 26)		26,126,313		21,068,477
Other operating expenses (Note 26)		(26,759,508)		(39,090,783)
Profit before income tax expense		207,321,162		161,561,633
Income tax expense (Note 28)		(43,868,975)		(51,053,250)
Profit for the year	₩	163,452,187	₩	110,508,383
Profit for the year attributable to:				
Owners of the Parent Company	₩	163,843,086	₩	107,913,077
Non-controlling interests		(390,899)		2,595,306
Earnings per share (“EPS”) (in Korean won) (Note 29)				
Basic and diluted income per share	₩	1,879	₩	1,238

See notes

LG CNS CO., LTD. AND ITS SUBSIDIARIES
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
FOR THE YEARS ENDED DECEMBER 31, 2019 AND 2018

	Korean won	
	Year ended December 31, 2019	Year ended December 31, 2018
	(In thousands)	
Profit for the year	₩ 163,452,187	₩ 110,508,383
Items that will not be reclassified to profit or loss:		
Remeasurements of the net defined benefit liability	431,811	(540,930)
Changes in retained earnings of equity method investments	(130,435)	(706,151)
Net loss on Financial assets measured at FVTOCI	(258,137)	(9,613,021)
	43,239	(10,860,102)
Items that may be reclassified subsequently to profit or loss:		
Capital change in equity method	1,459,004	(1,171,815)
Exchange differences on translating foreign operations	731,928	1,358,870
	2,190,932	187,055
Total comprehensive income for the year	₩ 165,686,358	₩ 99,835,336
Total comprehensive income attributable to:		
Owners of the Parent Company	₩ 166,054,354	₩ 97,351,141
Non-controlling interests	(367,996)	2,484,195

See notes

LG CNS CO., LTD. AND ITS SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CHANGES IN SHAREHOLDERS' EQUITY
FOR THE YEARS ENDED DECEMBER 31, 2019 AND 2018

	Korean won					
	Issued capital	Capital surplus	Accumulated other comprehensive income (loss)	Retained earnings	Non-controlling interests	Total
	(In thousands)					
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	-	-	(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
Balance at January 1, 2019	₩47,198,411	₩39,515,638	₩(17,944,454)	₩ 1,030,556,232	₩ (2,953,316)	₩1,096,372,511
Profit (loss) for the year	-	-	-	163,843,086	(390,899)	163,452,187
Net gain on financial assets measured at FVOCI	-	-	(258,137)	-	-	(258,137)
Valuation through equity method	-	-	1,459,003	(130,435)	-	1,328,568
Remeasurements of net defined benefit liability	-	-	-	431,811	-	431,811
Translating foreign operations	-	-	709,026	-	22,902	731,928
Annual dividends	-	-	-	(41,854,729)		(41,854,729)
Acquisition of additional shares in subsidiaries	-	(2,822,326)	-	-	5,491,883	2,669,557
Disposal of shares in subsidiaries	-	-	-	-	(35,429)	(35,429)
Balance as of December 31, 2019	₩47,198,411	₩36,693,312	₩(16,034,562)	₩ 1,152,845,965	₩ 2,135,141	₩1,222,838,267

See notes

LG CNS CO., LTD. AND ITS SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
FOR THE YEARS ENDED DECEMBER 31, 2019 AND 2018

	Korean won	
	Year ended December 31, 2019	Year ended December 31, 2018
	(In thousands)	
CASH FLOWS FROM OPERATING ACTIVITIES:		
Profit for the year	₩ 163,452,187	₩ 110,508,383
Additions of expenses not involving cash outflows:		
Salaries and wages	2,816,486	1,171,808
Retirement benefits	3,514,209	4,035,498
Depreciation	74,086,646	65,550,288
Amortization of intangible assets	8,903,966	8,286,300
Loss on valuation of inventories	-	5,997
Bad debt expenses	281,915	9,481,030
Accrual of provision	24,177,338	28,661,901
Other selling and administrative expenses	-	1,661,983
Loss on foreign currency translation	2,181,161	3,683,221
Loss on disposal of property, plant and equipment	52,764	230,644
Impairment loss on property, plant and equipment	176	75,208
Loss on disposal of intangible assets	7,145	714,069
Impairment loss on intangible assets	-	879,443
Loss on transactions of derivatives	15,910,718	13,467,144
Loss on valuation of derivatives	330,389	5,423,750
Interest expenses	16,887,059	15,345,828
Loss on disposal of financial assets measured at FVTPL	1,032	89
Impairment loss on investments in associates	-	6,823,984
Loss on disposal of investments in subsidiaries	473,009	592,425
Loss on valuation using equity method	1,376,115	4,166,563
Other non-operating expenses	-	125,502
Income tax expense	43,868,975	51,053,250
	194,869,103	221,435,925
Deduction of items not involving cash inflows:		
Reversal of allowance for doubtful accounts	241,787	1,152,030
Reversal of provision	10,282,609	5,644,709
Gain on foreign currency translation	2,327,395	1,803,453
Reversal of impairment loss on inventories	49,590	39,853
Gain on disposal of property, plant and equipment	381,415	471,375
Gain on disposal of intangible assets	3,479	216,911
Reversal of impairment loss of intangible assets	890,000	-
Gain on transaction of derivatives	8,533,789	7,101,281
Gain on valuation of derivatives	1,981,158	1,270,864
Gain on valuation of financial assets measured at FVTPL	211,271	95,324
Interest income	7,678,020	8,635,815

(Continued)

LG CNS CO., LTD. AND ITS SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS (CONTINUED)
FOR THE YEARS ENDED DECEMBER 31, 2019 AND 2018

	Korean won	
	Year ended December 31, 2019	Year ended December 31, 2018
	(In thousands)	
Dividend income	₩ 14,096	₩ 83,960
Gain on disposal of investments in subsidiaries	651,900	1,978,715
Gain on valuation using equity method	5,886,886	3,725,787
Other non-operating income	134,526	1,304,089
	(39,267,921)	(33,524,166)
Movements in working capital:		
Trade receivables	22,898,906	(94,370,096)
Other receivables	6,531,197	(6,476,104)
Other current assets	(47,703,785)	(29,165,408)
Inventories	(5,758,695)	(3,547,593)
Non-current trade receivables	(17,257)	(1,643,778)
Other non-current assets	618,750	(598,749)
Other current financial liabilities	-	(82)
Trade payables	(30,243,687)	29,256,153
Other payables	25,083	18,392,707
Other current liabilities	20,064,155	29,580,952
Current provisions	(26,404,431)	(16,452,651)
Other non-current liabilities	(754,450)	(606,650)
Net defined benefit liability	(2,359,226)	(7,214,243)
Other operating assets and liabilities	(403,003)	(3,693,030)
	(63,506,443)	(86,538,572)
Interest income received	6,897,130	8,059,727
Dividend income received	522,468	83,960
Income taxes received	814,599	(316,193)
Interest expense paid	(14,655,303)	(13,725,875)
Income taxes paid	(50,610,491)	(47,092,897)
Net cash (used in) provided by operating activities	198,515,329	158,890,292

(Continued)

LG CNS CO., LTD. AND ITS SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS (CONTINUED)
FOR THE YEARS ENDED DECEMBER 31, 2019 AND 2018

	Korean won	
	Year ended December 31, 2019	Year ended December 31, 2018
	(In thousands)	
CASH FLOWS FROM INVESTING ACTIVITIES:		
Cash inflows from investing activities:		
Decrease in financial institution deposits	₩ 4,539,843	₩ 40,182,306
Settlement of derivative instruments	8,533,789	7,084,843
Decrease in other receivables	1,303,532	16,728,339
Disposal of Financial assets measured at FVOCI	1,318,044	739,657
Disposal of Financial assets measured at FVTPL	222	-
Disposal of investments in subsidiaries	700,000	2,403,864
Decrease in non-current other receivables	557,127	749,012
Disposal of property, plant and equipment	577,092	24,381,229
Disposal of intangible assets	1,406,600	222,461
Cash inflows from other investment activities	384,276	824,107
Cash inflows from changes in the scope of consolidation	3,703,330	4,226,045
	23,023,855	97,541,863
Cash outflows for investing activities:		
Increase in financial institution deposits	52,966	2,059,238
Acquisition of derivative instruments	15,163,417	13,600,341
Increase in other receivables	855,325	1,331,195
Purchase of financial assets measured at FVOCI	7,334,763	1,907,008
Purchase of financial assets measured at FVTPL	2,699,805	-
Increase in non-current other receivables	647,032	3,424,264
Acquisition of property, plant and equipment	33,363,317	125,870,511
Acquisition of intangible assets	13,968,343	14,428,112
Acquisition of subsidiaries	14,237,403	-
Cash outflows from changes in the scope of consolidation	2,712,661	2,636,626
Cash outflows from other investment activities	1,495	28,627
	(91,036,527)	(165,285,922)
Net cash used in investing activities	(68,012,672)	(67,744,059)

(Continued)

LG CNS CO., LTD. AND ITS SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS (CONTINUED)
FOR THE YEARS ENDED DECEMBER 31, 2019 AND 2018

	Korean won	
	Year ended December 31, 2019	Year ended December 31, 2018
	(In thousands)	
CASH FLOWS FROM FINANCING ACTIVITIES:		
Cash inflows from financing activities:		
Proceeds from short-term borrowings	₩ 16,250,281	₩ 13,800,328
Issuance of debentures	-	199,283,352
Increase in government subsidy	447,316	-
	16,697,597	213,083,680
Cash outflows for financing activities:		
Redemption of short-term borrowings	14,495,210	9,876,333
Redemption of current portion of long-term borrowings	3,211,788	512,148
Redemption of long-term borrowings	25,053,641	-
Redemption of debentures	-	190,000,000
Redemption of current lease liabilities	11,184,895	-
Redemption of lease liabilities	1,219,105	-
Payment of dividends	41,854,177	18,311,190
Cash outflows for consolidated capital transactions	248,575	-
Cash outflows for other financial activities	-	29,288
	(97,267,391)	(218,728,959)
Net cash provided by financing activities	(80,569,794)	(5,645,279)
Net increase (decrease) in cash and cash equivalents	49,932,863	85,500,954
Cash and cash equivalents at the beginning of year	439,345,857	352,557,025
Effects of exchange rate changes on the balance of cash held in foreign currencies	1,030,827	1,287,878
Cash and cash equivalents at the end of year	₩ 490,309,547	₩ 439,345,857

(Concluded)

See note.

LG CNS CO., LTD. AND ITS SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
AS OF AND FOR THE YEARS ENDED DECEMBER 31, 2019 AND 2018

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, 2019, 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, 2019 are consistent with the accounting policies used to prepare the consolidated financial statements as of and for the year ended December 31, 2018.

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 1116 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, 2019

- K-IFRS 1116 – Leases (Enactment)

In the current year, the Group has applied K-IFRS 1116 (as issued by the KASB in November 2017) that is effective for annual periods that begin on or after 1 January 2019.

K-IFRS 1116 introduces new or amended requirements with respect to lease accounting. It introduces significant changes to lessee accounting by removing the distinction between operating and finance lease and requiring the recognition of a right-of-use asset and a lease liability at commencement for all leases, except for short-term leases and leases of low value assets. In contrast to lessee accounting, the requirements for lessor accounting have remained largely unchanged. Details of these new requirements are described in '(7) Lease'. The impact of the adoption of K-IFRS 1116 on the Group's consolidated financial statements is described below.

The date of initial application of K-IFRS 1116 for the Group is 1 January 2019.

The Group has applied K-IFRS 1116 using the cumulative catch-up approach, with these practical expedients.
• To recognise the cumulative effect of initially applying this Standard as an adjustment to the opening balance of retained earnings (or other component of equity, as appropriate) at the date of initial application.
• Not to restate comparative information applying K-IFRS 1017 Leases and K-IFRS 2104 Determining whether an Arrangement contains a Lease.

(a) Impact of the new definition of a lease
The Group has made use of the practical expedient available on transition to K-IFRS 1116 not to reassess whether a contract is or contains a lease. Accordingly, the definition of a lease in accordance with K-IFRS 1017 and K-IFRS 2104 will continue to be applied to those contracts entered or modified before 1 January 2019.

The change in definition of a lease mainly relates to the concept of control. K-IFRS 1116 determines whether a contract contains a lease on the basis of whether the customer has the right to control the use of an identified asset for a period of time in exchange for consideration. This is in contrast to the focus on 'risks and rewards' in K-IFRS 1017 and K-IFRS 2104.

The Group applies the definition of a lease and related guidance set out in K-IFRS 1116 to all contracts entered into or changed on or after 1 January 2019.

(b) Impact on Lessee Accounting

(i) Former operating leases

K-IFRS 1116 changes how the Group accounts for leases previously classified as operating leases under K-IFRS 1017, which were off balance sheet.
Applying K-IFRS 1116, for all leases (except as noted below), the Group :
• Recognises right-of-use assets and lease liabilities in the consolidated statement of financial position, initially measured at the present value of the future lease payments
• Recognises depreciation of right-of-use assets and interest on lease liabilities in profit or loss
• Separates the total amount of cash paid into a principal portion (presented within financing activities) and interest (presented within financing activities) in the consolidated statement of cash flows.

Lease incentives (e.g. rent-free period) are recognized as part of the measurement of the right-of-use assets and lease liabilities whereas under K-IFRS 1017 they resulted in the recognition of a lease incentive, amortised as a reduction of rental expenses generally on a straight-line basis.
Under K-IFRS 1116, right-of-use assets are tested for impairment in accordance with K-IFRS 1036.

For short-term leases (lease term of 12 months or less) and leases of low-value assets, the Group has opted to recognise a lease expense on a straight-line basis as permitted by K-IFRS 1116.

The Group used these practical expedients when applying the cumulative catch-up approach to leases previously classified as an operating lease applying K-IFRS 1017.

• To apply a single discount rate to a portfolio of leases with reasonably similar characteristics
• To rely on its assessment of whether leases are onerous applying IAS 37 Provisions, Contingent Liabilities and Contingent Assets immediately before the date of initial application as an alternative to performing an impairment review.
• To elect not to recognise right-of-use asset and lease liability to leases for which the lease term ends within 12 months of the date of initial application.
• To exclude initial direct costs from the measurement of the right-of-use asset at the date of initial application.
• To use hindsight, such as in determining the lease term if the contract contains options to extend or terminate the lease

(ii) Former finance leases

Except for the applying K-IFRS 1116 in accordance with paragraph C5(b), for leases that were classified as finance leases applying K-IFRS 1017, the carrying amount of the right-of-use asset and the lease liability at the date of initial application shall be the carrying amount of the lease asset and lease liability immediately before that date measured applying IAS 17.

For those leases, the Company accounts for the right-of-use asset and the lease liability applying K-IFRS 1116 from the date of initial application.

(c) Impact on Lessor Accounting

K-IFRS 1116 does not change substantially how a lessor accounts for leases. 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 with regard to 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 sub-lease as two separate contracts. The intermediate lessor is required to classify the sub-lease 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 has reclassified certain of its sub-lease agreements as finance leases. As required by K-IFRS 1109, an allowance for expected credit losses has been recognized on the finance lease receivables.

(d) Financial impact of the initial application of K-IFRS 1116

The lessee's incremental borrowing rate used when measuring lease liabilitie at 1 January 2019 is 2.05%.

The table below demonstrate the relationship between the discounted amount of operating lease commitments as at December 31 2018 applied K-IFRS 1017 using the incremental borrowing rate at the date of initial application, and the amount of lease liabilities at the date of initial application.

	Book Value
Operating lease commitments as at 31 December 2018 (a)	₩ 70,701,918
Short-term leases and leases for which the underlying asset is of low value (b)	1,484,008
Discount on present value (c)	6,288,215
Financial lease liabilites under K-IFRS 1017 as at 31 December 2018 (d)	-
Lease liabilities as at 1 January 2019 (e = a-b-c+d)	62,929,695

Right-of-use assets of ₩65,574,395 thousand and Lease liabilities of ₩62,929,695 thousand was recognized at the date of initial application of K-IFRS 1116. The difference between the amount of right-of-use assets and the amount of lease liabilities corresponds to the asset-to-asset account substitution.

- K-IFRS 1109 – Financial Instruments (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, financial assets with prepayment features with negative compensation do not automatically fail SPPI.

-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 other financial instruments in an associate or joint venture to which the equity method is not applied. These include long-term interests that, in substance, form part of the entity's net investment in an associate or joint venture. The Group applies K-IFRS 1109 to such long-term interests before it applies K-IFRS 1028. In applying K-IFRS 1109, the

Group does not take account of any adjustments to the carrying amount of longterm interests required by K-IFRS 1028 (i.e., adjustments to the carrying amount of longterm interests arising from the allocation of losses of the investee or assessment of impairment in accordance with K-IFRS 1028).

- 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. This is the case irrespective of whether different tax rates apply to distributed and undistributed 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 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 relating 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.

- 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). IAS 19 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 a 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 K-IFRS 1019.99 with the discount rate used in the remeasurement (also taking into account the effect of contributions and benefit payments on the net defined benefit liabilities(asset)).

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

The amendment clarifies that it does not reduce the scope of disclosure even if K-IFRS 1115 is applied by revising the meaning of 'contract' referred to in paragraph 129.1 to 'individual contract' in relation to 'additional disclosure of cost application method'. In addition, because K-IFRS 1115 does not distinguish between the types of contracts, service contracts that were not covered by the previous revenue standard, paragraph 145.1, may also be subject to paragraph 129.1 of K-IFRS 1115. This clarifies that the scope of the contract that are subject to the disclosure requirement in accordance with paragraph 129.1 may be broadened compared to the previous revenue standard

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

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 group; and
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:
• 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.
• If no, the entity should reflect the effect of uncertainty in determining its accounting tax position.

The Group does not anticipate that the application of the enactment and amendments will have an significant impact on the Group's financial statements.

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

-K-IFRS 1103 Definition of a business (Amendment)

The amendments clarify that while businesses usually have outputs, outputs are not required for an integrated set of activities and assets to qualify as a business. To be considered a business an acquired set of activities and assets must include, at a minimum, an input and a substantive process that together significantly contribute to the ability to create outputs.
Additional guidance is provided that helps to determine whether a substantive process has been acquired.

The amendments introduce an optional concentration test that permits a simplified assessment of whether an acquired set of activities and assets is not a business. Under the optional concentration test, the acquired set of activities and assets is not a business if substantially all of the fair value of the gross assets acquired is concentrated in a single identifiable asset or group of similar assets.

The amendments are applied prospectively to all business combinations and asset acquisitions for which the acquisition date is on or after the first annual reporting period beginning on or after 1 January 2020, with early application permitted.

-Amendments to References to the Conceptual Framework in K-IFRS Standards (Amendment)

Together with the revised Conceptual Framework, which became effective upon publication on 21 December 2018, the IASB has also issued Amendments to References to the Conceptual Framework in IFRS Standards. The document contains amendments to K-IFRS 1102, 1103, 1106, 1114, 1001, 1008, 1034, 1037, 1038, 2112, 2119, 2120, 2122, and 2032

Not all amendments, however, update those pronouncements with regard to references to and quotes from the framework so that they refer to the revised Conceptual Framework. Some pronouncements are only updated to indicate which version of the Framework they are referencing to (the Framework (2007), the IASB Framework of 2010, or the new revised Framework of 2018) or to indicate that definitions in the Standard have not been updated with the new definitions developed in the revised Conceptual Framework.

The amendments, where they actually are updates, are effective for annual periods beginning on or after 1 January 2020, with early application permitted.

The Group does not anticipate that the application of the enactment and amendments will have an significant impact on the Group's consolidated financial statements.

(2) 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, 2019 and 2018, are as follows:

Subsidiary	Major business activity	Location	Percentage of ownership and voting right held by the company in the Group (*1) December 31, 2019	December 31, 2018
Biztech Partners Co., Ltd	IT software service	South Korea	96.09%	96.09%
Korea Elecom Co., Ltd. (*1)	Manufacturing military equipment	South Korea	-	93.93%
Haengbokmaru Co., Ltd.	Coffee bar, etc.	South Korea	100.00%	100.00%
Sejong Green Power Co., Ltd. (*2)	New and Renewable Energy Power Generation	South Korea	100.00%	19.91%
Open Source Consulting Co., Ltd(*3)	System Software Development and Supply	South Korea	56.21%	-
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%
LG CNS Brasil Servicos de T.I. Ltda.(*4)	Management and consultation of IT systems	Brazil	100.00%	100.00%
UCESS PHILIPPINES, INC.(*5)	Management and consultation of IT systems	Philippine	-	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%
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%
LG CNS UZBEKISTAN, LLC	Management and consultation of IT systems	Uzbekistan	51.00%	51.00%
LG CNS VIETRAM CO., LTD.	Management and consultation of IT systems	Vietnam	100.00%	100.00%
LG CNS FUND I LLC (*7)	Investment Fund	America	100.00%	100.00%

(*1) Disposed during the year ended December 31, 2019

(*2) Acquired potential control during the year ended December 31, 2018

(*3) Acquired during the year ended December 31, 2019.

(*4) Changed the company name during the year ended December 31, 2019.

(*5) Liquidated during the year ended December 31, 2019.

The financial positions and performances of subsidiaries as of December 31, 2019, are as follows (Unit: Korean won in thousands):

Subsidiary	Financial information Asset	Liability	Sales	Net income
BizTech Partners Co., Ltd.	₩ 29,061,517	₩ 11,573,315	₩ 104,487,767	₩ 1,964,027
Haengbokmaru Co., Ltd.	1,746,144	454,332	2,902,331	133,145
Sejong Green Power Co., Ltd.	27,935,600	4,959,422	8,578,691	(1,878,488)
Open Source Consulting Co., Ltd	9,787,190	3,883,128	4,532,090	(760,568)
LG CNS PHILIPPINES, INC.	-	3,393,804	-	-
LG CNS China Inc.	78,499,648	44,825,341	163,484,099	14,524,304
LG CNS Europe B.V.	40,735,447	34,903,313	51,533,512	1,729,599
LG CNS America, Inc.	37,582,346	33,481,972	70,553,161	(2,842,679)
LG CNS India Pvt., Ltd.	10,133,462	8,516,191	10,981,263	426,073
PT LG CNS Indonesia	2,933,084	5,512,299	4,900,654	(106,728)

Entrue Brasil Servicos de T.I. Ltda.	1,726,789	504,118	4,195,987	160,129
LG CNS COLOMBIA SAS	17,022,369	17,820,134	17,213,116	364,575
LG CNS MALAYSIA SDN BHD	3,267,580	5,225,152	4,801,953	214,826
LG CNS Saudi Arabia LLC	57,257	15,149	-	-
LG CNS JAPAN Co., Ltd.	9,904,893	2,776,574	10,382,063	38,713
LG CNS UZBEKISTAN, LLC	191,181	698,284	390,374	(180,727)
LG CNS VIETNAM, LLC	11,349,939	10,387,688	21,159,674	485,820
LG CNS FUND I LLC	4,411,697	83,019	-	(654,160)

(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

111 The Group has chosen the cumulative catch-up approach at the date of initial application of K-IFRS 1116. Therefore, the Group does not restate the comparative information. The detail account policies that applied under K-IFRS 1017 and K-IFRS 1116 are below:

1) Accounting policy applied on or after 1 January 2019

1-1) The Group as lessee

The Group assesses whether a contract is or contains a lease, at inception of the contract. The Group recognises a right-of-use asset and a corresponding lease liability with respect to all lease arrangements in which it is the lessee, except for short-term leases (defined as leases with a lease term of 12 months or less) and leases of low value assets (such as tablets and personal computers, small items of office furniture and telephones). For these leases, the Group recognises the lease payments as an operating expense on a straight-line basis over the term of the lease unless another systematic basis is more representative of the time pattern in which economic benefits from the leased assets are consumed.

The lease liability is initially measured at the present value of the lease payments that are not paid at the commencement date, discounted by using the rate implicit in the lease. If this rate cannot be readily determined, the Group uses its incremental borrowing rate.

Lease payments included in the measurement of the lease liability comprise:

•Fixed lease payments (including in-substance fixed payments), less any lease incentives receivable;
•Variable lease payments that depend on an index or rate, initially measured using the index or rate at the commencement date;
•The amount expected to be payable by the lessee under residual value guarantees;
•The exercise price of purchase options, if the lessee is reasonably certain to exercise the options; and
•Payments of penalties for terminating the lease, if the lease term reflects the exercise of an option to terminate the lease.

The lease liability is presented as a separate line in the consolidated statement of financial position.

The lease liability is subsequently measured by increasing the carrying amount to reflect interest on the lease liability (using the effective interest method) and by reducing the carrying amount to reflect the lease payments made.

The Group remeasures the lease liability (and makes a corresponding adjustment to the related right-of-use asset) whenever:

- The lease term has changed or there is a significant event or change in circumstances resulting in a change in the assessment of exercise of a purchase option, in which case the lease liability is remeasured by discounting the revised lease payments using a revised discount rate.
- The lease payments change due to changes in an index or rate or a change in expected payment under a guaranteed residual value, in which cases the lease liability is remeasured by discounting the revised lease payments using an unchanged discount rate (unless the lease payments change is due to a change in a floating interest rate, in which case a revised discount rate is used).
- A lease contract is modified and the lease modification is not accounted for as a separate lease, in which case the lease liability is remeasured based on the lease term of the modified lease by discounting the revised lease payments using a revised discount rate at the effective date of the modification.

The right-of-use assets comprise the initial measurement of the corresponding lease liability, lease payments made at or before the commencement day, less any lease incentives received and any initial direct costs. They are subsequently measured at cost less accumulated depreciation and impairment losses.

Whenever the Group incurs an obligation for costs to dismantle and remove a leased asset, restore the site on which it is located or restore the underlying asset to the condition required by the terms and conditions of the lease, a provision is recognised and measured under IAS 37. To the extent that the costs relate to a right-of-use asset, the costs are included in the related right-of-use asset, unless those costs are incurred to produce inventories.

Right-of-use assets are depreciated over the shorter period of lease term and useful life of the underlying asset. If a lease transfers ownership of the underlying asset or the cost of the right-of-use asset reflects that the Group expects to exercise a purchase option, the related right-of-use asset is depreciated over the useful life of the underlying asset. The depreciation starts at the commencement date of the lease.

The right-of-use assets are presented as a separate line in the consolidated statement of financial position.

The Group applies K-IFRS 1036 to determine whether a right-of-use asset is impaired and accounts for any identified impairment loss as described in the ‘Property, Plant and Equipment’ policy.

Variable rents that do not depend on an index or rate are not included in the measurement the lease liability and the right-of-use asset. The related payments are recognized as an expense in the period in which the event or condition that triggers those payments occurs and are included in profit or loss.

As a practical expedient, K-IFRS 1116 permits a lessee not to separate non-lease components, and instead account for any lease and associated non-lease components as a single arrangement. The Group has not used this practical expedient. For a contracts that contain a lease component and one or more additional lease or non-lease components, the Group allocates the consideration in the contract to each lease component on the basis of the relative stand-alone price of the lease component and the aggregate stand-alone price of the non-lease components.

1-2) The Group as lessor

The Group enters into lease agreements as a lessor with respect to some of its investment properties. The Group also rents equipment to retailers necessary for the presentation and customer fitting and testing of footwear and equipment manufactured by the Group.

Leases for which the Group is a lessor are classified as finance or operating leases. Whenever the terms of the lease transfer substantially all the risks and rewards of ownership to the lessee, the contract is classified as a finance lease. All other leases are classified as operating leases.

When the Group is an intermediate lessor, it accounts for the head lease and the sub-lease as two separate contracts. The sub-lease is classified as a finance or operating lease by reference to the right-of-use asset arising from the head lease .

Rental income from operating leases is recognised 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 recognised on a straight-line basis over the lease term .

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

When a contract includes both lease and non-lease components, the Group applies IFRS 15 to allocate the consideration under the contract to each component .

(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	4–5
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 recognised if, and only if, all of the following conditions 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) Restoration provisions
Provisions for the costs to restore leased plant assets to their original condition, as required by the terms and conditions of the lease, are recognised when the obligation is incurred, either at the commencement date or as a consequence of having used the underlying asset during a particular period of the lease, at the directors' best estimate of the expenditure that would be required to restore the assets. Estimates are regularly reviewed and adjusted as appropriate for new circumstances.

5) 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;
- existing or forecast adverse changes in business, financial or economic conditions that are expected to cause a significant decrease in the debtor's ability to meet its debt obligations;
- 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 1116 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.

(23) Treasury shares

In the event of reacquisition of its own equity instruments (hereinafter referred to as "treasury share") the incremental costs incurred directly related to the equity transaction are accounted for by deducting the net income tax benefit from equity, and other capital items are marked as the total capital reduction item in the statement of financial position. On the other hand, the gain or loss on the purchase, sale or incineration of own shares is not recognized in profit or loss but is recognized directly in equity.

(24) Fair value

Fair value is the price that will be received on sale of assets or paid on transfer of liabilities at the measurement date in normal transactions between market participants, whether the price is directly observable or estimated using valuation techniques. In estimating the fair value of an asset or liability, we consider the characteristics of the asset or liability that market participants consider when pricing the asset or liability at the measurement date. Equity-based payment transactions within the scope of IFRS 2 'Share-based Payment', lease transactions within the scope of IAS 17 'Leases', net realizable value of IAS 2 _Inventories_ and the value of use of IAS 36 _Inventories_, are determined in accordance with the principles described in measurement or disclosure, except for measurements that are similar in part but are not fair value.

In addition, based on the observable degree of input used for measuring fair value for financial reporting purposes and the significance of input variables for the entire fair value measurement, the fair value measurement is classified as level 1, 2 or 3.

	Details
(Level 1)	Quoted price(unadjusted) in an active market accessible to the same asset or liability at the measurement date
(Level 2)	Inputs that can be observed directly or indirectly for an asset or liability beside the quoted price of Level 1
(Level 3)	Unobservable inputs to assets or liabilities

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, 2019 and 2018, are as follows (Unit: Korean won in thousands):

Operating segment	Sales (*1) Year ended December 31, 2019	Sales (*1) Year ended December 31, 2018	Profit before income tax (*1) Year ended December 31, 2019	Profit before income tax (*1) Year ended December 31, 2018
LG CNS Co,.Ltd.	₩ 3,039,795,628	₩ 2,828,574,073	₩ 191,394,324	₩ 148,928,945
BizTech Partners Co., Ltd	104,487,767	96,566,535	2,229,509	2,557,455
Haengbokmaru Co., Ltd.	2,902,331	2,635,081	141,858	448,012
Sejong Green Power Co., Ltd. (*2)	8,578,691	1,406,344	(1,675,795)	(380,009)
Open Source Consulting(*3)	4,532,090	-	(781,908)	-
Korea Elecom Co., Ltd. (*4)	947,961	1,267,562	(760,179)	1,705,215
LG N-Sys Inc.(*5)	-	67,197,081	-	(378,539)
LG CNS China Inc.	163,484,099	136,180,935	19,148,531	17,246,903
LG CNS Europe B.V.	51,533,512	27,456,570	2,523,651	842,857
LG CNS America, Inc.	70,553,161	84,729,836	(3,599,857)	(9,775,036)
LG CNS India Pvt, Ltd.	10,981,263	11,739,495	426,180	638,580
PT LG CNS Indonesia	4,900,654	9,839,275	266,906	(91,101)
LG CNS Brasil Servicos de T.I. Ltda.(*6)	4,195,987	3,987,636	475,102	733,914
LG CNS COLOMBIA SAS	17,213,116	13,173,676	922,750	(5,644,770)
LG CNS MALAYSIA SDN BHD	4,801,953	6,062,377	282,665	(1,283,351)
LG CNS JAPAN Co., Ltd.	10,382,063	37,536,144	573,003	402,608
Collain Healthcare, LLC(*7)	-	3,930,649	-	9,571,228
LG CNS UZBEKISTAN, LLC	390,374	1,144,146	(180,727)	(78,077)
LG CNS VIETNAM CO., LTD	21,159,674	21,220,763	485,820	623,285
LG CNS FUND I LLC(*8)	-	-	(654,160)	(275,052)
UCESS PHILIPPINES, INC(*9)	-	-	-	-
LG CNS Philippines, inc	-	-	-	-
LG CNS Saudi Arabia LLC	-	-	-	-
Subtotal	3,520,840,324	3,354,648,181	211,217,673	165,793,065
Consolidation adjustments (*1)	(237,526,060)	(236,992,452)	(3,896,511)	(4,231,432)
Total	₩ 3,283,314,264	₩ 3,117,655,729	₩ 207,321,162	₩ 161,561,633

(*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) Acquired potential control during the year ended December 31, 2018.
(*3) Acquired share during the year ended December 31, 2019
(*4) Disposed during the year ended December 31, 2019, the amount of salse and profit income tax shows before disposal.
(*5) Merged with LG CNS Co., Ltd. during the year ended December 31, 2018 and the amount of sales and profit income tax shows before merge.
(*6) Changed the company name during the year ended December 31, 2019.
(*7) Disposed during the year ended December 31, 2018
(*8) Established and acquired during the year ended December 31, 2018.
(*9) Liquidated during the year ended December 31, 2019.

(3) Assets of each operating segment of the Group as of December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

Operating segment	December 31, 2019	December 31, 2018
LG CNS Co., Ltd.	₩ 2,463,779,480	₩ 2,296,267,977
BizTech Partners Co., Ltd.	29,061,517	27,981,555
Haengbokmaru Co., Ltd.	1,746,144	1,363,167
Sejong Green Power Co., Ltd. (*1)	27,935,600	36,567,305
Open Source Consulting(*2)	9,787,190	-
Korea Elecom Co., Ltd.(*3)	-	8,692,237
LG CNS China Inc.	78,499,648	95,477,309
LG CNS Europe B.V.	40,735,447	18,793,878
LG CNS America, Inc.	37,582,346	43,014,981
LG CNS India Pvt., Ltd.	10,133,462	10,090,861
PT LG CNS Indonesia	2,933,084	3,685,942
LG CNS Brasil Servicos de T.I tda(*4)	1,726,789	1,647,083
LG CNS COLOMBIA SAS	17,022,369	20,725,843
LG CNS MALAYSIA SDN BHD	3,267,580	4,763,698
LG CNS Saudi Arabia LLC	57,257	55,289
LG CNS JAPAN Co., Ltd.	9,904,893	23,662,745
LG CNS UZBEKISTAN, LLC	191,181	292,202
LG CNS VIETNAM CO., Ltd.	11,349,939	11,344,955
LG CNS FUND I LLC	4,411,697	-
UCESS PHILIPPINES, INC(*5)	-	82,892
LG CNS Philippines, inc	-	-
Subtotal	2,750,125,623	2,604,509,916
Consolidation adjustments	(134,817,363)	(129,189,057)
Total	₩ 2,615,308,260	₩ 2,475,320,859

(*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) Acquired share during the year ended December 31, 2019.
(*3) Disposed during the year ended December 31, 2019.
(*4) Changed Company name during the year ended December 31, 2019.
(*5) Liquidated during the year ended December 31, 2019.

(4) Goods sold and services rendered for each operating segments of the Group for the years ended December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

Operating segment	Inventory sold or services rendered	Year ended December 31, 2019	Year ended December 31, 2018
LG CNS Co., Ltd.	Merchandise	₩ 679,132,939	₩ 618,554,336
	Service	1,097,119,785	1,015,176,476
	Construction	1,263,542,904	1,194,843,261
BizTech Partners Co., Ltd	Merchandise	4,632,023	4,329,791
	Service	52,239,060	44,772,886
	Construction	47,616,684	47,463,859
Haengbokmaru Co., Ltd.	Service	2,902,331	2,635,081
Sejong Green Power Co., Ltd. (*1)	Service	8,578,691	1,406,344
Open Source Consulting(*2)	Merchandise	2,015,865	-
	Service	2,516,225	-
Korea Elecom Co., Ltd.(*3)	Merchandise	672,071	1,114,759
	Service	275,890	152,803
LG N-Sys Inc. (*4)	Merchandise	-	33,698,770
	Service	-	32,446,539
	Construction	-	1,051,772
LG CNS China Inc.	Merchandise	65,804,734	59,862,806
	Service	54,818,638	48,845,241
	Construction	42,860,727	27,472,888
LG CNS Europe B.V.	Merchandise	12,555,387	3,082,665
	Service	16,933,600	16,028,636
	Construction	22,044,525	8,345,270
LG CNS America, Inc.	Merchandise	14,247,092	10,043,829
	Service	42,864,168	37,544,892
	Construction	13,441,901	37,141,115
LG CNS India Pvt., Ltd.	Merchandise	4,985,322	5,406,362
	Service	5,995,941	6,333,133
PT LG CNS Indonesia	Merchandise	383,533	414,007
	Service	3,771,037	4,215,944
	Construction	746,084	5,209,325
LG CNS Brasil Servicos de T.I. Ltda.	Service	4,195,987	3,987,636
LG CNS COLOMBIA	Merchandise	12,796,357	-
	Service	4,416,759	13,173,676
LG CNS MALAYSIA SDN BHD	Construction	4,801,953	6,062,377
LG CNS JAPAN Co., Ltd.	Merchandise	3,427,582	457,502
	Service	6,393,293	6,242,958
	Construction	561,188	30,835,685
Collain Healthcare, LLC(*5)	Merchandise	-	90,218
	Service	-	3,840,432
LG CNS UZBEKISTAN, LLC	Construction	390,374	1,144,146
LG CNS VIETNAM CO., Ltd.	Merchandise	9,397,739	3,358,406
	Service	3,870,183	421,348
	Construction	7,891,752	17,441,010
Subtotal		3,520,840,324	3,354,648,181
Consolidation adjustments		(237,526,060)	(236,992,452)
Total		₩ 3,283,314,264	₩ 3,117,655,729

(*1) Aquired potential control during the year ended December 31, 2018, the amount of sales are the amount after acquisition of control.
(*2) Aquired control during the year ended December 31, 2019.
(*3) Disposed during the year ended December 31, 2019, the amount of sales shows before disposal.
(*4) Merged with LG CNS Co., Ltd. during the year ended December 31, 2018, the amount of sales shows before

merger
(*5) Disposed during the year ended December 31, 2018.

(5) The group's revenue and non-current assets by geographical location before consolidation adjustments for the years ended December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands)

	Revenue		Non-current assets	
Region	Year ended December 31, 2019	Year ended December 31, 2018	Year ended December 31, 2019	Year ended December 31, 2018
Korea	₩ 3,161,244,469	₩ 2,997,646,678	₩ 887,459,631	₩ 818,459,131
China	163,484,099	136,180,935	3,022,102	444,924
Asia	52,615,980	87,542,201	243,023	801,185
North America	70,553,161	88,660,485	5,176,593	1,691,543
Mid-South America	21,409,103	17,161,312	750,926	33,488
Europe	51,533,512	27,456,570	464,378	545,103
Total	₩ 3,520,840,324	₩ 3,354,648,181	₩ 897,116,653	₩ 821,975,374

(6) Revenue to customers that comprise more than 10% of the Group's total sales for the years ended December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

Customer	Year ended December 31, 2019	Year ended December 31, 2018
LG Electronics Inc. (*)	₩ 666,186,904	₩ 680,258,883
LG Chem Ltd. (*)	434,839,524	375,646,363
LG Uplus Corp.(*)	375,724,308	365,899,092

(*) 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, 2019 and 2018, are as follows (Unit: Korean won in thousands):

1) FINANCIAL ASSETS

		December 31, 2019		December 31, 2018	
Financial assets	Account	Carrying amount	Fair value	Carrying amount	Fair value
Cash and cash equivalents	Cash and cash equivalents	₩ 490,309,547	₩ 490,309,547	₩ 439,345,857	₩ 439,345,857
Financial assets at FVTPL	Derivative assets for trading purposes	2,249,593	2,249,593-	1,241,121	1,241,121
	Investments(*)	11,021,048	11,021,048	7,935,198	7,935,198
	Public bonds	-	-	1,030	1,030
	Subtotal	13,270,641	13,270,641	9,177,349	9,177,349
Financial assets at FVTOCI	Marketable equity securities	1,794,048	1,794,048	1,936,400	1,936,400
	Unmarketable equity securities	8,130,187	8,130,187	2,541,698	2,541,698
	Subtotal	9,924,235	9,924,235	4,478,098	4,478,098
Financial assets at amortized cost	Financial institution deposits	35,676,224	35,676,224	39,352,886	39,352,886
	Trade receivables	830,583,481	830,583,481	843,765,935	843,765,935
	Loans	10,415,906	10,415,906	10,943,199	10,943,199
	Other accounts receivable	11,113,468	11,113,468	18,836,079	18,836,079
	Accrued income	1,169,010	1,169,010	2,102,179	2,102,179
	Deposits	9,455,885	9,455,885	9,058,428	9,058,428
	Subtotal	898,413,974	898,413,974	924,058,706	924,058,706
	Total	₩ 1,411,918,397	₩ 1,411,918,397	₩ 1,377,060,010	₩ 1,377,060,010

(*) Contains equity securities classified as debt securities as those are puttable financial instruments.

2) FINANCIAL LIABILITIES

		December 31, 2019		December 31, 2018	
Financial liabilities	Account	Carrying amount	Fair value	Carrying amount	Fair value
Financial liabilities at FVTPL	Derivative liabilities for trading purposes	₩ 275,703	₩ 275,703	₩ 180,750	₩ 180,750
Financial liabilities at amortized cost	Trade payables	348,748,377	348,748,377	380,739,060	380,739,060
	Borrowings	24,620,328	24,620,328	50,296,978	50,296,978
	Other accounts payable	36,824,511	36,824,511	41,513,940	41,513,940
	Accrued expenses	120,966,164	120,966,164	115,835,388	115,835,388
	Accrued dividends	1,302	1,302	749	749
	Deposits received	1,320,359	1,320,359	941,265	941,265
	Debentures	519,386,757	525,126,349	518,863,575	521,374,578
	Subtotal	1,051,867,798	1,057,607,390	1,108,190,955	1,110,701,958
Lease liabilities		61,465,512	61,465,512	-	-
	Total	₩ 1,113,609,013	₩ 1,119,348,605	₩ 1,108,371,705	₩ 1,110,882,708

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, 2019 and 2018, are as follows (Unit: Korean won in thousands):

	December 31, 2019	December 31, 2018
Cash on hand	₩ 8,926	₩ 9,304
Bank deposits	490,300,621	439,336,553
Total	₩ 490,309,547	₩ 439,345,857

7. TRADE AND OTHER RECEIVABLES:

(1) Details of trade and other receivables before deducting accumulated impairment losses as of December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

1) December 31, 2019

	Neither past due nor impaired receivables	Past due but not impaired receivables	Impaired receivables	Sub-total	Consolidation adjustments	Total
Trade receivables	₩ 762,029,906	₩ 157,017,125	₩ 22,793,410	₩ 941,840,441	₩(81,609,577)	₩ 860,230,864
Other Trade receivables	21,838,840	12,387,523	5,439,680	39,666,043	(3,717,439)	35,948,604
Total	₩ 783,868,746	₩ 169,404,648	₩ 28,233,090	₩ 981,506,484	₩ (85,327,016)	₩ 896,179,468

2) December 31, 2018

	Neither past due nor impaired receivables	Past due but not impaired receivables	Impaired receivables	Sub-total	Consolidation adjustments	Total
Trade receivables	₩794,636,856	₩ 148,807,261	₩ 26,743,380	₩ 970,187,497	₩ (92,996,441)	₩ 877,191,056
Other Trade receivables	37,857,586	12,314,810	6,040,071	56,212,467	(11,240,073)	44,972,394
Total	₩ 832,494,442	₩ 161,122,071	₩ 32,783,451	₩1,026,399,964	₩(104,236,514)	₩ 922,163,450

(2) Aging analysis based on committed collection period of past due but not impaired trade and other receivables as of December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

Delinquency periods	December 31, 2019	December 31, 2018
1 ~ 29 days	₩ 72,789,600	₩ 73,361,856
30 ~ 60 days	9,091,594	9,840,892
61 ~ 90days	15,095,312	7,687,161
91 ~ 120days	9,020,524	3,646,487
More than 121 days	63,407,618	66,585,675
Total	₩ 169,404,648	₩ 161,122,071

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.

(3) Changes in accumulated impairment losses for the years ended December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

	Year ended December 31, 2019		Year ended December 31, 2018	
	Trade receivables	Other receivables	Trade receivables	Other receivables
Beginning balance	₩ 33,425,121	₩ 4,032,507	₩ 25,582,621	₩ 12,373,036
Variation due to business combination	22,734	(28,330)	-	-
Impairment loss	(7,680)	289,595	9,621,696	(140,666)
Write-off	(3,791,054)	(976,024)	(1,039,674)	(8,207,286)
Reversal of allowance for doubtful accounts	(241,787)	-	(641,149)	(510,881)
Effect of foreign currency translation	238,044	-	(630,037)	-
Others	2,005	476,587	531,664	518,304
Ending balance	₩ 29,647,383	₩ 3,794,335	₩ 33,425,121	₩ 4,032,507

(4) Aging analysis of impaired trade and other receivables as of December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

Periods	December 31, 2019	December 31, 2018
Less than 6 months	₩ 3,255,793	₩ 3,677,925
More than 6 months and less than 1 year	27,725	650,398
More than 1 year	24,949,572	28,455,128
Total	₩ 28,233,090	₩ 32,783,451

8. INVENTORIES:

(1) Inventories as of December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

	December 31, 2019		
	Acquisition cost	Valuation allowance	Carrying amount
Merchandise	₩ 58,138,366	₩ (1,537,218)	₩ 56,601,148
Work in progress	-	-	-
Raw materials	11,209	-	11,209
Other inventories	1,112,046	(364,553)	747,493
Total	₩ 59,261,621	₩ (1,901,771)	₩ 57,359,850

	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

(2) Inventory costs recognized in operating expenses as of December 31, 2019 and 2018 are ₩926,732,482 thousand and ₩957,680,256 thousand, which include loss and reversal of loss arising from valuation of inventories amounting to ₩0, (2018: ₩5,997 thousand) and ₩49,590 thousand (2018: ₩39,853 thousand), respectively.

9. OTHER ASSETS:

Details of other assets as of December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

	December 31, 2019		December 31, 2018	
	Current	Non-current	Current	Non-current
Advance payments	₩ 33,400,741	₩ 37,143	₩ 21,200,329	₩ 29,687
Prepaid expenses(*)	15,179,239	102,435	14,845,878	3,209,584
Prepaid value-added tax	8,811,430	-	3,026,196	-
Contract asset	190,412,338	-	155,072,957	-
Other current assets	159,145	-	43,151	-
Total	₩ 247,962,893	₩ 139,578	₩ 194,188,511	₩ 3,239,271

(*) The contract assets are included in prepaid expenses as of December 31, 2018, are ₩7,992,460 thousands.

10. PROPERTY, PLANT AND EQUIPMENT:

(1) Composition of property, plant and equipment as of December 31, 2019 and 2018, is as follows (Unit: Korean won in thousands):

1) December 31, 2019

	Land	Buildings	Structures	Machinery	Vehicles	Tools and equipment	Furniture and fixtures	Construction in progress	Others	Total
Acquisition cost	₩ 88,208,563	₩491,437,683	₩ 3,435,162	₩ 31,739,905	₩ 89,524	₩ 419,886	₩ 87,624,047	₩ 1,527,952	₩410,720,892	₩1,115,203,614
Accumulated depreciation	-	(99,377,377)	(272,394)	(5,002,285)	(11,616)	(342,334)	(50,550,480)	-	(324,923,426)	(480,479,912)
Accumulated impairment loss	-	-	-	(12,085,000)	-	-	-	-	(237,521)	(12,322,521)
Government subsidies	-	(947,911)	-	-	-	-	(76,236)	-	(10,639)	(1,034,786)
Total	₩ 88,208,563	₩391,112,395	₩ 3,162,768	₩ 14,652,620	₩ 77,908	₩ 77,552	₩ 36,997,331	₩ 1,527,952	₩ 85,549,306	₩ 621,366,395

2) 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) Changes in property, plant and equipment for the years ended December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

1) Year ended December 31, 2019

	Land	Buildings	Structures	Machinery	Vehicles	Tools and equipment	Furniture and fixtures	Construction in progress	Others	Total
Beginning 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
Acquisition	-	714,789	500,000	174,758	90,537	4,990	4,390,257	1,270,881	27,471,636	34,617,848
Disposals	-	-	-	-	(12,602)	-	(1,649)	-	(331,950)	(346,201)
Depreciation	-	(15,582,000)	(75,924)	(935,451)	(17,876)	(62,680)	(7,143,981)	-	(37,775,060)	(61,592,972)
Transfers	(3,287,373)	(9,270,816)	(97,704)	-	-	-	-	-	-	(12,655,893)
Government subsidies	-	(31,977)	-	-	-	-	-	-	-	(31,977)
Changes in the scope of consolidation	(2,690,575)	(131,878)	(9)	(31)	(15,435)	(44,588)	15,211	-	88,000	(2,779,305)
Impairment loss	-	-	-	-	-	-	-	-	(176)	(176)
Others	-	-	-	-	-	-	-	(591,917)	(134,792)	(726,709)
Effect of FX changes	-	954	-	(26)	(895)	-	1,304	-	48,741	50,078
Ending balance	₩88,208,563	₩391,112,395	₩3,162,768	₩14,652,620	₩ 77,908	₩ 77,552	₩ 36,997,331	₩ 1,527,952	₩ 85,549,306	₩621,366,395

2) 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

(3) Changes in government subsidies for the years ended December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

1) Year ended December 31, 2019

	Buildings	Furniture and fixtures	Others	Total
Beginning balance	₩ 950,774	₩ 129,732	₩ 84,312	₩1,164,818
Receipt	31,977	-	-	31,997
Offsetting depreciation	(34,840)	(53,496)	(73,673)	(162,009)
Ending balance	₩ 947,911	₩ 76,236	₩ 10,639	₩1,034,786

2) 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)
Ending balance	₩ 950,774	₩ 129,732	₩ 84,312	₩ 1,164,818

(4) Composition of disposal for the years ended December 31, 2019 and 2018, is as follows (Unit: Korean won in thousands):

1) Year ended December 31, 2019

	Buildings	Vehicles	Furniture and fixtures	Others	Total
Book value before disposal	₩ -	₩ 12,602	₩ 1,649	₩ 331,950	₩ 346,201
Disposal amount	3,000	23,900	9,371	640,821	677,092
Gain (loss) on disposal	₩ 3,000	₩ 11,298	₩ 7,722	₩ 308,871	₩ 330,891

2) 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

11. INVESTMENT PROPERTY:

(1) Composition of investment property as of December 31, 2019 and 2018, is as follows (Unit: Korean won in thousands):

1) Year ended December 31, 2019

	Land	Buildings	Structures	Total
Acquisition cost	₩ 7,534,168	₩ 26,874,624	₩ 248,812	₩ 34,657,604
Accumulated depreciation	-	(6,114,723)	(47,510)	(6,162,233)
Total	₩ 7,534,168	₩ 20,759,901	₩ 201,302	₩ 28,495,371

2) 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)
Total	₩ 4,246,795	₩ 12,376,282	₩ 111,601	₩ 16,734,678

(2) Changes in investment property for the year ended December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

1) Year ended December 31, 2019

	Land	Buildings	Structures	Total
Acquisition cost	₩ 4,246,795	₩ 12,376,282	₩ 111,601	₩ 16,734,678
Accumulated depreciation	-	(887,197)	(8,003)	(895,200)
Transfers	3,287,373	9,270,816	97,704	12,655,893
Ending balance	₩ 7,534,168	₩ 20,759,901	₩ 201,302	₩ 28,495,371

2) 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
Ending balance	₩ 4,246,795	₩ 12,376,282	₩ 111,601	₩ 16,734,678

(3) Evaluation of the fair value of investment property as of December 31, 2019, are as follows (Unit: Korean won in thousands):

Description	Land	Buildings and structures	Total
Book value of investment property:			
Incheon IT center (*1)	₩ 3,352,192	₩12,909,499	₩ 16,261,691
Sangam DDMC (*2)	₩13,461,407	₩36,051,537	₩ 49,512,944
Results of valuation:			
Incheon IT center (*3 and 4)	₩15,391,110	₩ 9,169,094	₩ 24,560,204
Sangam DDMC (*3 and 4)	₩	260,635,000	₩260,635,000

(*1) Includes the value of investment property occupied by the owner (land: ₩2,691,083 thousands and buildings and structures: ₩10,363,527 thousands).

(*2) Includes the value of investment property occupied by the owner (land: ₩6,588,348 thousands and buildings and structures: ₩17,636,306 thousands).

(*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 thousands.

(*4) Fair value assessment was performed by independent third parties, Nara Appraisal Co., Ltd. and Samchang Appraisal Co., Ltd., 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, 2019.

12. INTANGIBLE ASSETS:

(1) Composition of intangible assets as of December 31, 2019 and 2018, is as follows (Unit: Korean won in thousands):

1) December 31, 2019

	Development costs	Industrial property rights	Membership	Goodwill	Construction in progress	Computer software and others	Total
Acquisition cost	₩ 28,790,128	₩ 3,359,813	₩ 29,024,312	₩ 12,348,425	₩ 1,427,550	₩ 92,768,510	₩ 167,718,738
Accumulated depreciation	(20,265,018)	(781,777)	-	-	-	(66,408,054)	(87,454,849)
Accumulated impairment loss	(2,746,461)	(1,307)	(2,375,267)	(5,435,209)	-	(1,363)	(10,559,607)
Government subsidies	-	-	-	-	-	(12,077)	(12,077)
Total	₩ 5,778,649	₩ 2,576,729	₩ 26,649,045	₩ 6,913,216	₩ 1,427,550	₩ 26,347,016	₩ 69,692,205

2) 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 amortization	(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) Changes in intangible assets for the years ended December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands)

1) Year ended December 31, 2019

	Development costs	Industrial property rights	Membership	Goodwill	Construction in progress	Computer software and others	Total
Beginning balance	₩6,779,036	₩1,251,627	₩27,158,363	₩1,665,313	₩ -	₩16,420,773	₩53,275,112
Acquisition	81,629	580,341	-	-	-	12,878,438	13,540,408
Increase due to internal development	891,917	-	-	-	1,427,550	-	2,319,467
Disposals	-	(3,662)	(1,401,106)	-	-	(6,597)	(1,411,365)
Changes in scope of consolidation	-	1,005,756	-	5,247,903	-	3,584,873	9,838,532
Amortization	(1,972,735)	(257,333)	-	-	-	(6,673,898)	(8,903,966)
Reversal of impairment loss	-	-	890,000	-	-	-	890,000
Other	(1,800)	-	-	-	-	136,590	134,790
Effect of FX change	602	-	1,788	-	-	6,837	9,227
Ending balance	₩5,778,649	₩2,576,729	₩26,649,045	₩6,913,216	₩1,427,550	₩26,347,016	₩69,692,205

2) 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

(3) Details of accumulated impairment loss of goodwill as of December 31, 2019 and 2018, 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 thousands):

	Year ended December 31, 2019	Year ended December 31, 2018
Biztech Partners Co., Ltd	₩ 1,665,313	₩ 1,665,313
Open Source Consulting	5,247,904	-
Total	₩ 6,913,217	₩ 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) Changes in government subsidies for the years ended December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

1) Year ended December 31, 2019

	Computer software and others
Beginning balance	₩ 53,016
Offsetting amortization	(40,939)
Others	-
Ending balance	₩ 12,077

2) Year ended December 31, 2018

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

(5) Composition of disposal for the years ended December 31, 2019 and 2018, is as follows (Unit: Korean won in thousands):

1) Year ended December 31, 2019

	Membership	Software	Industrial property rights	Total
Book value before disposal	₩ 1,401,106	₩ 6,597	₩ 3,662	₩ 1,411,365
Disposal amount	1,404,000	-	3,700	1,407,700
Gain (loss) on disposal	₩ 2,894	₩ (6,597)	₩ 38	₩ (3,665)

2) 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
Gain (loss) on disposal	₩ (690,345)	₩ (20)	₩ 193,207	₩ (497,158)

(6) All the costs related to research and development for the years ended December 31, 2019 and 2018 ₩36,661,006 thousand and ₩33,731,258 thousand, respectively, are recorded as selling and administrative expenses.

13. INVESTMENTS IN ASSOCIATES:

(1) Compositions of the Group’s investments in associates as of December 31, 2019 and 2018, are as follows:

				Number of shares held	Number of shares issued	2019	2018
Companies	Location of incorporation	Major operation	Closing date	Common sock	Common stock	Percentage of ownership	Percentage of ownership
Tmoney Co., Ltd. (*1)	South Korea	System software development and supply	Dec. 31	3,927,167	11,934,085	32.91%	32.91%
Songdo U-Life LLC (*2)	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%
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.(*3)	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	Energy supply	Dec. 31	25,000	100,000	25.00%	25.00%
KEPCO-LG CNS Mangilao Holdings LLC (*4)	USA	New and renewable energy supply	Dec. 31	-	-	-	-

(*1) In the current period, The Company name has changed from Korea Smart Card Co, Ltd. to Tmoney Co., Ltd.

(*2) 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%.

(*3) The Group decided to liquidate at the shareholders' meeting on May 31 and are calculating the remaining assets.

(*4) Established before the prior year. As of December 31, 2019. The Group didn’t actually commit the payment of investment capital, but lent loans according to the rate of equity by contract between shareholders. The Group has significant influence on decisions of board of directors since contractual right exists to appoint two out of six members of board of directors.

(2) Changes in investments in associates for the years ended December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

1) Year ended December 31, 2019

Companies	Beginning balance	Dividend	Gain (loss) on valuation of equity method investments	Other changes in equity using equity method	Ending balance
Tmoney Co., Ltd.	₩ 47,786,563	₩ -	₩ 4,936,305	₩ 74,937	₩ 52,797,805
Songdo U-Life LLC	711,333	-	(98,823)	-	612,510
RECAUDO BOGOTA S.A.S.	-	-	(740,740)	1,241,466	500,726
Hellas SmarTicket Societe Anonyme	3,737,896	(473,440)	839,339	55,191	4,158,986
Ulleungdo Natural Energy Co., Ltd.	4,558,300	-	33,682	-	4,591,982
Daegu Clean Energy Co., Ltd.(*1)	-	-	-	-	-
KEPCO-LG CNS Mangilao Holdings LLC (*2)	-	-	-	-	-
Total	₩ 56,794,092	₩ (473,440)	₩ 4,969,763	₩ 1,371,594	₩ 62,662,009

(*1) Equity method loss which was not recognized is ₩3,402 thousand for Daegu Clean Energy Co., Ltd.
(*2) As of December 31, 2019, The Group recorded an equity method loss of ₩1,117,202 thousands and other comprehensive income of ₩60,131 thousands, which exceeded the carrying amount of investments in associates, amounting to ₩7,863,940 thousands.

2) Year ended December 31, 2018

Companies	Beginning balance	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.
(*3) As of December 31, 2018, the Group recorded an equity method loss of ₩658,208 thousand and other comprehensive income of ₩77,723 thousands, which exceeded the carrying amount of investments in associates, amounting to ₩7,788,547 thousands.

(3) A summary of financial information of the associates as of December 31, 2019, is as follows (Unit: Korean won in thousands):

	Current assets	Non-current assets	Total assets	Current liabilities	Non-current liabilities	Total liabilities	Owners of the Parent Company	Non-controlling interests	Total equity
Tmoney Co., Ltd.	₩323,925,664	₩169,893,306	₩493,818,970	₩335,793,789	₩ 24,043,908	₩359,837,697	₩133,981,273	₩	₩133,981,273
Songdo U-Life LLC	6,103,091	17,599,324	23,702,415	-	166,280	166,280	23,536,135	-	23,536,135
RECAUDO BOGOTA S.A.S.	59,184,279	147,688,757	206,873,036	19,111,733	181,781,475	200,893,208	5,979,828	-	5,979,828
Hellas SmarTicket Societe Anonyme	19,130,526	29,762,034	48,892,560	11,466,601	23,562,675	35,029,276	13,863,284	-	13,863,284
Ulleungdo Natural Energy Co., Ltd.	15,619,282	1,962	15,621,244	-	-	-	15,621,244	-	15,621,244
Daegu Clean Energy Co., Ltd.	14,212	356,502	370,714	323,148	-	323,148	47,566	-	47,566
KEPCO-LG CNS Mangilao Holdings LLC	13,356,590	26,191,355	39,547,945	43,071,515	-	43,071,515	(3,523,570)	-	(3,523,570)

(4) A summary of profit and loss of associates for the year ended December 31, 2019, is as follows (Unit: Korean won in thousands):

	Revenue	Profit (loss) from continuing operations	Income tax expense	Other comprehensive income (loss)	Total comprehensive income (loss) for the year
Tmoney Co., Ltd.	₩ 259,790,162	₩ 7,585,574	₩ 6,490,104	₩ 227,723	₩ 12,013,449
Songdo U-Life LLC	-	(322,119)	-	-	282,755
RECAUDO BOGOTA S.A.S.	51,185,039	(205,798)	2,023,604	6,112,645	2,784,095
Hellas SmarTicket Societe Anonyme	7,106,993	381,984	932,220	162,753	2,588,347
Ulleungdo Natural Energy Co., Ltd.	-	(133,228)	-	-	112,837
Daegu Clean Energy Co., Ltd.	-	(13,605)	-	-	(13,609)
KEPCO-LG CNS Mangilao Holdings LLC	-	(583,940)	-	(58,643)	(1,588,621)

(5) Adjustments to book value of investments in associates from net asset value of associates as of December 31, 2019, are as follows (Unit: Korean won in thousands):

	Tmoney 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)	₩133,981,273	₩ 23,536,135	₩ 5,979,828	₩ 13,863,284	₩ 15,621,244	₩ 47,566
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)	44,089,352	3,857,078	1,195,966	4,158,986	4,663,051	11,891
(+) Goodwill	8,776,673	3,493,041	-	-	-	-
(-) Elimination of intercompany transactions and others	(68,220)	-	-	-	-	3,402
(-) Impairment loss	-	(6,737,609)	(695,240)	-	(71,069)	(15,293)
Ending balance	₩ 52,797,805	₩ 612,510	₩ 500,726	₩ 4,158,986	₩ 4,591,982	₩ -

14. DEBENTURES AND BORROWINGS:

(1) Short-term borrowings as of December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

	Creditor	Annual interest rate (%)	December 31, 2019	December 31, 2018
Foreign currency short-term borrowings	Korea Exchange Bank and others	2.85~8.00	₩ 24,620,328	₩ 22,031,548
Ending balance			₩ 24,620,328	₩ 22,031,548

(2) Long-term borrowings as of December 31, 2019 and 2018 are as follows (Unit: Korean won in thousands):

	Annual interest rate (%)	Maturity date	December 31, 2019		December 31, 2018	
			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) Debentures from long-term borrowings as of December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

Company	Description	Issue date	Maturity date	Annual interest rate (%)	December 31, 2019	December 31, 2018
LG CNS Co., Ltd.	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	2017-04-11	2020-04-11	2.10	110,000,000	110,000,000
	In tenth, second public offering of debentures	2017-04-11	2022-04-11	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	90,000,000
	In eleventh, second public offering of debentures	2018-04-11	2023-04-11	2.83	110,000,000	110,000,000
	In second, second public offering of debentures(*)	2015-05-29	2020-05-29	2.89	20,000,000	20,000,000
	Subtotal				520,000,000	520,000,000
	Discount on debentures				(613,243)	(1,136,425)
	Current portion of debentures				(229,933,714)	-
	Total				₩ 289,453,043	₩ 518,863,575

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

15. PROVISIONS:

(1) Changes in provisions for the years ended December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

1) Year ended December 31, 2019

	Beginning balance	Changes in the scope of consolidation	Usage	Reversal	Increase	Others(*2)	Ending balance
Provision for construction (product) warranties	₩15,890,253	₩(2,167,340)	₩(7,665,024)	₩ (2,588,986)	₩ 14,188,928	₩ 4,044	₩17,661,875
Restoration liabilities (*1)	2,476,472	-	-	(158,648)	260,369	5,913	2,584,106
Others	34,088,764	(3,108,081)	(10,804,992)	(5,625,603)	9,924,247	3,869,033	28,343,368
Total	₩52,455,489	₩(5,275,421)	₩(18,470,016)	₩ (8,373,237)	₩ 24,373,544	₩ 3,878,990	₩48,589,349

(*1) Increases in valuation of present value for the year ended December 31, 2019, amounting to ₩260,369 thousands are included in increase of provisions.
(*2) Readjustment of adjustments for the previous year, amounting to ₩3,808,883 thousand are included.

2) Year ended December 31, 2018

	Beginning balance	Transfer(*2)	Usage	Reversal	Increase	Others(*3)	Ending balance
Provision for construction (product) warranties	₩18,152,966	₩ -	₩(11,186,596)	₩ (1,720,364)	₩ 10,595,422	₩ 48,825	₩15,890,253
Restoration liabilities (*1)	5,451,391	-	(3,168,716)	(34,210)	226,940	1,067	2,476,472
Others	36,890,101	2,077,942	(7,336,797)	(3,882,403)	18,066,479	(11,726,558)	34,088,764
Total	₩60,494,458	₩2,077,942	₩(21,692,109)	₩ (5,636,977)	₩ 28,888,841	₩(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.
(*3) Amounting to ₩3,808,883 thousand of related notes receivable, which are offset against future cash receipts are included.

(2) Nature of provision and expected timing for outflow of economic benefits as of December 31, 2019, are as follows (Unit: Korean won in thousands):

	Within 12 months	After 12 months	Total
Provision for construction (product) warranties (*1)	₩ 17,661,875	₩ -	₩ 17,661,875
Restoration liabilities (*2)	33,537	2,550,569	2,584,106
Others (*3)	28,343,368	-	28,343,368
Total	₩ 46,038,780	₩ 2,550,569	₩ 48,589,349

(*1) Provisions estimation for construction warranties, which would be expected in post service 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, 2019 and 2018, is ₩41,845,641 thousand and ₩33,294,902 thousand, respectively. Other accounts payable in relation to defined contribution plans as of December 31, 2019 and 2018, is ₩6,216,097 thousand and ₩5,145,695 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, 2019 and 2018, amounts recognized in the consolidated statements of financial position related to retirement benefit obligation are as follows (Unit: Korean won in thousands):

	December 31, 2019		December 31, 2018	
Present value of defined benefit obligation	₩	13,951,352	₩	17,675,722
Fair value of plan assets		(13,001,027)		(15,944,859)
Net defined benefit liability	₩	950,325	₩	1,730,863

2) Changes in defined benefit obligations for the years ended December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

	Year ended December 31, 2019		Year ended December 31, 2018	
Beginning balance	₩	17,675,722	₩	34,731,500
Current service cost		2,421,981		3,011,235
Past service cost		-		(980,302)
Interest cost		367,507		577,288
Actuarial gain or loss		(612,610)		536,540
Benefits paid		(3,901,803)		(5,126,304)
Changes in the scope of consolidation		(550,906)		-
Gain or loss on settlement		-		(15,105,042)
Affiliates transfer		(1,503,926)		36,204
Others		55,387		(5,397)
Ending balance	₩	13,951,352	₩	17,675,722

3) Income and loss related to defined benefit plan for the years ended December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

	Year ended December 31, 2019		Year ended December 31, 2018	
Service cost:	₩	2,421,981	₩	2,030,933
Current service cost		2,421,981		3,011,235
Past service cost		-		(980,302)
Net interest on the net defined benefit liability:		21,682		139,714
Interest cost on defined benefit obligation		367,507		577,288
Comprising interest on plan assets		(345,825)		(437,574)
Others		21,209		29,712
Total	₩	2,464,872	₩	2,200,359

On the other hand, defined benefit plan gain or loss is allocated to each item as follows (Unit: Korean won in thousands):

	Year ended December 31, 2019		Year ended December 31, 2018	
Amounts included in the retirement benefits	₩	1,997,878	₩	1,619,384
Amounts included in the cost of production		466,994		580,975
Total	₩	2,464,872	₩	2,200,359

4) Changes in plan assets for the years ended December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

	Year ended December 31, 2019		Year ended December 31, 2018	
Beginning balance	₩	15,944,859	₩	28,608,946
Comprising interest on plan assets		345,825		437,574
Remeasurements-return on plan assets		(41,108)		(151,732)
Affiliates transfer		437,063		104,400
Others		(21,066)		(58,102)
Benefits paid		(3,664,692)		(4,215,442)
Contributions from the employer		-		5,268,883
Effect of foreign currency translation		146		(189)
Settlements from plan asset		-		(14,049,479)
Ending balance	₩	13,001,027	₩	15,944,859

5) All the plan assets are invested in financial instruments that guarantee principal and interest rate as of December 31, 2019 and 2018.

6) Actuarial assumptions used as of December 31, 2019 and 2018, are as follows:

	December 31, 2019	December 31, 2018
Discount rate (%)	1.8%–6.0%	2.3%–7.0%
Expected rate of salary increase (%)	5.0%–9.8%	3.8%–9.8%

7) The sensitivity analysis of the defined benefit obligation as of December 31, 2019, is as follows (Unit: Korean won in thousands):

	Center scenario	(+) 1%	(-) 1%
Change in discount rate	₩ 13,951,352	₩ 13,498,595	₩ 14,436,080
Change in rate of salary increase	13,951,352	14,418,683	13,505,634

(*) 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, 2019 and 2018, are as follows (Unit: Korean won in thousands):

	Year ended December 31, 2019	Year ended December 31, 2018
Actuarial losses arising from changes in demographic assumptions	₩ 15,632	₩ (71,562)
Actuarial gains arising from changes in financial assumptions	(251,627)	308,748
Actuarial losses arising from Experience	(62,065)	307,910
Return on plan assets, excluding amounts included in interest income	41,108	151,732
Actuarial losses arising from transfer in/out adjustments	(314,550)	(8,556)
Total	₩ (571,502)	₩ 688,272

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

	Year ended December 31, 2020
Estimated contribution to plan assets(*)	₩ 2,155,878

(*) The expected amount for 2020 is calculated assuming that the ratio of the plan assets to the retirement benefit allowance at the end of 2019 will be maintained at the end of 2020.

17. OTHER LIABILITIES:

Other liabilities as of December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

	December 31, 2019		December 31, 2018	
	Current	Non-current	Current	Non-current
Advance receipts(*)	₩ 3,681,190	₩ -	₩ 37,415,656	₩ -
Withholding value-added tax	52,250,014	-	39,015,585	-
Withholdings	33,547,583	-	33,247,687	-
Unearned income	46,730	-	41,810	-
Contract liabilities	111,620,266	-	70,118,760	-
Government subsidies	12,337	-	-	-
Other long-term employee liabilities	-	10,513,150	-	8,572,047
Total	₩ 201,158,120	₩ 10,513,150	₩ 179,839,498	₩ 8,572,047

(*) The contract liabilities included in advance receipts as of December 31, 2018, are ₩33,122,156 thousand.

18. CONTRACT ASSETS AND LIABILITIES:

(1) Contract assets as of December 31, 2019 and 2018 are as follows (Unit: Korean won in thousands):

	December 31, 2019	December 31, 2018
Construction contract	₩ 196,297,832	₩ 161,884,681
Deductions: allowance for losses	(5,885,494)	(6,811,724)
Total	₩ 190,412,338	₩ 155,072,957

During this year, there are no changes in estimates or assumptions used in assessing the loss allowance for contract assets in construction contract.

(2) Changes in ECLs of contract assets as of December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

	December 31, 2019	December 31, 2018
Beginning balance	₩ 6,811,724	₩ 5,496,076
Increase in allowance for loss	(926,230)	1,315,648
Ending balance	₩ 5,885,494	₩ 6,811,724

(3) Contract liabilities as of December 31, 2019 and 2018 are as follows (Unit: Korean won in thousands):

	December 31, 2019	December 31, 2018
Construction contracts	₩ 59,021,924	₩ 70,118,760
Equipment Supply and Maintenance	52,598,342	-
Total	₩ 111,620,266	₩ 70,118,760

The contract liabilitites 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 liabilities balance during the reporting year.

(4)) The following shows how much of the revenue recognized relates to carryforward contract liabilities.as of December 31, 2019 and 2018. No revenue related to performance obligations carried out in a prior year is recognized in December 31, 2019. (Unit: Korean won in thousands)

	December 31, 2019	December 31, 2018
Construction contracts	₩ 68,249,859	₩ 39,419,814

(5) As of January 1, 2019, changes in estimation of the total contract amount and the total contract cost for contracts that recognize revenue over time by using the cost-based input method, and effects of profit and loss of current and future periods, contract assets and liabilities are as follows (Unit: Korean won in thousands):

	Change in estimated total contracted amount	Change in estimated total contracted cost	Impact on gain and loss for this year	Impact on gain and loss in the future	Changes in contract assets (contract liabilities)(*2)
Construction contract(*1)	₩90,366,938	₩ 92,697,845	₩ (1,758,547)	₩ (572,360)	₩ (1,714,049)

(*1) The Group has only one operating segment in accordance with K-IFRS 1108.

(*2) The contract loss provisions related to construction contracts as of December 31, 2019, are ₩3,946,904 thousand.

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

	Contract date	Completion period on the contract	Progress rate	Contract assets		Receivables from construction	
				Total	Loss allowance	Total	Loss allowance
LG CNS	2010-11-30	2015-11-30	98.06%	₩ 7,828,038	₩ -	₩ -	₩ -

19. ISSUED CAPITAL:

Details of the Parent Company's issued capital as of December 31, 2019, 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, 2019 and 2018, is as follows (Unit: Korean won in thousands):

	December 31, 2019	December 31, 2018
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	(10,386,880)	(7,564,554)
Total	₩ 36,693,312	₩ 39,515,638

21. ACCUMULATED OTHER COMPREHENSIVE INCOME (LOSS):

(1) Details of accumulated other comprehensive income (loss) as of December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

	December 31, 2019	December 31, 2018
Changes in capital change in equity method	₩ 4,202,477	₩ 2,743,474
Gain or loss on valuation of financial assets at FVOCI	(14,764,272)	(14,507,630)
Gain or loss on translation of foreign operations	(5,320,888)	(6,029,914)
Gain or loss on disposal of financial assets at FVOCI	(151,879)	(150,384)
Total	₩ (16,034,562)	₩ (17,944,454)

Losses / gains on valuation of financial assets measured at FVTOCI related to equity instruments are recognized in the cumulative gain or loss, except for the amount replaced with retained earnings at the time of disposal. Gains and losses related to debt instruments are calculated by adding or deducting the amount reclassified to profit or loss as a result of accumulated depreciation and reversal from cumulative gain or loss.

Equity instruments designated as FVTOCI are not recognized for impairment. Accumulated gains and losses arising from the valuation of those equity instruments are not subsequently reclassified to profit or loss.

Change in fair value due to credit risk of financial liabilities measured at FVTOCI are recognized in the cumulative gain or loss. Accumulated gains and losses arising from the valuation are not subsequently reclassified to profit or loss.

(2) Changes in capital change in equity method for the years ended December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

	Year ended December 31, 2019		Year ended December 31, 2018	
Beginning balance	₩	2,743,474	₩	3,915,288
Changes in capital change in equity method		1,484,434		(1,161,313)
Income tax effect		(25,431)		(10,501)
Ending balance	₩	4,202,477	₩	2,743,474

(3) Changes in gain on financial assets at FVTOCI for the years ended December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

	Year ended December 31, 2019		Year ended December 31, 2018	
Beginning balance	₩	-	₩	851,301
Effect of changes in accounting policy		-		(851,301)
Beginning balance - restated		-		-
Changes in gain on valuation of financial assets at FVTOCI		-		-
Income tax effect		-		-
Ending balance	₩	-	₩	-

(4) Changes in loss on financial assets at FVTOCI for the years ended December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

	Year ended December 31, 2019		Year ended December 31, 2018	
Beginning balance	₩	(14,507,630)	₩	(664,894)
Effect of changes in accounting policy		-		(4,380,099)
Beginning balance - restated		(14,507,630)		(5,044,993)
Changes in loss on valuation of financial assets at FVTOCI		(338,578)		(12,483,690)
Income tax effect		81,936		3,021,053
Ending balance	₩	(14,764,272)	₩	(14,507,630)

(5) The changes in gain (loss) on translation of foreign operations for the years ended December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

	Year ended December 31, 2019		Year ended December 31, 2018	
Beginning balance	₩	(6,029,914)	₩	(7,497,804)
Changes in gain or loss on translation of foreign operations		709,026		1,467,890
Ending balance	₩	(5,320,888)	₩	(6,029,914)

22. RETAINED EARNINGS AND DIVIDENDS:

Changes in retained earnings for the years ended December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

	Year ended December 31, 2019	Year ended December 31, 2018
Beginning balance	₩ 1,030,556,232	₩ 936,968,190
Profit for the year attributable to owners of the Parent Company	163,843,086	107,913,077
Dividends (*)	(41,854,729)	(18,311,444)
Remeasurements of net defined benefit liability	571,502	(686,182)
Related income tax	(139,691)	147,342
Changes in retained earnings using the equity method	(130,435)	(706,151)
K-IFRS 1109 Adjustment	-	5,231,400
Ending balance	₩ 1,152,845,965	₩ 1,030,556,232

(*) Details of dividends for the years ended December 31, 2019 and 2018, are as follows:

	Year ended December 31, 2019	Year ended December 31, 2018
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)	₩ 480	₩ 210
Total dividends (Unit: Korean won in thousands)	₩ 41,854,729	₩ 18,311,444

23. OPERATING INCOME AND LOSS:

(1) The 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, 2019	Year ended December 31, 2018
Revenue recognized at a point in time		
Sales of merchandise		
Equipment supply	₩ 587,372,452	₩ 551,932,608
Others	177,455,798	140,278,582
Sales of finished goods		
Equipment supply	672,071	1,114,759
Sub total	765,500,321	693,325,949
Revenue recognized over the period		
Service revenue		
Maintenance work	1,234,019,652	1,156,216,356
Construction contract revenue		
Development service	916,850,860	869,741,477
Revenue from construction contract	366,943,431	398,371,947
Sub total	2,517,813,943	2,424,329,780
Total	₩ 3,283,314,264	₩ 3,117,655,729

(2) Details of operating income or loss for the years ended December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

	Year ended December 31, 2019	Year ended December 31, 2018
Sales of merchandise	₩ 764,828,250	₩ 692,211,190
Sales of finished goods	672,071	1,114,759
Service revenue	1,234,019,652	1,156,216,356
Construction revenue	1,283,794,291	1,268,113,424
REVENUE	3,283,314,264	3,117,655,729
Sales of merchandise	678,266,670	622,064,070
Sales of finished goods	1,357,926	4,128,850
Service revenue	1,059,789,906	997,455,717
Construction revenue	1,079,176,651	1,079,393,437
COST OF SALES	2,818,591,153	2,703,042,074
GROSS PROFIT	464,723,111	414,613,655
Salaries and wages	105,483,828	95,950,795
Severance benefits	8,818,956	7,195,530
Welfare	20,897,561	17,471,060
Depreciation	6,115,103	3,306,963
Amortization of intangible assets	2,739,809	2,401,792
Research and development expenses	36,661,006	33,731,258
Commission	10,365,999	11,975,302
Training expenses	7,074,951	5,732,189
Service contract expenses	15,193,575	7,972,791
Rent expense	2,970,002	4,814,060
Bad debt expenses	(249,467)	8,980,547
Increase in provision	341,589	(1,391,606)
Others	35,461,669	29,414,410
SELLING AND ADMINISTRATIVE EXPENSES	251,874,581	227,555,091
OPERATING INCOME	₩ 212,848,530	₩ 187,058,564

24. CLASSIFICATION OF EXPENSES BY NATURE:

1) Year ended December 31, 2019 (Unit: Korean won in thousands):

Account	Changes in inventories	Selling and administrative expenses (*)	Manufacturing cost	Nature of expenses
Changes in inventories:	₩ (5,889,261)	₩ -	₩ 932,621,743	₩ 926,732,482
Work in progress	133,204	-	-	133,204
Merchandise	(5,274,972)	-	683,541,642	678,266,670
Other inventories	(747,493)	-	249,080,101	248,332,608
Used raw material	-	-	1,366,818	1,366,818
Employee benefits	-	135,200,345	634,425,624	769,625,969
Depreciation and amortization	-	8,854,912	74,135,700	82,990,612
Commission expenses	-	10,365,999	118,452,512	128,818,511
Lease expenses	-	2,970,002	19,072,314	22,042,316
Outsourcing service	-	15,193,575	855,097,376	870,290,951
Other expenses and consolidation adjustments	-	79,289,748	189,308,327	268,598,075
Total	₩ (5,889,261)	₩ 251,874,581	₩ 2,824,480,414	₩ 3,070,465,734

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

2) 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.

25. FINANCIAL REVENUES AND FINANCIAL EXPENSES:

(1) Financial revenues for the years ended December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

	Year ended December 31, 2019		Year ended December 31, 2018	
Interest income	₩	7,678,020	₩	8,635,815
Dividend income		14,096		83,960
Gain on foreign currency transactions (non-operating)		643,278		854,278
Gain on foreign currency translation (non-operating)		357,560		420,358
Gain on valuation of financial assets at FVTOCI		211,271		95,324
Total	₩	8,904,225	₩	10,089,735

(2) Interest income included in financial revenues for the years ended December 31, 2019 and 2018, is as follows (Unit: Korean won in thousands):

	Year ended December 31, 2019		Year ended December 31, 2018	
Interest income by effective interest method				
Financial assets measured at amortized cost	₩	7,678,020	₩	8,635,815
Total	₩	7,678,020	₩	8,635,815

(3) Financial expenses for the years ended December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

	Year ended December 31, 2019		Year ended December 31, 2018	
Interest expense	₩	16,887,059	₩	15,345,828
Loss on foreign currency transactions (non-operating)		1,358,370		319,935
Loss on foreign currency translation (non-operating)		29,665		296,816
Financial guarantee cost		33,042		1,160,916
Loss on disposal of financial assets at FVTPL		1,032		89
Total	₩	18,309,168	₩	17,123,584

(4) Interest expense included in financial expenses for the years ended December 31, 2019 and 2018, is as follows (Unit: Korean won in thousands):

	Year ended December 31, 2019		Year ended December 31, 2018	
Bank overdrafts and loan interest	₩	2,038,902	₩	1,984,926
Interest expense on lease		1,560,873		-
Interest expense on debentures		13,021,343		13,364,731
Other interest expense		306,741		464,709
Less: Capitalized interest expense included in qualified assets (*)		(36,818)		(468,538)
Subtotal		16,891,041		15,345,828
Consolidation adjustments		(3,982)		-
Total	₩	16,887,059	₩	15,345,828

(*) Capitalized interest rates used for the years ended December 31, 2019 and 2018, are 2.54% and 2.51%, respectively.

26. OTHER NON-OPERATING INCOME AND EXPENSES:

Other non-operating income and expenses for the years ended December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

	Year ended December 31, 2019	Year ended December 31, 2018
OTHER NON-OPERATING INCOME:	₩ 26,126,313	₩ 21,068,477
Rental income	2,140,146	473,146
Commission	171,030	162,961
Gain on foreign currency transaction (operating)	8,640,802	4,790,155
Gain on foreign currency translation (operating)	1,969,835	1,383,094
Gain on disposal of tangible assets	381,415	471,375
Gain on disposal of intangible assets	3,479	216,911
Gain on transactions of derivatives (operating)	8,533,789	7,101,281
Gain on valuation of derivatives (operating)	1,981,158	1,270,864
Gain on disposal of investments in associates	651,900	1,978,715
Miscellaneous income	431,678	1,224,892
Other reversal of allowance for doubtful accounts	-	510,881
Reversal of impairment of intangible assets	890,000	-
Others	331,081	1,484,202
OTHER NON-OPERATING EXPENSES:	26,759,509	39,090,783
Impairment losses on tangible assets	176	75,208
Impairment losses on intangible assets	-	879,443
Impairment loss on investments in associates	-	6,823,984
Loss on foreign currency transaction (operating)	6,182,773	5,610,897
Loss on foreign exchange translation (operating)	2,151,497	3,386,400
Loss on disposal of tangible assets	52,764	230,644
Loss on disposal of intangible assets	7,145	714,069
Loss on transactions of derivatives (operating)	15,910,718	13,467,144
Loss on valuation of derivatives (operating)	330,389	5,423,750
Loss on disposal of investments in subsidiaries	473,009	592,425
Miscellaneous loss	363,990	154,926
Other bad debt expenses	289,595	(140,666)
Donations and contributions	880,031	977,063
Others	117,423	895,496

27. CATEGORIZED PROFIT AND LOSS OF FINANCIAL INSTRUMENT:

Net gains (losses) by financial instrument for the years ended December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

	Year ended December 31, 2019		Year ended December 31, 2018	
Financial assets:				
Financial asset at FVTPL	₩	10,733,378	₩	8,474,541
Financial asset at FVOCI		(250,738)		(9,385,837)
Financial assets at amortized cost (*)		9,604,757		2,130,223
Subtotal		20,087,397		1,218,927
Financial liabilities:				
Financial liabilities at FVTPL		(16,241,107)		(13,647,895)
Financial liabilities at amortized cost		(17,385,055)		(15,740,843)
Subtotal		(33,626,162)		(29,388,738)
Total	₩	(13,538,765)	₩	(28,169,811)

(*) 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, 2019 and 2018, is as follows (Unit: Korean won in thousands):

	Year ended December 31, 2019		Year ended December 31, 2018	
Current income tax payable	₩	38,475,011	₩	51,448,635
Adjustment related to prior income tax expense		370,053		(1,801,969)
Tax expenses related to the variation of temporary difference:		6,010,457		2,014,811
Effect of translation		30,274		27,160
Beginning deferred tax assets due to temporary differences		47,232,183		43,137,370
Ending deferred tax assets due to temporary differences		41,168,814		44,307,613
Tax effect related to change in other comprehensive income		(83,186)		3,157,894
Decrease(Increase) in Deferred tax assets		(432,409)		-
Others		(554,137)		(608,227)
Income tax expense	₩	43,868,975	₩	51,053,250

(2) Reconciliation between accounting income and income tax expense of the Group for the years ended December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

	Year ended December 31, 2019	Year ended December 31, 2018
Income(loss) before income tax expense	₩ 207,321,162	₩ 161,561,633
Tax expense calculated on book income	53,622,184	38,119,082
Adjustments:	(9,753,209)	12,934,168
Non-taxable income	98,740	(5,789,055)
Non-deductible expense	2,313,012	3,739,532
Income tax for the past period adjustments recognized in the current period	545,118	(6,065,408)
Tax deduction	(8,077,027)	(4,993,837)
Others	(4,663,052)	26,042,936
Income tax expense(benefit)	₩ 43,868,975	₩ 51,053,250

(3) Income tax directly reflected in equity for the years ended December 31, 2019 and 2018, is as follows (Unit: Korean won in thousands):

	Year ended December 31, 2019	Year ended December 31, 2018
Valuation through equity method	₩ (25,431)	₩ (10,501)
Valuation of financial asset at FVTOCI	81,936	3,021,053
Remeasurements of net defined benefit liability	(139,691)	147,342
Total deferred tax directly reflected in equity	₩ (83,186)	₩ 3,157,894

(4) Changes in deferred tax assets (liabilities) for the year ended December 31, 2019, are as follows (Unit: Korean won in thousands):

	Beginning balance	Reflected in income (loss)	Ending balance
Temporary differences:			
Valuation of derivative instruments	₩ (180,847)	₩ (231,873)	₩ (412,720)
Property, plant and equipment	7,342,774	1,431,339	8,774,113
Intangible assets	1,192,252	(1,308,795)	(116,543)
Financial asset at FVTOCI	5,445,156	(4,296,937)	1,148,219
Provisions	21,984,115	(2,900,068)	19,084,047
Doubtful receivables	120,844	863,952	984,796
Others	12,851,918	(189,899)	12,662,019
Carried forward tax credit	1,313,422	1,975,621	3,289,043
Consolidation adjustments	(2,837,451)	(1,406,709)	(4,244,160)
Deferred income tax assets	₩ 47,232,183	₩ (6,063,369)	₩ 41,168,814

(5) As of December 31, 2019 and 2018, 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, 2019	December 31, 2018
Temporary differences	₩ 316,543	₩ 9,840,332
Tax deficit	233,678	36,281,677
Unused tax credit	54,702	-

(6) As of December 31, 2019 and 2018, 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, 2019		December 31, 2018	
Investments in subsidiaries	₩	(53,899,736)	₩	(16,071,265)
Investments in associates		12,612,126		14,271,331
Total	₩	(41,287,610)	₩	(1,799,934)

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, 2019 and 2018, is calculated as follows (Unit: Korean won in thousands, except for EPS):

1) Year ended December 31, 2019

	Basic EPS		Total EPS	
Profit for the year attributable to owners of the Parent Company	₩	163,843,086	₩	163,843,086
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		163,843,086		163,843,086
Weighted-average number of common shares outstanding (after treasury stock)		87,197,353		87,197,353
EPS (in Korean won) (*)	₩	1,879	₩	1,879

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

2) Year ended December 31, 2018

	Basic 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.

(3) The impact on basic EPS and diluted EPS due to changes in accounting policies are as follows (Unit: Korean won in million except for EPS):

	December 31, 2019
Impact of continuing profit from continuing operations by applying K-IFRS 1116	₩ (749,084)
The effect on basic EPS of continuous operation (in Korean won)	(9)
The effect on diluted EPS of continuous operation (in Korean won)	(9)

30. RELATED-PARTY TRANSACTIONS:

(1) Details of related parties of the Group as of December 31, 2019 and 2018, are as follows:

1) December 31, 2019

Parent Company (including the ultimate controlling party and its associates)	Subsidiaries, joint ventures and associates of the Parent Company (domestic) (*1)	Subsidiaries, joint ventures and associates of the Parent Company (foreign) (*1)
The ultimate controlling party and its subsidiaries:		
LG Corp.		LG Holdings Japan Co., Ltd. (*2)
	S&I Corporation Co., Ltd. and six others (*2)	S&I NANJING Co., Ltd. and nine others
	LG Management Development Institute	
	LG Sports Ltd.	
Associates and joint ventures:		
LG CNS Co., Ltd.	Tmoney Co.,Ltd. and two others(*3)	T-money Asia sdn bhd and one another
	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 three 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.	
	Ace R&A Co., Ltd.	
	Hientech Co., Ltd.	
	LG Innotek Co., Ltd.	
	LG Innotek Alliance Fund	
	Innowith Co., Ltd.	
	Hanuri Co., Ltd.	
	ZKW Lighting Systems Korea Co., Ltd.(*4)	
LG Chem Ltd.	Haengboknuri Co., Ltd.	LG Chem America, Inc. and others
	FarmHannong Co., Ltd.	
	Ugimagkorea Co., Ltd.	
LG Hausys, Ltd.	Greennuri Co., Ltd.	LG Hausys America, Inc. and others
LG Uplus Corp.	CS Leader	DACOM AMERICA, INC.
	Ain Teleservice	
	Medialog Corp.	
	CS ONE Partner	
	With U Co., Ltd.	
	LG Hellovision Co., Ltd. (*5)	
	LG Hellovision Hana Broadcasting Co., Ltd.(*5)	
LG Household & Health Care Ltd.	Coca-Cola Beverage Co.	Beijing LG Household Chemical Co., Ltd. and other
	Hankook Beverage Co., Ltd.	
	TheFaceShop Co., Ltd.	
	HTB Co., Ltd.	
	K&I Co., Ltd.	
	C&P Cosmetics Co., Ltd.	
	Balkeunnuri. Co., Ltd.	

Parent Company (including the ultimate controlling party and its associates)	Subsidiaries, joint ventures and associates of the Parent Company (domestic) (*1)	Subsidiaries, joint ventures and associates of the Parent Company (foreign) (*1)
	Fmg Co., Ltd.	
	OBM RAP Co., Ltd.	
	LG Farouk Co., Ltd.	
	TAI GUK PHARM Co., Ltd.	
	Ulleung Mountain Chu Spring Water Development Company(*6)	
	RUCIPELLOKOREA INC.(*7)	
	MiGenstory Co.Ltd(*8)	
GIIR Corporation	HS Ad Co., Ltd.	GIIR America Inc. and others
	L.Best Co., Ltd.	
LG Hitachi Co., Ltd.		
Silicon Works Co. Ltd.		Silicon Works Inc. and others
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.	
	Hanul-tari Co., Ltd.	
ZKW Holding GmbH	ZKW Lighting Systems Korea. Co., Ltd.(*4)	ZKW Group GmbH. and others.
ZKW Austria Immobilien Holding GmbH		ZKW Austria Immobilien GmbH
Joint Ventures of parent companies:		
LG MMA Corporation		
Conglomerate of many companies (*9):		
LG Display Co., Ltd.	Nanumnuri Co., Ltd.	LG Display Nanjing Co., Ltd. and others
Sal de Vida Korea Corp.		
LG TOSTEM BM Co., Ltd.		
SEETEC Co., Ltd.		
Clean Soul Ltd.		
DACOM Crossing		
Robostar Co.,Ltd.	Robomedi Co.,Ltd.	Robostar(Shanghai) Co., Ltd.

(*1) Joint ventures of associates are excluded.
(*2) Direct shareholding of the relationship between corporate subsidiaries is included.
(*3) The company name has been changed.(formerly Korea Smart Card Co.,Ltd.)
(*4) Reclassified from Associates and joint ventures to Subsidiaries due to acquisition of stock during the current year..
(*5) Reclassification to the subsidiaries of LG Uplus Corp. due to the acquisition of stock during the current year.
(*6) Acquired during the current year.
(*7) Reclassified from Associates and joint ventures to Subsidiaries due to acquisition of stock during the current year.
(*8) Due to the exercise of the right to convert convertible bonds during the current year, it has been classified as a subsidiary from an associate of LG Household & Health Care.
(*9) 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.

2) December 31, 2018

Parent Company (including the ultimate controlling party and its associates)	Subsidiaries, joint ventures and associates of the Parent Company (domestic) (*1)	Subsidiaries, joint ventures and associates of the Parent Company (foreign) (*1)
The ultimate controlling party and its subsidiaries:		
LG Corp.		LG Holdings Japan Co., Ltd. and two others (*2)
	S&I Corporation Co., Ltd. and five	Serveone (Nanjing) Co., Ltd. and five others(*4)

Parent Company (including the ultimate controlling party and its associates)	Subsidiaries, joint ventures and associates of the Parent Company (domestic) (*1)	Subsidiaries, joint ventures and associates of the Parent Company (foreign) (*1)
	others (*2,3)	
	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(*5)	
	New Growth Venture Fund Ⅱ(*5)	
	Ace R&A Co., Ltd.	
	Hientech Co., Ltd.(*8)	
	LG-Hitachi Water Solutions Co., Ltd.(*8)	
	LG Innotek Co., Ltd.	
	LG Innotek Alliance Fund	
	Innowith Co., Ltd.	
	Hanuri Co., Ltd.	
LG Chem Ltd.	Haengboknuri Co., Ltd.	LG Chem America, Inc. and others
	FarmHannong Co., Ltd.	
	Ugimagkorea Co., Ltd. (*6)	
LG Hausys, Ltd.	Greennuri Co., Ltd.(*9)	LG Hausys America, Inc. and others
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 Co., Ltd.	
	Ulleung Mountain Chu Spring Water Development Company(*5)	
	TAI GUK PHARM Co., Ltd.(*10)	
	JS Pharmaceutical Co., Ltd.(*10)	
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.(*5)	LG Fuel Cell Systems (Korea) Inc.	
Silicon Works Co. Ltd.		Silicon Works Inc. and others
ZKW Holding GmbH		ZKW Group GmbH. and others
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.	
	Hanul-tari Co., Ltd.	

Parent Company (including the ultimate controlling party and its associates)	Subsidiaries, joint ventures and associates of the Parent Company (domestic) (*1)	Subsidiaries, joint ventures and associates of the Parent Company (foreign) (*1)
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.		
Clean Soul Ltd.		
DACOM Crossing		
Roboster Co., Ltd.	Robomedy Co., Ltd.	

(*1) Joint ventures of associates are excluded.
(*2) Direct shareholding of the relationship between corporate subsidiaries is included.
(*3) Serveone Co., Ltd has changed its name to S&I Corp. and the subsidiary, Serveone Co.,Ltd., was newly established during the prior year.
(*4) S & I Vietnam subsidiary was newly established during the prior year.
(*5) The company has been liquidated during the current year.
(*6) Reclassified from the parent company to a related entity due to acquisition of stock during the prior year.
(*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) Excluded from the subsidiaries of LG Electronics Inc. due to the disposal of its stock.
(*9) Newly established during the prior year.
(*10) Classified to the subsidiaries of LG Household & Health care Ltd. due to the acquisition of stock during the prior year.

3) Transactions between the parent and its subsidiaries were eliminated in the process of preparing consolidated financial statements, and transactions with the group and related parties during the current and prior terms are as follows

(2) Transactions with related parties for the years ended December 31, 2019 and 2018, are as follows (Unit: Korean won in millions):

	Year ended December 31, 2019			
	Revenue and others	Purchase of raw material	Acquisitions of property, plant and equipment	Other purchase
The ultimate controlling party and its subsidiaries:				
LG Corp.	₩ 3,770	₩ -	₩ -	₩ 12,628
S&I Corp. (*1,4,5)	57,654	-	53	23,964
LG Sports Ltd.	1,254	-	-	40
LG Management Development Institute	7,284	-	-	6,415
Lusem Co., Ltd.(*6)	-	-	-	-
LG Holdings Japan Co., Ltd.	-	-	-	332
Subtotal	69,953	-	53	43,379
Associates:				
Tmoney Co.,Ltd. (*1,2)	24,952	-	-	664
Sejong Green Power Co., Ltd.(*3)	-	-	-	-
Ulleungdo Natural Energy Co., Ltd.	-	-	-	-
Hellas SmarTicket Societe Anonyme	473	-	-	-
Subtotal	25,425	-	-	664

	Year ended December 31, 2019			
	Revenue and others	Purchase of raw material	Acquisitions of property, plant and equipment	Other purchase
Associates of the ultimate controlling party and its subsidiaries:				
LG Chem Ltd. (*1)	434,840	-	448	17,811
LG Household & Health Care Ltd. (*1)	32,317	-	-	3,848
LG Hausys, Ltd. (*1)	27,085	-	-	191
LG Electronics Inc. (*1)	666,187	-	5	142,690
GIIR Corporation (*1)	4,908	-	-	634
LG Uplus Corp. (*1)	375,724	-	-	25,901
LG Hitachi Co., Ltd.	176	-	-	960
Silicon Works Co. Ltd.	6,980	-	-	-
LG Fuel Cell Systems Inc.(*7)	13	-	-	-
LG Fuel Cell Systems Korea Co. Ltd.(*7)	1	-	-	-
LG International Corp.	38,523	-	-	704
Subtotal	1,586,754	-	453	192,739
Joint ventures of parent companies				
LG MMA Co., Ltd.	5,249	-	-	-
Subtotal	5,249	-	-	-
Conglomerate of many companies:				
LG Display Co., Ltd.	253,056	-	-	20
LG TOSTEM BM Co., Ltd.	29	-	-	-
DACOM Crossing	-	-	-	-
Subtotal	253,085	-	-	20
Total	₩ 1,940,466	₩ -	₩ 506	₩ 236,802

	Year ended December 31, 2018			
	Revenue and others	Purchase of raw material	Acquisitions of property, plant and equipment	Other purchase
The ultimate controlling party and its subsidiaries:				
LG Corp.	₩ 3,588	₩ -	₩ -	₩ 13,613
S&I Corp. (*1,4,5)	56,855	-	12,528	21,817
LG Sports Ltd.	1,110	-	-	40
LG Management Development Institute	6,678	-	-	5,192
Lusem Co., Ltd.(*6)	89	-	-	-
LG Holdings Japan Co., Ltd.	-	-	-	297
Subtotal	68,320	-	12,528	40,959
Associates:				
Tmoney Co.,Ltd. (*1,2)	26,546	-	-	3,211
Sejong Green Power Co., Ltd.(*3)	4,705	-	-	-
Ulleungdo Natural Energy Co., Ltd.	2,804	-	-	-
Hellas SmarTicket Societe Anonyme	-	-	-	-
Subtotal	34,055	-	-	3,211
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

	Year ended December 31, 2018			
	Revenue and others	Purchase of raw material	Acquisitions of property, plant and equipment	Other purchase
LG Hitachi Co., Ltd.	92	-	-	1,074
Silicon Works Co. Ltd.	7,658	-	-	-
LG Fuel Cell Systems Inc.(*7)	20	-	-	-
LG Fuel Cell Systems Korea Co. Ltd.(*7)	79	-	-	-
LG International Corp.	36,100	-	-	1,358
Subtotal	1,553,233	3,612	2,326	210,237
Joint ventures of parent companies				
LG MMA Co., Ltd.	5,427	-	-	-
Subtotal	5,427	-	-	-
Conglomerate of many companies:				
LG Display Co., Ltd.	278,330	-	-	-
LG TOSTEM BM Co., Ltd.	29	-	-	-
DACOM Crossing	98	-	-	-
Subtotal	278,457	-	-	-
Total	₩ 1,939,537	₩ 3,612	₩ 14,854	₩ 254,407

(*1) Transactions with its subsidiaries are included.
(*2) The company's name has been changed during the current year,(formerly Korea Smart Card Co..)
(*3) Reclassified from the associate company to a subsidiary due to acquisition of stock during the year ended December 31, 2018. The above transaction details are those prior to the classification of subsidiaries.
(*4) During the prior year, the company was split and changed from Serveone Co., Ltd. to S&I Corporation Co., Ltd., including transaction details for subsidiaries.
(*5) The transactions with associates are included.
(*6) Excluded from the scope of related parties as it was sold
(*7) The company has been liquidated during the current year.

(3) Outstanding receivables and payables from transactions with related parties as of December 31, 2019 and 2018, are as follows (Unit: Korean won in millions):

	December 31, 2019			
	Accounts receivable and others (*1)	Loans	Accounts payables and others (*2)	Borrowings
The ultimate controlling party and its subsidiaries:				
LG Corp.	4,917	-	448	-
S&I Corp. (*3)	28,508	-	2,089	-
LG Sports Ltd.	83	-	-	-
LG Management Development Institute	4,286	-	333	-
LG Holdings Japan Co., Ltd.	366	-	-	-
Subtotal	38,160	-	2,870	-
Associates:				
Tmoney Co.,Ltd. (*3,9)	₩ 2,737	₩ -	₩ 155	₩ -
RECAUDO BOGOTA S.A.S.(*6)	18,317	-	-	-
KEPCO-LGCNS Mangilao Holdings LLC (*7)	93	7,864	-	-
Subtotal	21,147	7,864	155	-
Associates of the ultimate controlling party and its subsidiaries:				
LG Chem Ltd. (*3)	164,564	-	7,649	-
LG Household & Health Care Ltd. (*3)	3,992	-	412	-
LG Hausys, Ltd. (*3)	6,967	-	31	-
LG Electronics Inc. (*3,8)	198,175	-	21,842	-

GIIR Corporation (*3)	2,587	-	105	-
LG Uplus Corp. (*3)	133,365	-	766	-
LG Hitachi Co., Ltd.	92	-	139	-
LG Fuel Cell Systems Inc.(*10)	-	-	-	-
Silicon Works Co. Ltd.	955	-	-	-
LG International Corp. (*3)	9,893	-	273	-
Subtotal	520,590	-	31,217	-
Joint ventures of parent companies				
LG MMA Co., Ltd.	490	-	-	
Subtotal	490	-	-	
Conglomerate of many companies:				
LG Display Co., Ltd.	75,850	-	2	-
LG TOSTEM BM	-	-	-	-
Subtotal	75,850	-	2	-
Total	₩ 656,237	₩ 7,864	₩ 34,244	₩ -

	December 31, 2018			
	Accounts receivable and others (*1)	Loans	Accounts payables and others (*2)	Borrowings
The ultimate controlling party and its subsidiaries:				
LG Corp.	5,178	-	422	-
S&I Corp. (*3)	31,451	-	3,339	-
LG Sports Ltd.	74	-	-	-
LG Management Development Institute	5,943	-	321	-
LG Holdings Japan Co., Ltd.	329	-	-	-
Subtotal	42,975	-	4,082	-
Associates:				
Tmoney Co.,Ltd. (*3,9)	₩ 4,884	₩ -	₩ 543	₩ -
RECAUDO BOGOTA S.A.S.(*6)	17,688	-	-	-
KEPCO-LGCNS Mangilao Holdings LLC (*7)	-	7,594	-	-
Subtotal	22,572	7,594	543	-
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. (*3,8)	185,664	-	20,065	-
GIIR Corporation (*3)	3,901	-	143	-
LG Uplus Corp. (*3)	165,623	-	1,057	-
LG Hitachi Co., Ltd.	45	-	164	-
LG Fuel Cell Systems Inc.(*10)	12	-	-	-
Silicon Works Co. Ltd.	825	-	-	-
LG International Corp. (*3)	5,776	-	125	-
Subtotal	537,414	-	35,513	-
Joint ventures of parent companies				
LG MMA Co., Ltd.	952	-	-	-
Subtotal	952	-	-	-
Conglomerate of many companies:				
LG Display Co., Ltd.	95,703	-	1	-
LG TOSTEM BM	-	-	-	-
Subtotal	95,703	-	1	-
Total	₩ 699,616	₩ 7,594	₩ 40,139	₩ -

(*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) Divided and changed its name to S&I Corporation in Serveone Co., Ltd. during the prior year.
(*5) Transactions with associates are included.
(*6) Bad debt allowances are recorded at ₩13,857,580 thousand and ₩13,641,430 thousand of receivables as of December 31, 2019 and 2018, respectively.
(*7) Bad debt allowances are recorded at ₩1,043,253 thousand and ₩584,130 thousand of receivables as of December 31, 2019 and 2018, respectively.
(*8) Bad debt allowances are recorded at ₩291,448 thousand and ₩210,006 thousand of receivables as of December 31, 2019 and 2018, respectively.
(*9) The company's name has been changed during the current year,(formerly Korea Smart Card Co..)
(*10) Liquidated during the current year.

(3) Fund transactions with the related parties for the years ended December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

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

(4) Details of payment guarantee provided to a special person related for the year ended December 31, 2019, 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, 2019 and 2018, are as follows (Unit: Korean won in thousands):

	Year ended December 31, 2019	Year ended December 31, 2018
Short-term employee benefits	₩ 22,333,037	₩ 20,323,450
Severance benefits	2,394,149	2,004,504
Other long-term employee payroll	4,640	4,478
Total	₩ 24,731,826	₩ 22,332,432

31. FUNDING ARRANGEMENTS AND PLEDGING:

(1) Financing agreements as of December 31, 2019, are as follows (Unit: Korean won and U.S. dollars in thousands):

Category(*)	Financial institution	Credit limit	
		In U.S. dollars	In Korean won
Comprehensive import and export	KEB Hana bank and others	USD 41,700	₩ -
Forward exchange	Kookmin Bank and others	97,100	-
Overdraft	Woori Bank	-	5,000,000
Others	Industry Bank and others	-	70,600,000

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

(2) Restricted financial assets as of December 31, 2019, are as follows (Unit: Korean won in thousands:

	December 31, 2019	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, 2019, as follows (Unit: Korean won in thousands):

	Amounts of guarantees	Insurance company
Guarantee of contract warranties, etc.	₩ 99,118,562	Seoul Guarantee Insurance Company
	315,395,360	Korea Software Financial Cooperative
	650,752	Engineering Financial Cooperative
	113,385,712	Shinhan Bank and others
Total	₩ 528,550,386	

2) Collateral

	Details
Korea Software Financial Cooperative	₩1,341 million of capital stock investment provided a combination as mortgage
Engineering Financial Cooperative	₩779 million of capital stock investment provided a combination as mortgage

32. LEASES:

(1) The Group as lessee

1) The carrying amount of the right-to-use assets at the end of the current term and at the beginning of the current term is as follows(Unit: Korean won in thousands):

	December 31, 2019				
	Buildings	Vehicles	Funitures and fixtures	Others	Total
Acquisition cost	₩ 68,101,893	₩ 2,084,575	₩ 1,879,201	₩ 2,814,536	₩ 74,880,205
Accumulated depreciation	(9,279,005)	(703,058)	(777,600)	(729,174)	(11,488,837)
Total	₩ 58,822,888	₩ 1,381,517	₩1,101,601	₩ 2,085,362	₩ 63,391,368

	January 1, 2019				
	Buildings	Vehicles	Funitures and fixtures	Others	Total
Acquisition cost	₩ 62,253,392	₩ 1,441,802	₩ 1,879,201	₩ -	₩ 65,574,395
Accumulated depreciation	-	-	-	-	-
Total	₩ 62,253,392	₩ 1,411,643	₩ 1,879,201	₩ -	₩ 54,474,395

2) Changes in the book value of the right-to-use assets on 2019 as follows (Unit: Korean won in thousands):

	Buildings	Vehicles	Furniture and fixtures	Others	Total
Beginning balance	₩ 62,253,392	₩ 1,441,802	₩ 1,879,201	₩ -	₩ 65,574,395
Additional(renewal) contracts	5,855,191	784,060	-	2,814,536	9,453,787
Depreciation of right-to-use assets	(9,229,192)	(752,871)	(777,600)	(729,174)	(11,488,837)
Termination of contracts	(56,503)	(91,474)	-	-	(147,977)
Ending balance	₩ 58,822,888	₩ 1,381,517	₩ 1,101,601	₩ 2,085,362	₩ 63,391,368

The group has operating lease contracts for buildings, furnitures and fixtures, vehicles and etc. The average lease term is 17.4 months.

3) The amounts recognised as profit or loss in 2019 are as follows(Unit: Korean won in thousands):

	Amounts
Depreciation of right-to-use assets	₩ 11,598,473
Interest expense of lease liabilities	1,552,372

Expenses related to short-term leases	2,906,622
Expenses related to leases of low-value assets	568,992

As of December 31, 2019, the lease agreement for short-term and lease of low-value assets is 2,679,470 thousands and the total cash outflow due to leases is 12,404,000 thousands. The depreciation cost of the right-of-use asset is calculated by the average exchange rate.

4) The details of the liquidity classification of lease liabilities as of December 31, 2019 is as follows (Unit: Korean won in thousands):

	Amounts	
Current liabilities	₩	12,131,342
Non-current liabilities		49,334,170
Total	₩	61,465,512

5) The details of lease liabilities as of December 31, 2019 are as follows:

	Minimum lease payments	
Within one year	₩	12,457,324
One year-five years		27,983,486
Over five years		27,518,697
Total	₩	67,959,507

(2) The Group as lessor

1) The future lease payment plans relating to the group's lease contracts as of the end of the current year and the prior year are as follows: (Unit: Korean won in thousands):

	December 31, 2019		
	Within One year	One year-five years	Total
LG CHEM LTD	₩ 1,205,961	₩ -	₩ 1,205,961
CJ E&M Co.,Ltd. and Others	990,680	1,363,455	2,354,135

	December 31, 2018		
	Within One year	One year-five years	Total
LG Uplus Ltd	₩ 98,120	₩ -	₩ 98,120
CJ E&M Co.,Ltd. and Others	627,194	1,075,608	1,702,802

2) The lease income recognized by the group in relation to the lease agreement for the year of 2019 and 2018 is ₩2,140,146 thousand and ₩810,833 thousand.

33. PENDING LITIGATIONS AND DISPUTES:

Pending litigations and disputes as of December 31, 2019, are as follows (Unit: Korean won in thousands and CNY):

Plaintiff	Defendant	Amount of lawsuit	Description

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 and others		78,755,530	Claims for unfair joint activities
National Federation of Fisheries Cooperatives	The Group and others		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	MG Non-Life Insurance CO., LTD		8,013,718	Claim for insurance
The Group	Mayor of Municipality of Sejong		60,000	A lawsuit to cancel the disposition of the fine
Customs office	The group		15,170,000	Damage claims
The Group	Hwasin Smart Education Science & Technology Limited		CNY 1,541,100	Request for unpaid service payments

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, 2019 and 2018, are as follows (Unit: Korean won in thousands):

	December 31, 2019	December 31, 2018
Total borrowings	₩ 544,007,085	₩ 569,160,553
Less cash and cash equivalents	(490,309,547)	(439,345,857)
Borrowings, net	53,697,538	129,814,696
Total equity	1,222,838,267	1,096,372,511
Debt ratio	4.39%	11.84%

(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, 2019 and 2018, is as follows (Unit: Korean won in thousands):

	December 31, 2019		December 31, 2018	
	Assets	Liabilities	Assets	Liabilities
USD	₩ 102,665,234	₩ 65,332,524	₩ 154,446,367	₩ 50,838,608
EUR	20,510,723	15,780,530	15,895,153	7,183,698
JPY	863,732	1,367,098	793,320	-
CNY	4,287,811	571,190	539,623	132,563
Others	48,310,932	18,661,311	48,832,467	899,328
Total	₩ 176,638,432	₩101,712,653	₩ 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, 2019, is as follows (Unit: Korean won in thousands):

	December 31, 2019	
Currency	10% increase against foreign currency	10% decrease against foreign currency
USD	₩ 2,821,516	₩ (2,821,516)
EUR	358,549	(358,549)
JPY	(38,155)	38,155

CNY	281,720	(281,720)
Others	2,241,856	(2,241,856)
Total	₩ 5,665,486	₩ (5,665,486)

	December 31, 2018	
Currency	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, 2019.

As of December 31, 2019, 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, 2019, is as follows (Unit: Korean won in thousands):

	Notional	Valuation gain and loss (I/S)		Valuation gain and loss	Fair value	
	amount	Gain	Loss	(B/S)	Assets	Liabilities
Currency forward	₩267,131,926	₩1,981,158	₩330,389	₩ -	₩ 2,249,593	₩ 275,703

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, 2019, is as follows (Unit: Korean won in thousands):

	December 31, 2019
Borrowings	₩ 24,620,328

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, 2019, is as follows (Unit: Korean won in thousands):

	1% increase		1% decrease	
	Net income	Net assets	Net income	Net assets
Borrowings	₩ (171,577)	₩ -	₩ 171,577	₩ -

3) Price risk

The Group is exposed to price risks from equity instruments. As of December 31, 2019, fair value of equity instruments is ₩1,794,048 thousand; when all the other variables are constant and when the price of equity instrument changes by 10%, the effect on equity will be ₩135,989 thousand (after tax effect).

4) Credit risk

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

The maximum exposure to financial losses incurred by the group from default of the other party's obligations as of the end of current year is the carrying amount of each financial asset in the financial statements and the maximum amount to be paid by group if warranted by financial guarantees provided by the group, regardless of the probability of the exercise, is ₩36,328 million (the limit on financial payment guarantees described in the 30(5).

To minimize credit risk, the group uses the credit rating information of independent external credit rating agencies to classify the exposure amount according to the degree of default. If the information of the credit rating agency is not available, we use official financial information to determine the ratings of the major customers and other debtors. The total exposure of the group and the credit rating of the counterparty are continuously reviewed and the total amount of such transactions are evenly distributed to the approved accounts.
The maximum credit risk exposure of financial assets at FVTPL, loans and receivables as of the end of the current year is similar to the carrying amount.

The exposure to the credit risk by major industries as of December 31, 2019, 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	₩ -	₩ 1,981,158	₩ 268,435	₩ -	₩11,021,048	₩ 13,270,641	₩ -	₩ 13,270,641
Financial assets at FVTOCI	-	-	-	-	9,924,235	9,924,235	-	9,924,235
Financial asstes at amortized cost	644,690,581	223,984,487	57,600,187	26,140,579	28,721,150	981,136,984	(82,723,010)	898,413,974
Limit of payment guarantee	-	-	143,880,429	-	-	143,880,429	(107,552,389)	36,328,040
Total	₩644,690,581	₩225,965,645	₩201,749,051	₩ 26,140,579	₩49,666,433	₩1,148,212,289	₩ (190,275,399)	₩ 957,936,890

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, 2019, 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	₩ 506,424,667	₩ 1,436,045	₩ -	₩ 507,860,712
Lease liabilities	12,457,324	27,983,486	27,518,697	67,959,507
Floating-rate financial instrument	25,371,679	-	-	25,371,679
Fixed-interest rate financial instruments	240,075,500	302,212,200	-	542,287,700
Payment guarantee	36,328,040	-	-	35,328,040
	₩ 820,657,210	₩ 331,631,731	₩ 27,518,697	₩ 1,179,807,638

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

The group manages liquidity through cash inflows from financial assets and financing arrangements with financial institutions, and the maturity of financial assets as of December 31, 2019 and 2018 is as follows (Unit: Korean won in thousands):

	December 31, 2019			
	Within 1 year	1 year–5 years	After 5 years	Total
Trade and other receivables	830,981,924	28,841,686	2,914,140	862,737,750
Investment in equity and debt instruments	-	-	20,945,283	20,945,283
	₩ 830,981,924	₩ 28,841,686	₩ 23,859,423	₩ 883,683,033

	December 31, 2018			
	Within 1 year	1 year–5 years	After 5 years	Total
Trade and other receivables	852,851,757	29,160,767	2,693,297	884,705,821
Investment in equity and debt instruments	-	1,030	12,413,296	12,414,326
	₩ 852,851,757	₩ 29,161,797	₩ 15,106,593	₩ 897,120,147

Maturity analysis of derivative financial assets (liabilities) according to their remaining maturity as of December 31, 2019 is as follows (Unit: Korean won in thousands):

		Within 1 year	1 year–5 years	Total
Derivatives for trading:				
Foreign currency derivatives(Gross settlement) (*)	Inflows	₩ 263,874,014	₩ -	₩ 263,874,014
	Outflow	(262,168,559)	-	(262,168,559)
Foreign currency derivatives(Net settlement)	Outflow	(268,435)	-	(268,435)
Total		₩ 1,973,890	₩ -	₩ 1,973,890

(*) 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 at FVTPL or FVTOCI) 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.

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, 2019 and 2018, are as follows (Unit: Korean won in thousands):

	December 31, 2019				
	Carrying amount	Level 1	Level 2	Level 3	Total
Financial assets:					
Derivatives for trading	₩ 2,249,593	₩ -	₩ 2,249,593	₩ -	₩ 2,249,593
Equity investments	11,021,048	-	-	11,021,048	11,021,048
Financial assets at FVTPL	13,270,641	-	2,249,593	11,021,048	13,270,641
Marketable equity securities	1,794,048	1,794,048	-	-	1,794,048
Unmarketable equity securities	8,130,187	-	-	8,130,187	8,130,187
Financial assets at FVTOCI	9,924,235	1,794,048	-	8,130,187	9,924,235
Total	23,194,876	1,794,048	2,249,593	19,151,235	23,194,876
Financial liabilities:					
Derivatives for trading	275,703	-	275,703	-	275,703
Financial liabilities at FVTPL	275,703	-	275,703	-	275,703
Total	₩ 275,703	₩ -	₩ 275,703	₩ -	₩ 275,703

	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
Financial assets at FVTPL	9,177,349	-	1,241,121	7,936,228	9,177,349
Marketable equity securities	1,936,400	1,936,400	-	-	1,936,400
Unmarketable equity securities	2,541,698	-	-	2,541,698	2,541,698
Financial assets at FVTOCI	4,478,098	1,936,400	-	2,541,698	4,478,098
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
Financial liabilities at FVTPL	180,750	-	180,750	-	180,750
Total	₩ 180,750	₩ -	₩ 180,750	₩ -	₩ 180,750

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	₩	2,249,593	Future price determination model	Forward exchange rate Discount rate
Total	₩	2,249,593		
Financial liabilities:				
Derivative instrument for trading	₩	275,703	Future price determination model	Forward exchange rate Discount rate
Total	₩	275,703		

3) The levels of the fair value of financial instruments without subsequent measurement at fair value as of December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

	December 31, 2019				
	Book value	Level 1	Level 2	Level 3	Total
Financial assets:					
Financial institution deposits	₩ 35,676,224	₩ -	₩ -	₩ 35,676,224	₩ 35,676,224
Trade receivables (*)	830,583,481	-	-	830,583,481	830,583,481
Loans (*)	10,415,906	-	-	10,415,906	10,415,906
Other accounts receivable (*)	11,113,468	-	-	11,113,468	11,113,468
Accrued income (*)	1,169,010	-	-	1,169,010	1,169,010
Deposits (*)	9,455,885	-	-	9,455,885	9,455,885
Total	₩ 898,413,974	₩ -	₩ -	₩ 898,413,974	₩ 898,413,974
Financial liabilities:					
Trade payables (*)	₩ 348,748,377	₩ -	₩ -	₩ 348,748,377	₩ 348,748,377
Borrowings	24,620,328	-	-	24,620,328	24,620,328
Other accounts payable (*)	36,824,511	-	-	36,824,511	36,824,511
Accrued expenses (*)	120,966,164	-	-	120,966,164	120,966,164
Dividend payables (*)	1,302	-	-	1,302	1,302
Deposits received	1,320,359	-	1,320,359	-	1,320,359
Long-term borrowings	519,386,757	-	525,126,349	-	525,126,349
Lease liabilities	61,465,512	-	-	61,465,512	61,465,512
Total	₩ 1,113,333,310	₩ -	₩ 526,446,708	₩ 592,626,194	₩ 1,119,072,902

(*) 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, 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	518,836,575	-	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.

4) Changes in Level 3 financial assets for the years ended December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

	Year ended December 31, 2019								
	Beginning balance	Effects of changes in accounting	Beginning balance after changes	Net income (loss)	Comprehensive income	Purchases	Disposals	Replacement	Ending balance
Financial assets:									
Investment	₩7,935,198	₩ -	₩7,935,198	₩ 211,271	₩ -	₩ 2,699,579	₩ -	₩ 175,000	₩ 11,021,048
Public	1,030	-	1,030	-	-	255	(1,255)	-	-
Non-marketable equity securities	2,541,698	-	2,541,698	-	(369,203)	7,312,692	(1,180,000)	(175,000)	8,130,187
Total	₩ 10,477,926	₩ -	₩ 10,477,926	₩ 211,271	₩ (369,203)	₩10,012,496	₩ (1,181,255)	₩ -	₩ 19,151,235

	Year ended December 31, 2018								
	Beginning balance	Effects of changes in accounting	Beginning balance after changes	Net income (loss)	Comprehensive income	Purchases	Disposals	Replacement	Ending balance
Financial assets:									
Investment	₩ 4,086,357	₩ 3,753,517	₩ 7,839,874	₩ 95,324	₩ -	₩	₩ -	₩ -	₩ 7,935,198
Public	-	-	-	-	-	1,030	-	-	1,030
Non-marketable equity securities	-	14,044,921	14,044,921	-	(13,140,545)	1,908,375	(271,053)	-	2,541,698
Total	₩ 4,086,357	₩ 17,798,438	₩ 21,884,795	95,324	(13,140,545)	1,909,405	(271,053)	₩ -	₩ 10,477,926

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 FVTOCI (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 advertized 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 advertized 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 sold the share of its subsidiary Korea Elecom Co., Ltd. and liquidated UCESS PHILIPPINES, INC. during the current year and liquidated its subsidiary SBI-LG Systems Co., Ltd. during the prior year.

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

	December 31, 2019	
	Korea Elecom Co., Ltd.	
Disposal proceeds received as cash and cash equivalents	₩	700,000

(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, 2019	
	Korea Elecom Co.,Ltd.	
Current assets:	₩	4,110,643
Cash and cash equivalents		2,712,661
Other current financial assets		595,434
Other current assets		298,929
Inventories		505,619
Non-current assets:		2,906,703
Property, plant and equipment and intangible asset		2,906,703
Current liabilities:		5,098,792
Other current financial liabilities		949,419
Other current liabilities		4,149,373
Non-current liabilities:		1,835,024
Other non-current liabilities		1,835,024
Total value of disposed net assets	₩	83,530
Controlling interest	₩	48,100
Non-controlling interest	₩	35,430

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

	December 31, 2019	
	Korea Elecom Co.,Ltd.	
Fair value of disposal proceeds	₩	700,000
Book value of disposed net assets		(48,100)
Gain on disposal of investments in subsidiaries	₩	651,900

(*) Meanwhile, as of December 31, 2019, The Group recorded loss on disposal of investments in subsidiaries of 473,009 thousand as a result of liquidation of UCCESS PHILIPPINES INC. and the adjustment of the disposal amount of the subsidiary that was recognized in the prior period.

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

	December 31, 2019	
	Korea Elecom Co.,Ltd.	
Disposal proceeds received as cash and cash equivalents	₩	700,000
Less: Disposal of cash and cash equivalents		2,712,661
Net cash flows	₩	(2,012,661)

(*) Meanwhile, there is no net cash outflow due to liquidation of subsidiary companies UCESS PHILIPPINES, INC. during the current term.

36. Business Combination:

The Group acquired 56.21% of the voting shares of its subsidiary Open Source Consulting during the current year. The assets and liabilities were recognized at fair value at the time of acquisition and the difference between the fair value of net assets and the amount paid in the transferee was recognized as goodwill.

(1) As of the acquisition date, the fair value of the identifiable assets and liabilities of Open source consulting Co.,Ltd. are as follows (Unit: Korean won in thousands):

	As of Acquisition date.	
	Open Source Consulting Co.,Ltd	
Current assets:	₩	4,372,567
Cash and cash equivalents		3,697,278
Other current financial assets		671,093
Other current assets		4,196
Non-current assets:		5,114,201
Property, plant and equipment and intangible asset		4,718,028
Non-current financial assets		396,173
Current liabilities:		981,371
Other current financial liabilities		225,229
Other current liabilities		756,142
Non-current liabilities:		1,840,766
Other non-current liabilities		1,840,766
Total value of disposed net assets	₩	6,664,631
Controlling interest	₩	3,746,500
Non-controlling interest	₩	2,918,131
Transferred consideration	₩	8,994,403
Goodwill	₩	5,247,904

(2) The net cash flows from a business combination are as follows:(Unit: Korean won in thousands)

	Open Source Consulting Co.,Ltd	
Transferred consideration	₩	8,994,403
Less: Trade and other payables		224,270
Less: Cash and cash equivalents		3,697,278
Cash outflows from business combination		5,072,855

37. NON-CASH INVESTING AND FINANCING ACTIVITIES:

(1) Significant non-cash investing and financing activities for the years ended December 31, 2019 and 2018, are as follows:

	Year ended December 31, 2019	Year ended December 31, 2018
Write-off of trade receivables	₩ 3,791,054	₩ 22,073,421
Liquidity replacement of borrowings and bonds	229,933,714	-
Increase in other account payable from acquisition of property, plant and equipment and intangible assets	(2,554,145)	(51,182,979)
Reclassification of intangible assets under development to asset	591,917	160,220,410
Replacement of account between property, plant and equipment and investment property	12,655,893	11,791,344
Recognizing right to use.	75,028,182	-
Recognizing lease liabilities	72,383,481	-
Reclassification of current of lease liabilities	10,325,429	-
Total	₩ 402,155,525	₩ 142,902,196

(2) Liabilities adjustments from financing activities for the year ended December 31, 2019, are as follows:

			Other changes				
	Beginning Balance	Cash flow	Changes in exchange rates	Changes in fair value	Liquidity replacement	Other changes	Ending Balance
Short-term borrowings	₩ 22,031,548	₩ 1,755,071	₩833,709	₩ -	₩ -	₩ -	₩ 24,620,328
Current portion of long-term debentures	-	-	-	-	229,762,319	171,395	229,933,714
Debentures	518,863,575	-		19,222	(229,762,319)	332,565	289,453,043
Long-term borrowings	28,265,430	(28,265,430)	-	-	-	-	-
Current portion of lease liabilities	9,919,241	(11,184,895)	-	3,071,567	10,325,429	-	12,131,342
Lease liabilities	53,010,453	(1,219,105)	-	6,315,879	(10,325,429)	1,552,372	49,334,170
Total	₩ 632,090,247	₩ (38,914,359)	₩ 833,709	₩ 9,406,668	₩ -	₩ 2,056,332	₩ 605,472,597

38. SUBSEQUENT EVENTS:

(1) Claims for unfair joint activities(ATM)

In January 2020, a lawsuit against the unfair act of compensation was sentenced to a second trial, and the other party filed an appeal in February.

(2) Acquisition of share in Cloudgram Co.,Ltd.

In January 2020, the group acquired a 35% of Cloudgram Co., Ltd. shares to strengthen its IT infrastructure cloud conversion business capability.

39. APPROVAL OF CONSOLIDATED FINANCIAL STATEMENTS:

The consolidated financial statements were approved by the board of directors on February 11, 2020, and are expected to be finally approved at the shareholders' meeting on March 25, 2020.