



LG CNS CO., LTD.

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

ATTACHMENT: INDEPENDENT AUDITORS' REPORT

LG CNS CO., LTD.

INDEPENDENT AUDITORS' REPORT

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

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

Report on the Separate Financial Statements

Audit Opinion

We have audited the accompanying separate financial statements of LG CNS Co., Ltd. (the "Company"), which comprise the separate statements of financial position as of December 31, 2019 and 2018, respectively, and the separate statements of profit or loss, separate statements of comprehensive income, separate statements of changes in shareholders' equity and separate statements of cash flows, all expressed in Korean won, for the years then ended, and a summary of significant accounting policies.

In our opinion, the separate financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and its financial performance and its cash flows for the years then ended in accordance with Korean International Financial Reporting Standards ("K-IFRSs").

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 Audits of the Separate Financial Statements section of our report. We are independent of the Company in accordance with the ethical requirements, including those related to independence, that are relevant to our audits of the separate 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 audits of the separate financial statements of the current period. These matters were addressed in the context of our audits of the separate financial statements as a whole, and in forming our audit opinion thereon, and we do not provide a separate opinion on these matters.

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

As described in Note 19 (5) to the separate 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 periods, contract assets and contract liabilities. In addition, as explained in Note 3 to the separate financial statements, the total contract cost is estimated on the basis of future expectations, such as 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.

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 Separate Financial Statements

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

In preparing the separate financial statements, management of the Company is responsible for assessing the Company'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 Company or to cease operations, or has no realistic alternative, but to do so.

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

Auditors' Responsibilities for the Audits of the Separate Financial Statements

Our objectives are to obtain reasonable assurance about whether the separate financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's 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 separate 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 separate 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 Company'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 Company'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 separate 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 Company to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the separate financial statements, including the disclosures, and whether the separate financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We communicate with those charged with governance of the Company 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 audits.

A handwritten signature in black ink that reads "Deloitte Idnjin LLC".

March 17, 2020

Notice to Readers

This report is effective as of March 17, 2020, the auditors' report date. Certain subsequent events or circumstances may have occurred between the auditors' report date and the time the auditors' report is read. Such events or circumstances could significantly affect the separate financial statements and may result in modifications to the auditors' report.

LG CNS CO., LTD. (the “Company”)

SEPARATE FINANCIAL STATEMENTS

AS OF AND FOR THE YEARS ENDED

DECEMBER 31, 2019 AND 2018

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

Kim Young Shub.

Chief Executive Officer

LG CNS CO., LTD.

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LG CNS CO., LTD.
SEPARATE STATEMENTS OF FINANCIAL POSITION
AS OF DECEMBER 31, 2019 AND 2018

	Korean won	
	Year ended December 31, 2019	Year ended December 31, 2018
	(In thousands)	
<u>ASSETS</u>		
CURRENT ASSETS:		
Cash and cash equivalents (Notes 5, 6, 34 and 35)	₩ 455,616,209	₩ 392,006,720
Financial institution deposits (Notes 5, 31, 34 and 35)	12,500,000	12,500,000
Financial assets at FVTPL (Notes 5 and 34)	-	1,030
Current derivative assets (Notes 5 and 34)	1,981,158	928,051
Trade receivables, net (Notes 5, 7, 30, 34 and 35)	763,812,018	780,754,088
Other receivables, net (Notes 5, 7, 30, 34 and 35)	24,145,324	29,967,498
Inventories, net (Notes 8 and 35)	50,947,212	46,702,191
Other assets (Notes 9, 19, 30 and 35)	220,043,179	165,574,269
Total current assets	1,529,045,100	1,428,433,847
NON-CURRENT ASSETS:		
Financial assets at FVTPL (Notes 5, 31 and 34)	11,021,048	7,935,198
Financial assets at FVTOCI (Notes 5 and 34)	5,375,491	4,336,045
Long-term trade receivables, net (Notes 5, 7, 30, 34 and 35)	12,515,082	11,881,990
Long-term other receivables, net (Notes 5, 7, 30, 34 and 35)	4,335,014	4,502,318
Property, plant and equipment, net (Notes 10, 32, and 35)	594,704,822	639,011,525
Investment property (Notes 11, 32 and 35)	31,766,725	19,889,938
Intangible assets (Notes 12 and 35)	57,874,006	51,296,577
Investments in subsidiaries (Note 13)	85,845,222	48,648,389
Investments in associates and joint ventures (Note 14)	32,286,673	32,286,673
Retirement benefit assets (Note 17)	146,225	-
Deferred tax assets, net (Note 29)	41,331,433	45,461,850
Other non-current assets (Notes 9, 30 and 35)	127,119	2,583,627
Right-of-use assets (Note 32)	57,405,520	-
Total non-current assets	934,734,380	867,834,130
TOTAL ASSETS	₩ 2,463,779,480	₩ 2,296,267,977

(Continued)

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

	Korean won	
	Year ended December 31, 2019	Year ended December 31, 2018
	(In thousands)	
<u>LIABILITIES AND SHAREHOLDERS' EQUITY</u>		
CURRENT LIABILITIES:		
Derivative liabilities (Notes 5 and 34)	₩ 275,703	₩ 180,750
Trade payables (Notes 5, 30, 34 and 35)	322,593,180	356,537,879
Other payables (Notes 5, 30, 34 and 35)	136,934,592	123,227,388
Current portion of long-term borrowings (Notes 5, 15, 34 and 35)	229,933,714	-
Current tax liabilities (Note 29)	10,498,256	20,641,927
Current provisions (Notes 16 and 35)	42,028,280	50,581,253
Other liabilities (Notes 18, 19 and 35)	184,963,493	150,982,203
Current lease liabilities(Notes 5, 32 and 34)	10,107,629	-
Total current liabilities	937,334,847	702,151,400
NON-CURRENT LIABILITIES:		
Other payables (Notes 5, 30, 34 and 35)	1,437,150	1,052,873
Long-term borrowings (Notes 5, 15, 34 and 35)	289,453,043	518,863,575
Provisions (Notes 16 and 35)	2,193,162	2,037,565
Retirement benefit obligation (Notes 17 and 35)	-	43,425
Other liabilities (Notes 18 and 35)	10,176,794	8,419,052
Lease liabilities (Notes 5, 32 and 34)	45,287,662	-
Total non-current liabilities	348,547,811	530,416,490
TOTAL LIABILITIES	1,285,882,658	1,232,567,890
SHAREHOLDERS' EQUITY:		
Issued capital (Note 20)	47,198,411	47,198,411
Capital surplus (Notes 20 and 21)	138,026,095	138,026,095
Accumulated other comprehensive income (loss) (Note 22)	(14,868,543)	(14,610,405)
Retained earnings (Note 23)	1,007,540,859	893,085,986
TOTAL SHAREHOLDERS' EQUITY	1,177,896,822	1,063,700,087
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY	₩ 2,463,779,480	₩ 2,296,267,977

(Concluded)

See notes

LG CNS CO., LTD.
SEPARATE 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)	
Revenue (Notes 4, 24 and 30)	₩ 3,039,795,628	₩ 2,828,574,073
Cost of sales (Notes 8, 24, 25 and 30)	(2,610,588,209)	(2,458,728,479)
Gross profit	429,207,419	369,845,594
Selling and administrative expenses (Notes 24, 25, 30 and 32)	(242,872,406)	(206,219,971)
Operating income	186,335,013	163,625,623
Financial income (Note 26)	26,465,966	20,486,740
Financial expenses (Note 26)	(15,300,399)	(14,789,269)
Other non-operating income (Note 27)	25,008,081	14,794,244
Other non-operating expenses (Note 27)	(31,114,336)	(35,188,394)
Profit before income tax expense	191,394,325	148,928,944
Income tax expense (Note 29)	(35,522,264)	(44,363,797)
Profit for the year	₩ 155,872,061	₩ 104,565,147

See notes

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

	Korean won	
	Year ended	Year ended
	December 31, 2019	December 31, 2018
	(In thousands)	
Profit for the year	₩ 155,872,061	₩ 104,565,147
Other comprehensive income (loss):		
Items that will not be reclassified subsequently to profit or loss		
Remeasurements of the net defined benefit liability	437,540	(110,363)
Net loss on financial assets measured at FVTOCI	(258,138)	(9,565,412)
	<u>179,402</u>	<u>(9,675,775)</u>
Items that may be reclassified subsequently to profit or loss		
	<u>-</u>	<u>-</u>
Total comprehensive income for the year	<u>₩ 156,051,463</u>	<u>₩ 94,889,372</u>

See notes

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

	Korean won				
	Accumulated other				
	Issued capital	Capital surplus	comprehensive income (loss)	Retained earnings	Total
	(In thousands)				
Balance at January 1, 2018	₩ 47,198,411	₩ 59,521,055	₩ 185,807	₩801,711,846	₩908,617,119
Effect of accounting policy change	-	-	(5,230,800)	5,230,800	-
Balance at January 1, 2018 – Restated	47,198,411	59,521,055	(5,044,993)	806,942,646	908,617,119
Profit(loss) for the year	-	-	-	104,565,147	104,565,147
Fair value loss on investments in equity instruments designated as at FVTOCI	-	-	(9,565,412)	-	(9,565,412)
Remeasurements of the net defined benefit liability	-	-	-	(110,363)	(110,363)
Increase (decrease) due to business combination	-	78,505,040	-	-	78,505,040
Annual dividends	-	-	-	(18,311,444)	(18,311,444)
Balance at December 31, 2018	<u>₩ 47,198,411</u>	<u>₩ 138,026,095</u>	<u>₩ (14,610,405)</u>	<u>₩ 893,085,986</u>	<u>₩ 1,063,700,087</u>
Balance at January 1, 2019	₩ 47,198,411	₩ 138,026,095	₩ (14,610,405)	₩ 893,085,986	₩ 1,063,700,087
Profit(loss) for the year	-	-	-	155,872,061	155,872,061
Fair value loss on investments in equity instruments designated as at FVTOCI	-	-	(258,138)	-	(258,138)
Remeasurements of the net defined benefit liability	-	-	-	437,540	437,540
Annual dividends	-	-	-	(41,854,728)	(41,854,728)
Balance at December 31, 2019	<u>₩ 47,198,411</u>	<u>₩ 138,026,095</u>	<u>₩ (14,868,543)</u>	<u>₩ 1,007,540,859</u>	<u>₩ 1,177,896,822</u>

See notes

LG CNS CO., LTD.
SEPARATE 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	₩ 155,872,061	₩ 104,565,147
Addition of expenses not involving cash outflows:		
Salaries and wages	2,497,878	1,110,449
Retirement benefits	3,214,100	3,919,547
Depreciation	70,530,496	65,280,180
Amortization of intangible assets	8,611,398	8,012,378
Bad debt expenses	183,041	4,084,093
Accrual of provision	20,625,638	27,349,900
Other operating expenses	-	1,661,983
Loss on foreign currency translation	1,903,376	1,886,207
Loss on disposal of property, plant and equipment	49,203	13,713
Impairment loss of on property, plant and equipment	176	-
Loss on disposal of intangible assets	7,145	23,204
Impairment loss of intangible assets	-	100,000
Loss on transactions of derivatives	15,910,718	13,332,913
Loss on valuation of derivatives	275,703	5,423,750
Interest expenses	14,518,852	13,357,775
Loss on disposals of FVTPL financial assets	1,032	7
Loss on disposal of investments in subsidiaries	-	168,908
Impairment loss on investments in subsidiaries	6,209,474	1,162,525
Impairment loss on investments in associates	-	7,362,667
Income tax expense	35,522,264	44,363,797
	<u>180,060,494</u>	<u>198,613,996</u>
Deduction of items not involving cash inflows:		
Reversal of loss on valuation of inventories	49,590	-
Gain on valuation of FVTPL financial assets	211,271	95,324
Reversal of allowance for other bad debt	-	505,881
Reversal of provision	7,170,058	5,513,573
Other selling and administrative expenses	301,047	-
Gain on foreign currency translation	2,148,023	420,358
Gain on disposal of property, plant and equipment	370,523	387,596
Gain on disposal of intangible assets	3,479	216,911
Gain on transactions of derivatives	8,533,789	7,084,843
Gain on valuation of derivatives	1,981,158	928,051
Interest income	6,961,636	7,359,730
Dividend income	18,633,971	11,916,305
Gain on disposals of investments in associates	700,000	143,062
Reversal of impairment loss of intangible assets	890,000	-
	<u>(47,954,545)</u>	<u>(34,571,634)</u>

(Continued)

LG CNS CO., LTD.
SEPARATE 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)	
Movements in working capital:		
Trade receivables	₩ 21,926,544	₩ (92,961,676)
Other receivables	(3,391,036)	(3,486,788)
Other current assets	(48,966,266)	(26,965,384)
Inventories	(4,195,431)	(2,684,683)
Non-current trade receivables	-	(1,926,433)
Other non-current assets	(49,966)	(38,969)
Trade payables	(29,309,644)	16,582,942
Other payables	13,524,858	20,566,698
Other current liabilities	33,987,393	30,088,520
Current provisions	(25,817,436)	(17,770,528)
Retirement benefit obligation	(1,933,608)	(6,476,003)
Other non-current liabilities	(732,700)	(535,150)
Other operating assets and liabilities	(403,003)	(932,030)
	<u>(45,360,295)</u>	<u>(86,539,484)</u>
Interest income received	6,304,466	6,747,831
Dividend income received	18,668,903	11,916,305
Income taxes returned	814,599	-
Interest expense paid	(12,620,124)	(11,580,906)
Income taxes paid	(42,407,871)	(37,451,663)
Net cash provided by operating activities	<u>213,377,688</u>	<u>151,699,592</u>
CASH FLOWS FROM INVESTING ACTIVITIES:		
Cash inflows from investing activities:		
Settlement of derivative instruments	8,533,789	7,084,843
Decrease in financial institution deposits	-	40,050,000
Decrease in other receivables	965,114	15,659,675
Disposal of financial assets measured at FVTOCI	1,318,044	724,641
Disposal of financial assets measured at FVTPL	222	-
Decrease in other non-current receivables	208,674	5,012
Disposal of investments in subsidiaries	796,186	2,391,790
Disposal of property, plant and equipment	565,673	22,964,474
Disposal of intangible assets	1,406,600	222,460
Business combination	-	136,861,042
Increase in other non-current payables	384,276	824,107
	<u>14,178,578</u>	<u>226,788,044</u>
Cash outflows for investing activities:		
Settlement of derivative instruments	15,163,417	13,452,862
Increase in other receivables	385,566	1,391,898
Acquisition of FVTPL financial equity instruments	2,699,805	-
Acquisition of FVTOCI financial equity instruments	2,906,000	1,767,359
Increase in long-term other receivables	401,914	1,739,974

(Continued)

LG CNS CO., LTD.
SEPARATE 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)	
Acquisition of investments in subsidiaries	₩ 48,745,493	₩ 531,358
Acquisition of property, plant and equipment	28,160,120	124,776,509
Acquisition of intangible assets	13,683,870	14,090,906
Decrease in long-term other receivables	-	28,627
	(112,146,185)	(157,779,493)
Net cash used in investing activities	(97,967,607)	69,008,551
CASH FLOWS FROM FINANCING ACTIVITIES:		
Cash inflows from financing activities:		
Issuance of debentures	-	199,283,352
Receipt of government grants	447,316	-
	447,316	199,283,352
Cash outflows for financing activities:		
Redemption of current position of long-term borrowings	-	190,000,000
Redemption of current lease liabilities	10,393,731	-
Payment of dividends	41,854,177	18,311,190
	(52,247,908)	(208,311,190)
Net cash used in financing activities	(51,800,592)	(9,027,838)
Net increase (decrease) in cash and cash equivalents	63,609,489	211,680,305
Cash and cash equivalents at beginning of year	392,006,720	180,326,415
Effects of exchange rate changes on the balance of cash held in foreign currencies	-	-
Cash and cash equivalents at end of year	₩ 455,616,209	₩ 392,006,720

(Concluded)

See notes

LG CNS CO., LTD.
NOTES
AS OF AND FOR THE YEARS ENDED DECEMBER 31, 2019 AND 2018

1. GENERAL:

LG CNS Co., Ltd. (the “Company”) was incorporated in 1987 under the laws of the Republic of Korea to engage in the business of 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 Company’s shareholders are LG Corp. (84.95%) and others.

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

The Company has adopted the Korean International Financial Reporting Standards (“K-IFRSs”), and these separate financial statements of the Company are in accordance with K-IFRS 1027 (Consolidated and Separate Financial Statements), presented by an investor with joint control or significant influence, in which the investments are accounted for on the basis of cost method, K-IFRS 1109, ‘Financial Instruments,’ or K-IFRS 1028, -Investment in Associates and Joint Ventures.

The significant accounting policies under K-IFRSs followed by the Company in the preparation of its separate financial statements are summarized below. The accounting policies are applied consistently to the separate financial statements for the current period and the comparative period.

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 separate 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) Basis of preparing separate financial statements

1) Measurement standard

The accompanying separate financial statements have been created based on a historical cost basis, with the exception of certain non-current assets and financial assets measured at revalued amount and fair value at the end of each reporting period as explained in the accounting policy below. Historical cost is commonly measured in fair value of cost to acquire the asset.

2) Functional currencies and presentation currencies

The Company measures the items included in its financial statements using the currency (functional currency) in the primary economic environment in which it operates, and the functional currency and presentation currency of the Company are “KRW”.

3) The standards and interpretations newly introduced in 2019 and the consequent changes in accounting policies are as follows.

- IFRS 16 Lease (Enactment)

In the current year, the Company 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 '(2) Lease'. The impact of the adoption of K-IFRS 1116 on the Company's financial statements is described below.

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

The Company 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 Company 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 January 1, 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 Company 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 January 1, 2019.

(b) Impact on Lessee Accounting

(i) Former operating leases

K-IFRS 1116 changes how the Company 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 Company-:

- Recognizes 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
- Recognizes 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 and, amortized 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 recognize a lease expense on a straight-line basis as permitted by K-IFRS 1116.

The Company 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 recognize 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 Company 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 liabilities at January 1, 2019, is 2.07%.

The table below demonstrates 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. (Unit: Korean won in thousands)

	Amounts
Operating lease commitments as at December 31, 2018 (a)	70,451,918
Short-term leases and leases for which the underlying asset is of low value (b)	1,484,008
Discount on present value (c)	6,269,695
Lease liabilities as at January 1, 2019(e) (e = a-b-c+d)	62,698,215

Right-of-use assets of 65,369,970 and Lease liabilities of 62,698,215 were 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 was replaced with account between asset items as it constitutes the acquisition cost of right-of-use assets.

- K-IFRS 1109, – Financial Instruments (Amendment)

The company has adopted the amendments to K-IFRS 1109 for the first time in the current year. 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 company has adopted the amendments to K-IFRS 1028 for the first time in the current year. 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 company applies K-IFRS 1109 to such long-term interests before it applies K-IFRS 1028. In applying K-IFRS 1109, the company does not take account of any adjustments to the carrying amount of long-term interests required by K-IFRS 1028 (i.e., adjustments to the carrying amount of long-term interests arising from the allocation of losses of the investee or assessment of impairment in accordance with K-IFRS 1028).

- 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 capitalization 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 re-measuring its previously held interest (PHI) in the joint operation at fair value. The PHI to be re-measured 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 company has adopted the amendments of K-IFRS 1019 for the first time in the current year. 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 re-measurement 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 re-measured under K-IFRS 1019.99 with the discount rate used in the re-measurement (also taking into account the effect of contributions and benefit payments on the net defined benefit liability (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 sets out how to determine the accounting tax position when there is uncertainty over income tax treatments. The Interpretation requires an entity to:

- determine whether uncertain tax positions are assessed separately or as a group; and
- 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 company does not anticipate that the application of the enactment and amendments will have an significant impact on the company's separate financial statements.

4) 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 January 1, 2020, with early application permitted.

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

Together with the revised Conceptual Framework, which became effective upon publication on December 21, 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 January 1, 2020, with early application permitted.

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

(2) Among the accounting policies applied by the company, the accounting policies related to leases have changed significantly from the previous year, and the company's accounting policies of the leases are as follows:

(2)-1 The company as lessee

The company assesses whether a contract is or contains a lease, at inception of the contract. The company recognizes 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 company recognizes 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 company 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 company 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 re-measured 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 re-measured 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 company 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 recognized 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 company 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 company 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 company 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 company 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.

(2)-2 The company as lessor

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

Leases for which the company 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 company 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 recognized on a straight-line basis over the term of the relevant lease. Initial direct costs incurred in negotiating and arranging an operating lease are added to the carrying amount of the leased asset and recognized on a straight-line basis over the lease term.

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

When a contract includes both lease and non-lease components, the company applies IFRS 15 to allocate the

consideration under the contract to each component.

(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 Company, liabilities incurred by the Company to the former owners of the acquiree and the equity interest issued by the Company 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:

- 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;
- liabilities or equity instruments related to share-based payment arrangements of the acquiree or share-based payment arrangements of the Company 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
- assets (or disposal Companies) 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 Company in a business combination includes 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. Other contingent consideration is remeasured to fair value at subsequent reporting dates with changes in fair value recognized in profit or loss.

When a business combination is achieved in stages, the Company's previously held interests(including joint operations) in the acquired entity are remeasured to its acquisition-date fair value and the resulting gain or loss, if any, is recognized in profit or loss. 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, where such treatment would be appropriate if that interest were 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 Company 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) Foreign currencies

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

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

- exchange differences on foreign currency borrowings relating to assets under construction for future productive use, which are included in the cost of those assets when they are regarded as an adjustment to interest costs on those foreign currency borrowings;
- exchange differences on transactions entered into in order to hedge certain foreign currency risks.

(5) Cash and cash equivalents

Cash and cash equivalents include petty cash, bank deposits and other highly liquid short-term investments with maturity of less than three months at the time of acquisition. The overdraft is included in the short-term borrowings account in the statement of financial position.

(6) Financial Instruments

Financial assets and financial liabilities are recognized in the company's statement 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.

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 financial assets within the scope of IFRS 9 are classified to be measured at amortized cost, fair value through other comprehensive income and fair value through profit or loss at initial recognition based on the business model for managing financial assets and the contractual cash flow characteristics. The relevant accounting policies are the same as those described in Note 2(2).

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

In the event that the entire financial asset is not derecognized (for example, if the Company has the option to repurchase a portion of the transferred asset, or if the holding of such residual interest does not constitute a majority of the risks and rewards of ownership and controls the asset), the Company distributes the existing carrying amount of the financial asset to the part that continues to be recognized and to the part that is not more than the amount of the continuing involvement at the date of the transfer.

(7) Inventories

The acquisition costs of inventories are recognized including both acquisition costs, conversion costs and other costs incurred to bring the inventory to its current location.

Cost is a systematic amount of fixed and variable overhead, and is measured in the most appropriate method for each inventory category, and the unit cost measurement method is used by the individual method

In addition, inventories are measured at the lower of acquisition cost and net realizable value every subsequent period after acquisition. Net realizable value is the amount of additional cost of completion and sales expected from the expected selling price of the normal sales process, and the net realizable value is re-evaluated in each subsequent period. If there is clear evidence that the circumstances that led to the reduction of inventories have been resolved or that the net realizable value has been increased due to changes in economic conditions, the valuation loss shall be reversed within the scope of not exceeding the initial carrying amount.

(8) Investments in associates and joint ventures

The Company's financial statements are separate financial statements in accordance with IAS 27 _Separate Financial Statements_ and separate financial statements are financial statements in which an investor with joint control or significant influence over the parent or investee applies either the cost method or the equity method specified in IAS 28 'Investments in Associates and Joint Ventures'.

The Company has accounted for investments in subsidiaries, associates and joint ventures by selecting the cost method in accordance with IAS 27. On the other hand, dividends received from subsidiaries, associates and joint ventures are recognized in profit or loss at the time the right to a dividend is confirmed.

Affiliates refer to entities in which we have significant influence, and significant influence is the ability to participate in decisions about financial and sales policies of an investee, not control or joint control of such policies.

A joint venture refers to a joint arrangement in which the parties that have joint control of the arrangement have rights to the net assets of the arrangement, and joint control is a contractual agreed-upon share of the control of the arrangement and exists only when a decision on the relevant activity requires consent from all parties who share control.

The Company determines whether or not to recognize impairment losses on investments in subsidiaries, associates and joint ventures in accordance with the requirements of IAS 36. In the event of an impairment sign, the entire carrying amount of the investment in the related company and the joint venture is tested for impairment in accordance with IAS 36 'Accounting Policies, Changes in Assets', compared with the recoverable amount (a larger of the fair value less costs to sell and the recoverable amount is compared to the recoverable amount in accordance with IAS 36. The recognized impairment loss shall not be allocated to any assets (including goodwill) that constitute a part of the carrying amount of the investment in the associate and the joint venture. In addition, reversals of impairment losses are recognized as the recoverable amount of such investments is subsequently increased in accordance with IAS 36.

(9) Interests in joint operations

A joint operation is a joint arrangement whereby the parties that have joint control of the arrangement have rights to the assets, and obligations for the liabilities, relating to the arrangement. Joint control is the contractually agreed sharing of control of an arrangement, which exists only when decisions about the relevant activities require unanimous consent of the parties sharing control.

When a company undertakes its activities under joint operations, the company as a joint operator recognizes in relation to its interest in a joint operation:

- its assets, including its share of any assets held jointly;
- its liabilities, including its share of any liabilities incurred jointly;

- its revenue from the sale of its share of the output arising from the joint operation;
- its share of the revenue from the sale of the output by the joint operation; and
- its expenses, including its share of any expenses incurred jointly.

The company accounts for the assets, liabilities, revenues and expenses relating to its interest in a joint operation in accordance with the K-IFRS Standards applicable to the particular assets, liabilities, revenues and expenses.

When a company transacts with a joint operation in which the company is a joint operator (such as a sale or contribution of assets), the company is considered to be conducting the transaction with the other parties to the joint operation, and gains and losses resulting from the transactions are recognized in the company's separate financial statements only to the extent of other parties' interests in the joint operation.

When a company transacts with a joint operation in which the company is a joint operator (such as a purchase of assets), the company does not recognize its share of the gains and losses until it resells those assets to a third party.

(10) Goodwill

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

For the purpose of impairment testing, goodwill is allocated to each of the company's cash-generating units (or groups of 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. 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.

(11) 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 their purchase or construction, which includes any costs directly attributable to bringing the asset to the location and condition necessary for it to be capable of operating in the manner intended by management. It also includes the initial estimate of the costs of dismantling and removing the item and restoring the site at which it is located.

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

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

	<u>Estimated useful lives (years)</u>
Buildings	25–40
Structures	40
Machinery	4
Vehicles	4–10
Tools and equipment	4
Furniture and fixtures	3–25
Other property	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 Company reviews the depreciation method and 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 assets. Any gain or loss arising from the disposal or retirement of an item of property, plant and equipment is determined as the difference between sales proceeds and the carrying amount of the asset and is recognized in profit or loss.

(12) Investment property

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

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

Among the investment properties, land is not depreciated. However, investment properties other than land are depreciated more than 25 to 40 years of their useful lives using the straight-line method.

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.

(13) 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. Intangible assets acquired separately compose of development costs, industrial property, software, membership, etc. They are amortized using the straight-line method more than 5 to 10 years, with no residual value.

In relation to intangible assets with definite useful lives, the estimated useful life and amortization method are reviewed at the end of each annual reporting period, with the effect of any changes in estimate being accounted for as change in accounting estimates.

2) Internally generated intangible assets - research and development expenditure

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

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

- The technical feasibility of completing the intangible asset so that it will be available for use or sale.
- The intention to complete the intangible asset and use or sell it.
- The ability to use or sell the intangible asset.
- How the intangible asset will generate probable future economic benefits.

- The availability of adequate technical, financial and other resources to complete the development and to use or sell the intangible asset.
- 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) Patents and trademarks

Patents and trademarks are measured initially at purchase cost and are amortized on a straight-line basis over their estimated useful lives.

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

At the end of each reporting period, the Company reviews the carrying amounts of its tangible and intangible assets to determine whether there is any indication that those assets have suffered an impairment loss. If any such indication exists, the recoverable amount of the asset is estimated in order to determine the extent of the impairment loss (if any). Where it is not possible to estimate the recoverable amount of an individual asset, the Company estimates the recoverable amount of the cash-generating unit to which the asset belongs. 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. In assessing value in use, the estimated future cash flows are discounted to their present value using a pretax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset for which the estimates of future cash flows have not been adjusted.

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. An impairment loss is recognized immediately in profit or loss, unless the relevant asset is carried at a revalued amount, in which case the impairment loss is treated as a revaluation decrease. 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 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.

(15) Financial liabilities and equity instruments

1) Classification as debt or equity

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

2) Equity instruments

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

3) Financial liabilities

Financial liabilities are recognized when the Company becomes a party to the contract. Financial liabilities are measured at fair value on initial recognition. Transaction costs directly related to the issue of financial liabilities are deducted or added to the fair value of the financial liability upon initial recognition. However, transaction costs directly related to the issuance of financial liabilities at fair value through profit or loss are recognized as immediate profit or loss

Financial liabilities are classified as 'financial liabilities measured at FVTPL' or 'other financial liabilities'.

A financial liability is classified as a financial liability measured at FVTPL when designated as a financial liability measured at FVTPL on initial recognition or conditional consideration by the acquirer in a business combination in which IFRS 3 'business combination' applies.

5) Financial liabilities measured subsequently at amortized cost

Other financial liabilities are subsequently measured at amortized cost using the effective interest method, and interest costs are recognized using the effective interest method.

The effective interest method is to calculate the amortized cost of a financial liability and to allocate the interest expense over the relevant period. The effective interest rate is the interest rate that accurately matches the present value of the expected net carrying amount of the expected future cash payment, including fees and points paid or received (if appropriate) in the expected life of the financial liability (which is a major component of the effective interest rate), transaction costs, and other surcharges or discounts.

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) Derecognition of financial liabilities

The company removes the financial liability only if our obligations have been fulfilled, cancelled or expired.

(16) 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.

(17) Derivative financial instruments.

The Company 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 recognized initially at fair value at the date a derivative contract is entered into and are subsequently re-measured to their fair value at each reporting date. The resulting gain or loss is recognized in profit or loss immediately unless the derivative is designated and effective as a hedging instrument, in which event 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 whereas a derivative with a negative fair value is recognized as a financial liability. Derivatives are not offset in the financial statements unless the company has both legally enforceable right and intention to offset. The impact of the Master Netting Agreements on the Group's financial position is disclosed in Note 50. 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 due to be realised 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 realised or settled within 12 months.

2) Hedge accounting

The company 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 company documents the relationship between the hedging instrument and the hedged item, along with its risk management objectives and its strategy for undertaking various hedge transactions. Furthermore, at the inception of the hedge and on an ongoing basis, the 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:

3) Fair value hedges

The Company immediately recognizes in profit or loss changes in the fair value of a derivative that is designated as a hedging instrument and meets the fair value hedge accounting requirements, and immediately recognizes changes in the fair value of the hedged item due to the hedged risk in profit or loss. Changes in the fair value of the hedging instrument and changes in the fair value of the hedged item due to the hedged risk are recognized in the statement of comprehensive income.

Fair value hedge accounting is discontinued if the Company withdraws the designation of the hedging relationship, if the hedging instrument is extinguished, sold, liquidated or exercised, or if the fair value hedge accounting requirements are no longer met. The carrying amount of the hedged item due to the hedged risk is amortized from the date of discontinuation of hedge accounting and recognized in profit or loss.

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 relating 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.

(18) Retirement benefit costs and termination benefits

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

For defined 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. Re-measurement, 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 separate statements of financial position, with a charge or credit recognized in other comprehensive income in the period in which they occur. Re-measurement recognized in other comprehensive income is reflected immediately in retained earnings and will not be reclassified to profit or loss. Income is not reclassified. Past service cost is recognized in profit or loss when the plan amendment or curtailment occurs, or when the Company 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 as follows:

- Service costs, which includes current service cost, past service cost and gains and losses on curtailments and settlements.
- Net interest expense or income.
- Re-measurements.

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

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

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

The discretionary contributions of employees or third parties reduce service cost when such contributions are paid to the plan. When specifying that there will be contributions from employees or third parties in the formal terms of the plan, accounting depends on whether contributions are linked to service as follows:

If the contributions are not linked to the service (for example, contributions to reduce the deficit arising from losses in plan assets or actuarial losses), the contributions affect the re-measurement of the net defined benefit liability (asset).

If contributions are linked to service, contributions reduce service cost. In the case of contributions determined by the service year, the Company allocates contributions to the total benefits in accordance with the allocation method required by paragraph 70 of IAS 19. On the other hand, for contributions that are independent of the service life, the Company recognizes such contributions as a reduction in service cost during the period in which the related service is provided.

(19) Provisions and contingent liabilities

A provision is a present obligation (legal or constructive obligation) resulting from past events, and is recognized when it is likely that the obligation will be fulfilled and the amount to be estimated reliably.

The amount recognized as a provision is the best estimate at the end of each reporting period for the expenditure required to fulfill the current obligation, taking into account the inevitable risks and uncertainties associated with the event and situation. If the effect of the time value of money is important, the provision is assessed as the present value of the expected expenditure to fulfill the obligation. Discount rates are pre-tax rates that reflect current market assessments of the time value of money and the inherent risks of debt. The increase in provisions over time is recognized in profit or loss as financial cost when incurred.

If a third party is expected to reimburse some or all of the expenses required to settle the provision, the reimbursement is almost certain to be reimbursed if the Company fulfills its obligations and the amount can be measured reliably, the reimbursement is recognized as an asset.

The balance of the provisions is reviewed at the end of each reporting period and adjusted to reflect the best estimate as of the end of the reporting period. The related provisions are reversed when the economic benefits are no longer likely to be realized.

1) Onerous contract

The current obligations under the onerous contract are recognized and measured as provisions. The Company determines that it is responsible for the onerous contract when the unavoidable costs arising from the performance of its contractual obligations exceed the economic benefits expected to be received under the contract.

(20) Government grants

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

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

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

Government grants related to income are recognized in profit or loss on a systematic basis over the periods in which the company recognizes as expenses the related costs for which the grants are intended to compensate.

(21) Revenue recognition

Revenue is measured on the basis of the consideration specified in the contract with the customer and excludes the amount collected on behalf of the third party. We also recognise revenue when control of goods or services is transferred to the customer.

1) Sale of goods

The Company recognizes revenue from sale of goods when significant risks and rewards from ownership of goods have been transferred and it retains neither continuing managerial involvement to the degree usually associated with ownership nor effective control over the goods. Therefore, the Company recognizes revenue for the manufactured goods at acceptance and merchandises at delivery. Revenue is recognized by estimating the total amount of returns expected 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 Company has a right to recover the product when customers exercise their right of return and 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 Company 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 can be measured reliably and the 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 Company 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 from the recognized profit to the accumulated accrued costs is classified as contract liabilities. Amounts received before the related work is performed are included in the separate statements of financial position, as a liability, as advances received. Amounts billed for work performed, but not yet paid by the customer are included in the separate statements of financial position under trade and other receivables.

(22) Income 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 separate 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 Company's liability for current tax is calculated using tax rates that have been enacted or substantively enacted by the end of the reporting period.

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

(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

(25) Allocation of greenhouse gas emission rights and accounting for trading systems

The Company classifies the emission rights as intangible assets, and the emission rights allocated free of charge by the government are measured at zero and the sales rights purchased are measured at cost. In addition, the emission liabilities shall be measured at zero if the emission rights granted free of charge by the government are sufficient for fulfilling obligations under emission liabilities incurred in the current period in connection with the corresponding year of implementation, and the emission liabilities shall be measured at the best estimate as of the end of the reporting period for the expenditure expected to be incurred for the discharge of emission liabilities in excess of the amount of free quota.

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

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

Estimation and assumptions are continuously reviewed. Effects of changes in accounting estimates are recognized during the period of changes made only in case that those changes affect a corresponding period. Effects of changes are recognized during both current and future periods and, in such case, those changes affect both periods.

(1) Uncertainty on the estimation of the total construction revenue

Total contract revenue is measured based on the contract amount initially agreed upon, but can be increased or decreased as the terms of the contract change in the course of performing the contract, so measurement of contract revenue is subject to various uncertainties related to the outcome of future events. The Company includes in the contract revenue when it is likely that the customer will approve a change in the amount of revenue due to a change in the terms of the contract or when the Company is more likely to meet its performance criteria and can measure the amount more reliably.

(2) Estimation of the total construction cost

The amount due from the customer is affected by the percentage of completion, which is estimated by reference to the total cost incurred, and the total contract cost is estimated by reference to the expected future figures, such as the material costs, the labour costs, the contract period, etc. The Company 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:

The Company reports segment information based on K-IFRS 1108, *Operating Segments*. The information for the entity level is as follows (Unit: Korean won in thousands):

(1) Information about Sales

	December 31, 2019		December 31, 2018	
Merchandise	₩	679,132,939	₩	618,554,336
Service		1,097,119,785		1,015,176,475
Construction		1,263,542,904		1,194,843,262
Total	₩	3,039,795,628	₩	2,828,574,073

(2) Information about the region.

Company's sales are all generated and all of the non-current assets are located within the country (Republic of Korea).

(3) Information on major customers

Customer sales, which account for more than 10% of sales as of December 31, 2019 and 2018, are as follows
(Unit: Korean won in thousands):

	December 31, 2019		December 31, 2018	
	₩		₩	
LG Electronics Inc. (*)		554,642,292		568,795,020
LG Uplus Co., Ltd. (*)		373,738,383		359,113,610
LG Chem Ltd. (*)		353,979,346		331,705,269

(*) Includes the transaction history of subsidiaries.

5. CLASSIFICATION OF FINANCIAL INSTRUMENTS AND FAIR VALUE:

(1) The carrying amount and the 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

Financial assets	Account	December 31, 2019		December 31, 2018	
		Carrying amount	Fair value	Carrying amount	Fair value
Cash and cash equivalents	Cash and cash equivalents	₩ 455,616,209	₩ 455,616,209	₩ 392,006,720	₩ 392,006,720
Financial assets at FVTPL	Derivative assets for trading	1,981,158	1,981,158	928,051	928,051
	Investment(*)	11,021,048	11,021,048	7,935,198	7,935,198
	Government bonds	-	-	1,030	1,030
	Subtotal	13,002,206	13,002,206	8,864,279	8,864,279
Financial assets at FVTOCI	Marketable equity securities	1,794,048	1,794,048	1,936,400	1,936,400
	Unmarketable equity securities	3,581,443	3,581,443	2,399,646	2,399,646
	Subtotal	5,375,491	5,375,491	4,336,046	4,336,046
Financial assets at amortized cost	Financial institution deposits	12,500,000	12,500,000	12,500,000	12,500,000
	Trade receivables	776,327,100	776,327,100	792,636,078	792,636,078
	Loans	11,429,207	11,429,207	11,489,414	11,489,414
	Other accounts receivable	9,637,230	9,637,230	16,081,603	16,081,603
	Accrued income	1,030,059	1,030,059	654,819	654,819
	Deposits	6,383,842	6,383,842	6,243,980	6,243,980
	Subtotal	817,307,438	817,307,438	839,605,894	839,605,894
	Total	₩1,291,301,344	₩1,291,301,344	₩1,244,812,939	₩1,244,812,939

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

2) Financial liabilities

Financial liabilities	Account	December 31, 2019		December 31, 2018	
		Carrying amount	Fair value	Carrying amount	Fair value
Financial liabilities at FVTPL	Derivative liabilities for trading	₩ 275,703	₩ 275,703	₩ 180,750	₩ 180,750
Financial liabilities at amortized cost	Trade payables	322,593,180	322,593,180	356,537,879	356,537,879
	Other accounts payable	29,951,547	29,951,547	24,923,401	24,923,401
	Accrued expenses	106,981,743	106,981,743	98,303,238	98,303,238
	Dividend payables	1,302	1,302	749	749
	Deposits received	1,437,150	1,437,150	1,052,873	1,052,873
	Long-term borrowings	519,386,757	525,126,350	518,863,575	521,374,578
	Subtotal	980,351,679	986,091,272	999,681,715	1,002,192,718
Lease liabilities		55,395,291	55,395,291	-	-
	Total	₩1,036,022,673	₩1,041,762,266	₩999,862,465	₩1,002,373,468

6. CASH AND CASH EQUIVALENTS:

Cash and cash equivalents in the separate statements of cash flows are equivalent to cash and cash equivalents in the separate 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):

Description	December 31, 2019	December 31, 2018
Cash on hand	₩ 8,353	₩ 8,230
Bank deposits	455,607,856	391,998,490
Total	₩ 455,616,209	₩ 392,006,720

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	Total
Trade receivables	₩ 675,606,457	₩ 100,720,643	₩ 21,754,100	₩ 798,081,200
Other trade receivables	16,272,033	12,208,305	5,439,680	33,920,018
Total	₩ 691,878,490	₩ 112,928,948	₩ 27,193,780	₩ 832,001,218

2) December 31, 2018

	Neither past due nor impaired receivables	Past due but not impaired receivables	Impaired receivables	Total
Trade receivables	₩ 693,180,247	₩ 99,455,831	₩ 25,494,816	₩ 818,130,894
Other trade receivables	22,335,386	12,134,429	6,011,741	40,481,556
Total	₩ 715,515,633	₩ 111,590,260	₩ 31,506,557	₩ 858,612,450

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

Delinquency periods	December 31, 2019	December 31, 2018
1 day ~ 29 days	₩ 44,393,420	₩ 57,869,499
30 ~ 60 days	5,534,534	4,885,771
61 ~ 90days	14,060,881	5,509,178
91 ~ 120days	7,874,324	1,655,491
More than 121 days	41,065,789	41,670,321
Total	₩ 112,928,948	₩ 111,590,260

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

Description	Year ended December 31, 2019		Year ended December 31, 2018	
	Trade receivables	Other receivables	Trade receivables	Other receivables
Beginning balance	₩ 25,494,816	₩ 6,011,740	₩ 18,477,712	₩ 14,675,143
Impairment loss	48,334	134,707	4,084,093	-
Reversal of Impairment loss	-	-	-	(505,881)
Disposals of accounts receivable	(3,791,054)	(706,767)	(690,417)	(8,172,522)
Changes due to business disposal	-	-	3,623,428	-
Others	2,004	-	-	15,000
Ending balance	₩ 21,754,100	₩ 5,439,680	₩ 25,494,816	₩ 6,011,740

The Company measures the allowance for losses on trade receivables at amounts equivalent to ECLs over the full term. The ECLs on trade receivables are estimated using the provisioning schedule based on the borrower's experience of past defaults. It is adjusted by assessing the factors specific to the borrower and the general economic situation in the industry to which the borrower belongs and the current and the future direction of forecast at the end of the reporting period. There are no changes in estimation techniques or important assumptions during this year.

(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	₩ 3,255,614	₩ 3,677,925
More than 6 months and less than 1 year	27,725	281,592
More than 1 year	23,910,441	27,547,040
Total	₩ 27,193,780	₩ 31,506,557

8. INVENTORIES:

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

Description	December 31, 2019		
	Acquisition cost	Valuation allowance	Carrying amount
Merchandise	₩ 51,695,763	₩ (1,496,045)	₩ 50,199,718
Other inventories	1,112,045	(364,551)	747,494
Total	₩ 52,807,808	₩ (1,860,596)	₩ 50,947,212

Description	December 31, 2018		
	Acquisition cost	Valuation allowance	Carrying amount
Merchandise	₩ 48,204,531	₩ (1,502,340)	₩ 46,702,191
Other inventories	407,846	(407,846)	-
Total	₩ 48,612,377	₩ (1,910,186)	₩ 46,702,191

(2) Inventory costs recognized in operating expenses as of December 31, 2019 and 2018 are ₩861,449,433 thousand and ₩895,959,136 thousand. Reversal of loss on valuation of inventories as of December 31, 2019 is ₩49,590.

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	₩ 30,021,682	₩ 37,144	₩ 12,026,757	₩ 29,686
Prepaid expenses (*)	13,033,267	89,975	13,286,024	2,553,941
Prepaid value-added tax	454,139	-	450,171	-
Contract assets	176,374,947	-	139,768,166	-
Other current assets	159,144	-	43,151	-
	₩ 220,043,179	₩ 127,119	₩165,574,269	₩ 2,583,627

(*) The contract assets 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	Tools and equipment	Furniture and fixtures	Construction in progress	Others	Total
Acquisition cost	₩87,319,158	₩483,667,273	₩3,405,173	₩ 139,324	₩ 419,886	₩ 86,184,910	₩ 1,527,952	₩417,353,690	₩1,080,017,366
Accumulated depreciation	-	(97,984,537)	(267,817)	(37,473)	(342,334)	(49,567,666)	-	(335,995,792)	(484,195,619)
Accumulated impairment loss	-	-	-	-	-	-	-	(158,375)	(158,375)
Government subsidies	-	(947,911)	-	-	-	-	-	(10,639)	(958,550)
Total	<u>₩87,319,158</u>	<u>₩384,734,825</u>	<u>₩3,137,356</u>	<u>₩ 101,851</u>	<u>₩ 77,552</u>	<u>₩ 36,617,244</u>	<u>₩ 1,527,952</u>	<u>₩ 81,188,884</u>	<u>₩ 594,704,822</u>

2) December 31, 2018

	Land	Buildings	Structures	Machinery	Vehicles	Tools and equipment	Furniture and fixtures	Construction in progress	Others	Total
Acquisition cost	₩90,661,695	₩493,746,927	₩3,017,875	₩ 44,324	₩ 33,605	₩ 414,896	₩ 85,773,044	₩848,988	₩404,023,877	₩1,078,565,231
Accumulated depreciation	-	(84,128,101)	(206,573)	(21,968)	(18,203)	(317,453)	(46,260,557)	-	(307,407,566)	(438,360,421)
Accumulated impairment loss	-	-	-	-	-	-	-	-	(158,200)	(158,200)
Government subsidies	-	(950,774)	-	-	-	-	-	-	(84,311)	(1,035,085)
Total	<u>₩ 90,661,695</u>	<u>₩408,668,052</u>	<u>₩2,811,302</u>	<u>₩ 22,356</u>	<u>₩ 15,402</u>	<u>₩ 97,443</u>	<u>₩ 39,512,487</u>	<u>₩ 848,988</u>	<u>₩ 96,373,800</u>	<u>₩ 639,011,525</u>

(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	₩90,661,695	₩408,668,052	₩2,811,302	₩ 22,356	₩ 15,402	₩ 97,443	₩ 39,512,487	₩ 848,988	₩ 96,373,800	₩639,011,525
Acquisition	-	714,788	500,000	95,000	-	4,990	4,172,138	1,270,882	22,656,854	29,414,652
Disposals	-	-	-	-	(12,602)	-	(1,649)	-	(327,690)	(341,941)
Depreciation	-	(15,284,982)	(75,551)	(15,505)	(2,800)	(24,881)	(7,065,732)	-	(37,379,112)	(59,848,563)
Transfers	(3,342,537)	(9,331,056)	(98,395)	-	-	-	-	-	-	(12,771,988)
Government subsidies	-	(31,977)	-	-	-	-	-	-	-	(31,977)
Impairment loss	-	-	-	-	-	-	-	-	(176)	(176)
Others	-	-	-	-	-	-	-	(591,918)	(134,792)	(726,710)
Ending balance	<u>₩87,319,158</u>	<u>₩384,734,825</u>	<u>₩3,137,356</u>	<u>₩ 101,851</u>	<u>₩ -</u>	<u>₩ 77,552</u>	<u>₩ 36,617,244</u>	<u>₩ 1,527,952</u>	<u>₩ 81,188,884</u>	<u>₩594,704,822</u>

2) Year ended December 31, 2018

	Land	Buildings	Structures	Machinery	Vehicles	Tools and equipment	Furniture and fixtures	Construction in progress	Others	Total
Beginning balance	₩ 89,237,696	₩238,699,904	₩ 411,249	₩ 27,965	₩ 23,804	₩ 1,508	₩ 41,961,841	₩173,331,828	₩ 98,824,392	₩642,520,187
Acquisition	-	32,114,271	-	-	-	-	5,316,598	2,271,968	37,162,434	76,865,271
Disposals	-	-	-	-	-	-	(3,974)	(22,504,568)	(82,049)	(22,590,591)
Depreciation	-	(15,171,558)	(79,825)	(5,609)	(8,402)	(19,067)	(7,393,528)	-	(42,229,719)	(64,907,708)
Transfers	1,423,999	152,878,889	2,479,878	-	-	-	-	(152,250,240)	-	4,532,526
Government subsidies	-	(40,500)	-	-	-	-	-	-	-	(40,500)
Increase (decrease) due to business combination	-	187,046	-	-	-	-	(516,811)	-	284,546	(45,219)
Others	-	-	-	-	-	115,002	148,361	-	2,414,196	2,677,559
Ending balance	<u>₩ 90,661,695</u>	<u>₩408,668,052</u>	<u>₩2,811,302</u>	<u>₩ 22,356</u>	<u>₩ 15,402</u>	<u>₩ 97,443</u>	<u>₩ 39,512,487</u>	<u>₩ 848,988</u>	<u>₩ 96,373,800</u>	<u>₩639,011,525</u>

(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	Others	Total
Beginning balance	₩ 950,774	₩ 84,311	₩ 1,035,085
Occurrence in this year	31,977	-	31,977
Offsetting depreciation	(34,840)	(73,672)	(108,512)
Ending balance	₩ 947,911	₩ 10,639	₩ 958,550

2) Year ended December 31, 2018

	Buildings	Others	Total
Beginning balance	₩ 945,194	₩ 160,200	₩ 1,105,394
Occurrence in this year	40,500	-	40,500
Offsetting depreciation	(34,920)	(75,889)	(110,809)
Ending balance	₩ 950,774	₩ 84,311	₩ 1,035,085

(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	₩ 327,690	₩ 341,941
Disposal amount	3,000	23,900	9,371	629,402	665,673
Gain (loss) on disposal	₩ 3,000	₩ 11,298	₩ 7,722	₩ 301,712	₩ 323,732

2) Year ended December 31, 2018

	Furniture and fixtures	Construction in progress	Others	Total
Book value before disposal	₩ 3,974	₩ 22,504,568	₩ 82,049	₩22,590,591
Disposal amount	25,600	22,504,568	434,306	22,964,474
Gain (loss) on disposal	₩ 21,626	₩ -	₩ 352,257	₩ 373,883

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
Beginning acquisition cost	₩ 8,423,573	₩ 29,688,219	₩ 278,801	₩ 38,390,593
Accumulated depreciation	-	(6,571,780)	(52,088)	(6,623,868)
Ending balance	₩ 8,423,573	₩ 23,116,439	₩ 226,713	₩ 31,766,725

2) Year ended December 31, 2018

	Land	Buildings	Structures	Total
Beginning acquisition cost	₩ 5,081,036	₩ 18,923,776	₩ 166,099	₩ 24,170,911
Accumulated depreciation	-	(4,251,196)	(29,777)	(4,280,973)
Ending balance	₩ 5,081,036	₩ 14,672,580	₩ 136,322	₩ 19,889,938

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

1) Year ended December 31, 2019

	Land	Buildings	Structures	Total
Beginning balance	₩ 5,081,036	₩ 14,672,580	₩ 136,322	₩ 19,889,938
Depreciation	-	(887,197)	(8,004)	(895,201)
Transfers	3,342,537	9,331,056	98,395	12,771,988
Ending balance	₩ 8,423,573	₩ 23,116,439	₩ 226,713	₩ 31,766,725

2) Year ended December 31, 2018

	Land	Buildings	Structures	Total
Beginning balance	₩ 6,186,167	₩ 18,433,415	₩ 175,354	₩ 24,794,936
Depreciation	-	(369,784)	(2,688)	(372,472)
Transfers	(1,105,131)	(3,391,051)	(36,344)	(4,532,526)
Ending balance	₩ 5,081,036	₩ 14,672,580	₩ 136,322	₩ 19,889,938

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

	Land	Buildings and structures	Total
Book value			
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
Evaluation result			
Incheon IT center (*3,4)	15,391,110	9,169,094	24,560,204
Sangam DDMC (*3, 4)	₩	260,635,000	₩ 260,635,000

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

(*2) Includes the value of investment property occupied by the owner (land: ₩5,698,943 thousand and buildings and structures: ₩15,254,356 thousand).

(*3) This is the valuation amount for entire Incheon IT Center and Sangam DDMC. In case of Sangam DDMC, the

total value of real estate includes land and buildings and constructions.

(*4) Fair value assessment was performed by an independent third party, Nara Appraisal Co., Ltd., Samchang Appraisal Co.,Ltd., and Daeil Appraisal Board, which used an average-costing approach and cost approach method of standard appraised value of land and buildings. The changes in fair value between the date of the assessment and the end of the reporting period are not determined 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	Computer software and others	Membership	Goodwill	Construction in progress	Total
Acquisition cost	₩27,923,600	₩ 2,348,569	₩85,769,665	₩28,505,926	₩ 4,833,374	₩ 1,427,550	₩150,808,684
Accumulated depreciation	(19,581,986)	(781,554)	(63,070,906)	-	-	-	(83,434,446)
Accumulated impairment loss	(2,605,971)	(1,307)	-	(2,048,425)	(4,833,374)	-	(9,489,077)
Government subsidies	-	-	(11,155)	-	-	-	(11,155)
Total	₩ 5,735,643	₩ 1,565,708	₩22,687,604	₩26,457,501	₩ -	₩ 1,427,550	₩57,874,006

2) December 31, 2018

	Development costs	Industrial property rights	Computer software and others	Membership	Goodwill	Total
Acquisition cost	₩27,011,862	₩ 1,774,074	₩74,534,674	₩30,611,084	₩ 4,833,374	₩138,765,068
Accumulated depreciation	(17,679,547)	(525,009)	(58,129,260)	-	-	(76,333,816)
Accumulated impairment loss	(2,605,970)	(1,307)	-	(3,642,477)	(4,833,374)	(11,083,128)
Government subsidies	-	-	(51,547)	-	-	(51,547)
Total	₩ 6,726,345	₩ 1,247,758	₩16,353,867	₩26,968,607	₩ -	₩ 51,296,577

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

1) For the year ended December 31, 2019

	Development costs	Industrial property rights	Computer software	Membership	Construction in progress	Total
Beginning balance	₩ 6,726,345	₩ 1,247,758	₩16,353,867	₩26,968,607	₩ -	₩51,296,577
Acquisition	-	578,295	12,677,639	-	-	13,255,934
Increase due to internal development	891,917	-	-	-	1,427,550	2,319,467
Disposals	-	(3,662)	(6,597)	(1,401,106)	-	(1,411,365)
Reversal of impairment loss	-	-	-	890,000	-	890,000
Amortization	(1,880,818)	(256,683)	(6,473,897)	-	-	(8,611,398)
Others	(1,801)	-	136,592	-	-	134,791
Ending balance	₩ 5,735,643	₩ 1,565,708	₩22,687,604	₩26,457,501	₩ 1,427,550	₩57,874,006

2) For the year ended December 31, 2018

	Development costs	Industrial property rights	Computer software	Membership	Construction in progress	Total
Beginning balance	₩ 1,522,964	₩ 1,011,394	₩11,370,226	₩24,670,989	₩ 7,325,295	₩45,900,868
Acquisition	2,000	-	9,745,550	24,528	-	9,772,078
Increase due to internal development	-	-	-	-	698,137	698,137
Disposals	(28,753)	-	(16,740)	-	-	(45,493)
Impairment loss	-	-	-	(100,000)	-	(100,000)
Transfers	8,023,432	-	-	-	(8,023,432)	-
Amortization	(2,793,298)	(201,044)	(5,018,036)	-	-	(8,012,378)
Increase due to merger	-	2,739	256,127	2,373,090	-	2,631,956
Government subsidies	-	-	16,740	-	-	16,740
Others	-	434,669	-	-	-	434,669
Ending balance	₩ 6,726,345	₩ 1,247,758	₩16,353,867	₩26,968,607	₩ -	₩51,296,577

(3) Changes in government subsidies 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
	Computer software	Computer software
Beginning balance	₩ 51,547	₩ 122,454
Offsetting amortization	(40,392)	(54,167)
Disposals	-	(16,740)
Ending balance	₩ 11,155	₩ 51,547

(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

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

2) Year ended December 31, 2018

	Development costs	Software	Total
Book value before disposal	₩ 28,753	₩ -	₩ 28,753
Disposal amount	221,960	500	222,460
Loss on disposal	₩ 193,207	₩ 500	₩ 193,707

(5) The expenses related to research and development for the years ended December 31, 2019 and 2018, are ₩36,311,394 thousand and ₩33,731,258 thousand, respectively. Those amounts are recognized in selling and administrative expenses.

13. INVESTMENTS IN SUBSIDIARIES:

(1) Composition of the Company's investments in subsidiaries as of December 31, 2019 and 2018, is as follows:

Company	Location of incorporation	Major operation	Closing date	Number of shares owned by the Company	Number of shares issued	Percentage of ownership (%) 2019	Percentage of ownership (%) 2018
LG CNS PHILIPPINES, INC.	Philippines	Services	December 31	298,083	298,083	100.00%	100.00%
LG CNS China Inc. (*1)	China	Services	December 31	-	-	100.00%	100.00%
LG CNS Europe B.V.	Netherlands	Services	December 31	5,000	5,000	100.00%	100.00%
LG CNS America, Inc.	USA	Services	December 31	100	100	100.00%	100.00%
LG CNS India Pvt., Ltd.	India	Services	December 31	15,319,725	15,319,725	100.00%	100.00%
PT LG CNS Indonesia	Indonesia	Services	December 31	20,000	20,000	100.00%	100.00%
Entrue Brasil Servicos de T.I. Ltda.	Brazil	Services	December 31	2,471,000	2,471,000	100.00%	100.00%
UCESS PHILIPPINES, INC(*2).	Philippines	Services	December 31	-	-	-	100.00%
Biztech Partners Co., Ltd.	South Korea	Services	December 31	12,534,571	13,045,007	96.09%	96.09%
Korea Elecom(*3)	South Korea	Product/sale	December 31	-	-	-	93.93%
LG CNS COLOMBIA SAS	Colombia	Services	December 31	110,000	110,000	100.00%	100.00%
LG CNS MALAYSIA SDN BHD	Malaysia	Services	December 31	1,500,002	1,500,002	100.00%	100.00%
LG CNS Saudi Arabia LLC	Saudi Arabia	Services	December 31	3,060	6,000	51.00%	51.00%
LG CNS JAPAN Co., Ltd.	Japan	Services	December 31	800	800	100.00%	100.00%
LG CNS UZBEKISTAN, LLC (*4)	UZBEKISTAN	Services	December 31	-	-	51.00%	51.00%
Hangbokmaru Co., Ltd.	South Korea	Services	December 31	140,000	140,000	100.00%	100.00%
LG CNS Vietnam Co., Ltd. (*5)	Vietnam	Services	December 31	-	-	100.00%	100.00%
LG CNS FUND I LLC (*6)	USA	Investment Fund	December 31	-	-	100.00%	100.00%
Sejong Green Power Co., Ltd. (*7)	South Korea	Product/sale	December 31	7,169,200	7,169,200	100.00%	19.91%
Open Source Consulting(*8)	South Korea	Services	December 31	115,642	205,715	56.21%	-

(*1) There are no outstanding shares based on the relevant laws and regulations of local country for an entity formed in China.

(*2) In the current period, it was liquidated.

(*3) In the current period, it was sold.

(*4) There are no outstanding shares based on the relevant laws and regulations of local country for an entity formed in UZBEKISTAN.

(*5) In the prior period, it was established, and there are no outstanding shares based on the relevant laws and regulations of local country for an entity formed in VIETNAM.

(*6) In the prior period, it was established, and there are no outstanding shares based on the relevant laws and regulations of local country for an entity formed in USA.

(*7) In the prior period, the Company has been classified as a subsidiary as it has been notified of the exercise of the rights to sell shares.

(*8) In the current period, it was acquired.

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

1) For the year ended December 31, 2019

Company	Beginning balance	Acquisition	Disposal	Impairment loss	Ending balance
LG CNS PHILIPPINES, INC.	₩ -	₩ -	₩ -	₩ -	₩ -
LG CNS China Inc.	23,231,647	-	-	-	23,231,647
LGCNS Europe B.V.	3,656,950	-	-	-	3,656,950
LG CNS America, Inc.	2,883,494	-	-	-	2,883,494
LG CNS India Pvt., Ltd.	795,429	-	-	-	795,429
PT LG CNS Indonesia	1,220,095	-	-	(1,220,095)	-
Entrue Brasil Servicos de T.I. Ltda.	1,777,852	-	-	-	1,777,852
UCESS PHILIPPINES, INC.	102,553	-	(96,185)	(6,368)	-
Biztech Partners Co., Ltd.	12,098,863	-	-	-	12,098,863
Korea Elecom	-	-	-	-	-
SBI-LG Systems Co., Ltd.	-	-	-	-	-
LG CNS COLOMBIA SAS	690,134	-	-	-	690,134
LG CNS MALAYSIA SDN BHD	559,250	-	-	(559,250)	-
LG CNS Saudi Arabia LLC	-	-	-	-	-
LG CNS JAPAN Co., Ltd.	418,032	-	-	-	418,032
LG CNS UZBEKISTAN, LLC	-	-	-	-	-
Hangbokmaru Co., Ltd.	700,000	-	-	-	700,000
LG CNS Vietnam Co., Ltd.	233,340	-	-	-	233,340
LG CNS FUND I LLC	280,750	5,109,082	-	-	5,389,832
Sejong GreenPower Co., LTD	-	29,399,007	-	(4,423,761)	24,975,246
Open Source Consulting	-	8,994,403	-	-	8,994,403
Total	<u>₩ 48,648,389</u>	<u>₩43,502,492</u>	<u>₩ (96,185)</u>	<u>₩(6,209,474)</u>	<u>₩85,845,222</u>

2) For the year ended December 31, 2018

Company	Beginning balance	Acquisition	Disposal	Impairment loss	Increase (decrease) due to merger	Ending balance
LG CNS PHILIPPINES, INC.	₩ -	₩ -	₩ -	₩ -	₩ -	₩ -
LG CNS China Inc.	23,231,647	-	-	-	-	23,231,647
LGCNS Europe B.V.	3,656,950	-	-	-	-	3,656,950
LG CNS America, Inc.	2,883,494	-	-	-	-	2,883,494
LG CNS India Pvt., Ltd.	795,429	-	-	-	-	795,429
PT LG CNS Indonesia	1,220,095	-	-	-	-	1,220,095
Entrue Brasil Servicos de T.I. Ltda.	1,556,532	221,320	-	-	-	1,777,852
UCESS PHILIPPINES, INC.	102,553	-	-	-	-	102,553
Biztech Partners Co., Ltd.	12,069,575	29,288	-	-	-	12,098,863
LG N-Sys Co., Ltd.	61,856,873	-	-	-	(61,856,873)	-
Korea Elecom	-	-	-	-	-	-
SBI-LG Systems Co., Ltd.	2,417,636	-	(2,417,636)	-	-	-
LG CNS COLOMBIA SAS	690,134	-	-	-	-	690,134
LG CNS MALAYSIA SDN BHD	559,250	-	-	-	-	559,250
LG CNS Saudi Arabia LLC	-	-	-	-	-	-
LG CNS JAPAN Co., Ltd.	418,032	-	-	-	-	418,032
LG CNS UZBEKISTAN, LLC	1,162,524	-	-	(1,162,524)	-	-
Hangbokmaru Co., Ltd.	700,000	-	-	-	-	700,000
LG CNS Vietnam Co., Ltd.	233,340	-	-	-	-	233,340
LG CNS FUND I LLC	-	280,750	-	-	-	280,750
Sejong GreenPower Co., LTD	-	-	-	-	-	-
Total	₩113,554,064	₩ 531,358	₩(2,417,636)	₩(1,162,524)	₩ (61,856,873)	₩ 48,648,389

14. INVESTMENTS IN ASSOCIATES AND JOINT VENTURES:

(1) Composition of the Company's investments in associates and jointly controlled entity as of December 31, 2019 and 2018, is as follows:

Companies	Location of incorporation	Major business activities	Closing date	Number of shares owned by the Company Common stock	Number of issued shares Common stock	Percentage of ownership (%), 2019	Percentage of ownership (%), 2018
Tmoney Co., Ltd. (*1)	South Korea	System software development and supply	December 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	December 31	5,880	35,880	16.39	16.39
RECAUDO BOGOTA S.A.S.	Colombia	Public system development and service	December 31	2,126	10,630	20.00	20.00
Hellas SmartTicket Societe Anonyme	Greece	Public system development and service	December 31	22,500	75,000	30.00	30.00
Ulleungdo Natural Energy Co., Ltd. (*3)	South Korea	New renewable energy supply	December 31	1,600,000	5,360,000	29.85	29.85
Daegu Natural Energy Co., Ltd.	South Korea	Power plant construction	December 31	25,000	100,000	25.00	25.00
KEPCO-LG CNS Mangilao Holdings LLC (*4)	USA	New renewable energy supply	December 31	-	-	-	-

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

(*2) The Company has significant influence since contractual right by which the Company is able to appoint one member of board even though the percentage of ownership is less than 20%.

(*3) The Company 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 Company did not actually commit the payment of investment capital, but lent loans according to the rate of equity by contract between shareholders. The Company 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 and jointly controlled entity for the years ended December 31 2018, are as follows (Unit: Korean won in thousands):

Company	Beginning balance	Disposal	Ending balance
Korea Smart Card Co., Ltd.	₩ 21,598,660	₩ -	₩ 21,598,660
Songdo U-Life LLC	4,507,299	(3,795,966)	711,333
RECAUDO BOGOTA S.A.S.	2,575,022	-	2,575,022
Sejong Green Power Co., Ltd. (*)	-	-	-
Hellas SmarTicket Societe Anonyme	2,843,358	-	2,843,358
Ulleungdo Natural Energy Co., Ltd.	8,000,000	(3,441,700)	4,558,300
Daegu Natural Energy Co., Ltd.	125,000	(125,000)	-
Total	₩ 39,649,339	₩ (7,362,666)	₩ 32,286,673

(*) The Company has been classified as a subsidiary, as it has been notified of the exercise of the rights to sell shares during the prior year.

15. DEBENTURES AND BORROWINGS:

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

Type	Maturity date	Annual interest rate (%)	December 31, 2019	December 31, 2018
Unguaranteed public bond	9-2th public offering	2.07	100,000,000	100,000,000
	9-3th public offering	2.44	50,000,000	50,000,000
	10-1th public offering	2.10	110,000,000	110,000,000
	10-2th public offering	2.45	40,000,000	40,000,000
	11-1th public offering	2.55	90,000,000	90,000,000
	11-2th public offering	2.83	110,000,000	110,000,000
	2-2th public offering	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

16. PROVISIONS:

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

1) For the year ended December 31, 2019

	Beginning balance	Decrease	Reversal	Increase	Others	Ending balance
Provision for construction (product) warranties	₩ 13,256,725	₩ (7,286,913)	₩ (2,588,986)	₩ 14,148,850	₩ -	₩ 17,529,676
Restoration liabilities (*)	2,037,565	-	-	155,597	-	2,193,162
Others	37,324,528	(18,530,523)	(4,581,072)	6,476,788	3,808,883	24,498,604
Total	₩ 52,618,818	₩ (25,817,436)	₩ (7,170,058)	₩ 20,781,235	₩ 3,808,883	₩ 44,221,442

(*) Increases in valuation of present value for the year ended December 31, 2019, amounting to ₩155,597 thousand are included in increase of provisions.

2) For the year ended December 31, 2018

	Beginning balance	Decrease	Reversal	Increase	Increase due to mergers	Others (*2)	Ending balance
Provision for construction (product) warranties	₩ 13,153,230	₩ (9,693,674)	₩ (1,720,364)	₩ 10,875,298	₩642,235	₩ -	₩ 13,256,725
Restoration liabilities (*1)	4,693,911	(2,791,240)	(26,760)	161,654	-	-	2,037,565
Others	33,489,550	(7,191,228)	(3,793,209)	16,474,602	221,323	(1,876,510)	37,324,528
Total	₩ 51,336,691	₩ (19,676,142)	₩ (5,540,333)	₩ 27,511,554	₩863,558	₩ (1,876,510)	₩ 52,618,818

(*1) Increases in valuation of present value for the year ended December 31, 2018, amounting to ₩144,184 thousand are included in increase of provisions.

(*2) This corresponds to a change in the presentation of the separate financial statements of the amount of the contract loss allowance deducted from the previous-term due from(to) customers for contract work as a result of the introduction of K-IFRS 1115.

(2) Nature of provision and expected timing for outflow of economic benefits (Unit: Korean won in thousands):

	Within 12 months	After 12 months	Total
Provision for construction (product) warranties (*1)	₩ 17,529,676	₩ -	₩ 17,529,676
Restoration liabilities (*2)	-	2,193,162	2,193,162
Others	24,498,604	-	24,498,604
Total	₩ 42,028,280	₩ 2,193,162	₩ 44,221,442

(*1) Estimated provision for construction warranties that would be expected in past service revenue.

(*2) Measured at present value of future restoration estimation costs on leased assets.

17. RETIREMENT BENEFIT PLAN:

(1) Defined contribution plan

The Company operates a defined contribution plan for employees. Obligation of the Company is to make payments to third-party funds. The benefits for employees are determined by the payments made to the funds and the investment earnings from the funds. Plan asset is managed by the third party and is segregated from the Company's assets.

The contributions to defined contribution plan for the years ended December 31, 2019 and 2018, are ₩39,044,776 thousand and ₩31,405,742 thousand, respectively. Other accounts payable in relation to defined contribution plans as of December 31, 2019 and 2018, are ₩5,500,383 thousand and ₩4,607,472 thousand, respectively.

(2) Defined benefit plan

The Company operates a defined benefit plan for employees, and according to the plan, 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 valuations of related plan assets and the defined benefit liability are performed by an independent reputable actuary using the projected unit credit method at its present value, relevant current service cost and past service costs.

1) As of December 31, 2019 and 2018, amounts recognized in the separate 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	₩ 12,847,181	₩ 15,979,843
Fair value of plan assets	(12,993,406)	(15,936,418)
Retirement benefit obligation(assets)	<u>₩ (146,225)</u>	<u>₩ 43,425</u>

2) Changes in defined benefit obligation 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	₩ 15,979,843	₩ 15,263,715
Current service cost	2,320,204	2,219,786
Interest cost	346,195	405,275
Actuarial loss (gain)	(616,758)	29,383
Benefits paid	(3,664,692)	(3,327,357)
Transfer to affiliated company	(1,517,611)	-
Net increase (decrease) in DBO from acquisitions	-	16,494,083
Settlements	-	(15,105,042)
Ending balance	<u>₩ 12,847,181</u>	<u>₩ 15,979,843</u>

- 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):

Description	Year ended December 31, 2019	Year ended December 31, 2018
Service cost:	₩ 2,320,204	₩ 2,219,786
Current service cost	2,320,204	2,219,786
Net interest on the net defined benefit liability (asset):	986	77,680
Interest cost DBO	346,195	405,275
Interest on plan assets	(345,209)	(327,595)
Others	21,065	43,906
Total	₩ 2,342,255	₩ 2,341,372

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	₩ 1,936,789	₩ 1,954,103
Amounts included in the service fee	21,065	43,906
Amounts included in the cost of production	384,401	343,363
Total	₩ 2,342,255	₩ 2,341,372

- 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	₩ 15,936,418	₩ 12,413,258
Expected return on plan assets	345,209	327,595
Actuarial gain (loss)	(39,527)	(116,213)
Transfer to affiliated company	437,063	104,400
Other	(21,065)	(43,906)
Benefits paid	(3,664,692)	(3,231,461)
Employer contribution to plan assets	-	5,264,050
Net increase (decrease) in assets from acquisitions	-	15,268,174
Settlements from plan asset	-	(14,049,479)
Ending balance	₩ 12,993,406	₩ 15,936,418

- 5) All of 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:

Description	December 31, 2019	December 31, 2018
Discount rate (%)	1.76	2.27
Expected rate of salary increase (%)	5.00	6.00

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

Description	Center scenario	+ 1%	- 1%
Change in discount rate	₩ 12,847,181	₩ 12,395,776	₩ 13,330,493
Change in rate of salary increase	12,847,181	13,313,212	12,402,745

(*) 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):

Description	Year ended December 31, 2019	Year ended December 31, 2018
Actuarial gains arising from changes in demographic assumptions	₩ 15,632	₩ (67,338)
Actuarial gains (losses) arising from changes in financial assumptions	(253,100)	274,526
Actuarial losses arising from experience	(64,740)	(169,247)
Return on plan assets, excluding amounts included in interest income	39,527	116,213
Actuarial losses arising from transfer in/out adjustments	(314,550)	(8,556)
Total	₩ (577,231)	₩ 145,598

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

	Year ending December 31, 2020
Estimated contributions 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.

18. 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(*)	₩ 2,543,906	₩ -	₩ 35,568,676	₩ -
Withholding value-added tax	46,592,946	-	31,288,613	-
Withholdings	31,498,061	-	23,603,487	-
Unearned income	46,730	-	41,810	-
Government subsidies	12,336	-	-	-
Contract liabilities	104,269,514	-	60,479,617	-
Other long-term employee liabilities	-	10,176,794	-	8,419,052
Total	₩ 184,963,493	₩ 10,176,794	₩ 150,982,203	₩ 8,419,052

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

19. 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 contracts	₩ 182,263,830	₩ 145,958,847
Deductions: allowance for losses	(5,888,883)	(6,190,681)
Total	₩ 176,374,947	₩ 139,768,166

During this year, there are no changes in estimates or important assumptions applied when assessing the loss allowance for contract assets in a 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	₩ 6,190,681	₩ 4,795,915
Increase in allowance for loss	(301,798)	1,394,766
Ending balance	₩ 5,888,883	₩ 6,190,681

(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	₩ 55,840,272	₩ 60,479,617
Equipment Supply and Maintenance	48,429,242	-
Total	₩ 104,269,514	₩ 60,479,617

(*) The contract liabilities related to equipment supply and maintenance as of December 31, 2019, and 2018, are ₩18,766,777 thousand and ₩13,757,167 thousand, respectively, and were included in advance receipts as of December 31, 2018.

The contract liabilities related to the construction contract are the balance received from the customer in accordance with the construction contract. This occurs when the amount received under the milestone exceeds the revenue recognized up to that point in accordance with the cost-based input method. There was no significant change in balance of the contract liabilities during the reporting period.

(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 thousand):

	December 31, 2019	December 31, 2018
Construction contracts	₩ 59,089,331	₩ 38,619,671

(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 thousand):

	Changes in estimation of the total contract amount	Changes in estimation of the total contract cost	Effects of profit or loss in the current period	Effects of profit or loss in future period	Change in Contract asset(liability)(*)
LG CNS	₩ 83,835,828	₩ 77,170,274	₩ 5,717,697	₩ 947,857	₩ 5,717,697

(*)The contract loss provisions related to construction contracts as of December 31, 2019, are ₩1,612,345 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 thousand):

	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	₩ -	₩ -	₩ -

20. ISSUED CAPITAL:

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

Type of stock	Number of authorized shares	Number of issued shares	Number of shares owned by related party	Par value (Korean won)	Amount of issued capital (*)	Amount of capital surplus
Common stock	400,000,000	87,197,353	76,142,992	₩ 500	₩47,198,411	₩46,625,595

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

21. CAPITAL SURPLUS:

Details of the 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
Other capital surplus	90,945,903	90,945,903
Total	₩ 138,026,095	₩ 138,026,095

22. 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):

	Year ended December 31, 2019	Year ended December 31, 2018
Loss on valuation of financial assets at FVTOCI	₩ (14,868,543)	₩ (14,610,405)

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 accumulated other comprehensive income (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
Beginning balance-rewrite	₩ (14,610,405)	₩ 185,807
Effect of changes in accounting policy	-	(5,230,800)
Change in fair value of equity instruments designated as Financial assets at FVTOCI	(511,554)	(12,632,282)
Loss on disposal of financial assets measured at FVTOCI	171,480	-
Income tax effect	81,936	3,066,870
Ending balance	₩ (14,868,543)	₩ (14,610,405)

23. RETAINED EARNINGS AND DIVIDENDS:

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

	Year ended December 31, 2019	Year ended December 31, 2018
Retained earnings with limited disposal (*)	₩ 23,599,206	₩ 23,599,206
Retained earnings without limited disposal	983,941,653	869,486,780
Total	₩ 1,007,540,859	₩ 893,085,986

(*) This reserve may only be used to offset future deficit, if any, or may be transferred to capital stock.

(2) 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	₩ 893,085,986	₩ 801,711,846
Effect of accounting policy change	-	5,230,800
Profit for the year	155,872,061	104,565,147
Dividends (*)	(41,854,729)	(18,311,444)
Actuarial gain (loss)	577,231	(145,598)
Related deferred tax	(139,690)	35,235
Ending balance	₩ 1,007,540,859	₩ 893,085,986

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

	Year ended December 31, 2019	Year ended December 31, 2018
Number of issued and outstanding shares	87,197,353	87,197,353
Number of dividend shares	87,197,353	87,197,353
Dividend per share (Unit: Korean won)	₩ 480	₩ 210
Total dividends (Unit: Korean won in thousands)	₩ 41,854,729	₩ 18,311,444

(3) Separate statements of appropriations of 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
Date of appropriations: March 25, 2019		
UNAPPROPRIATED RETAINED EARNINGS:		
Unappropriated retained earnings carried over from prior year	₩ 807,392,771	₩ 739,561,916
Effect of accounting policy change	-	5,230,800
Profit for the year	155,872,061	104,565,147
Actuarial gains and losses on defined benefit plans	437,540	(110,363)
	963,702,372	849,247,500
TRANSFER FROM VOLUNTARY RESERVES:		
Reserves for research and development	-	-
APPROPRIATIONS:		
Legal reserve	-	-
Dividends	99,404,982	41,854,729
	(99,404,982)	(41,854,729)
UNAPPROPRIATED RETAINED EARNINGS TO BE CARRIED FORWARD TO SUBSEQUENT YEAR	₩ 864,297,390	₩ 807,392,771

24. OPERATING INCOME AND LOSS:

(1) The Company is making profit by transferring goods and services over time or at a point in time in the following key business unit. The classification of key business unit is consistent with the disclosure of revenue by reportable segment in accordance with K-IFRS 1108. (Unit: Korean won in thousands):

		2019	2018
Sales recorded at a point in time			
Sales of merchandise	Equipment supply	₩ 501,677,140	₩ 478,275,754
	Others	177,455,799	140,278,582
Total of sales recorded at a point in time		679,132,939	618,554,336
Sales recorded over time			
Service revenue	Maintenance	1,097,119,785	1,015,176,475
	Development service	896,599,474	796,471,315
Construction revenue	Revenue from construction contract	366,943,430	398,371,947
Total of sales recorded over time		2,360,662,689	2,210,019,737
Total		₩ 3,039,795,628	₩ 2,828,574,073

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

	2019	2018
Sales of merchandise	₩ 679,132,939	₩ 618,554,336
Service revenue	1,097,119,785	1,015,176,475
Construction revenue	1,263,542,904	1,194,843,262
REVENUE	3,039,795,628	2,828,574,073
Cost of merchandise	613,748,867	560,392,722
Service cost	942,072,845	881,422,973
Construction cost	1,054,766,497	1,016,912,784
COST OF GOODS SOLD	(2,610,588,209)	(2,458,728,479)
GROSS MARGIN	429,207,419	369,845,594
Salaries and wages	95,350,596	78,876,494
Severance benefits	8,450,823	7,361,688
Welfare	18,073,973	14,110,588
Depreciation	6,547,975	5,850,663
Amortization of intangible assets	2,666,612	2,450,104
Research and development expenses	36,311,394	33,731,258
Commission	7,195,207	8,496,790
Training expenses	6,988,828	5,399,244
Service contract expenses	22,497,556	14,561,333
Rent expense	2,960,796	3,667,195
Bad debt expenses	48,334	4,084,093
Increase in provision	1,380,303	(3,221,958)
Others	34,400,009	30,852,479
SELLING AND ADMINISTRATIVE EXPENSES:	(242,872,406)	(206,219,971)
OPERATING INCOME	₩ 186,335,013	₩ 163,625,623

25. CLASSIFICATION OF EXPENSES BY NATURE:

1) For the year ended December 31, 2019 (Unit: Korean won in thousands):

Account	Changes in inventories	Selling and administrative expenses	Manufacturing cost	Total
Changes in inventories:	₩ (4,245,020)	₩ -	₩ 865,694,453	₩ 861,449,433
Merchandise	(3,497,527)	-	617,246,393	613,748,866
Other inventories	(747,493)	-	248,448,060	247,700,567
Employee benefits	-	122,314,441	554,392,384	676,706,825
Depreciation and amortization	-	9,214,587	69,927,307	79,141,894
Commission expenses	-	7,195,207	116,815,932	124,011,139
Lease expenses	-	2,960,796	14,968,383	17,929,179
Outsourcing services	-	22,497,556	665,616,819	688,114,375
Other expenses	-	78,689,819	327,417,951	406,107,770
Total	₩ (4,245,020)	₩ 242,872,406	₩ 2,614,833,229	₩ 2,853,460,615

2) For the year ended December 31, 2018 (Unit: Korean won in thousands):

Account	Changes in inventories	Selling and administrative expenses	Manufacturing cost	Total
Changes in inventories:	₩ (11,359,332)	₩ -	₩ 907,318,468	₩ 895,959,136
Merchandise	(11,359,332)	-	571,752,054	560,392,722
Other inventories	-	-	335,566,414	335,566,414
Employee benefits	-	100,560,757	474,246,514	574,807,272
Depreciation and amortization	-	8,300,766	64,991,792	73,292,558
Commission expenses	-	8,496,790	89,270,849	97,767,639
Lease expenses	-	3,667,195	14,779,828	18,447,023
Outsourcing services	-	14,561,333	594,666,879	609,228,212
Other expenses	-	70,633,129	324,813,481	395,446,610
Total	₩ (11,359,332)	₩ 206,219,971	₩ 2,470,087,811	₩ 2,664,948,450

26. FINANCIAL INCOME AND FINANCIAL EXPENSES:

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

	2019	2018
Interest income	₩ 6,961,636	₩ 7,359,730
Dividend income	18,633,971	11,916,305
Gain on foreign currency transactions	301,528	695,023
Gain on foreign currency translation	357,560	420,358
Gain on valuation of financial assets at FVTPL	211,271	95,324
Total	₩ 26,465,966	₩ 20,486,740

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

	2019	2018
Interest income by effective interest method		
Financial assets at amortized cost	₩ 6,961,636	₩ 7,359,730

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

	2019	2018
Interest expense	₩ 14,518,852	₩ 13,357,775
Loss on foreign currency transactions	780,060	317,987
Loss on foreign currency translation	455	-
Loss on disposal of financial assets measured at FVTPL	1,032	7
Financial guarantee cost	-	1,113,500
Total	₩ 15,300,399	₩ 14,789,269

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

	2019	2018
Bank overdrafts and loan interest	₩ -	₩ 6,847
Interest expense on debentures	13,021,343	13,364,731
Interest expense on lease	1,239,171	-
Other interest expense	295,156	454,734
Less: interest expense capitalized (*)	(36,818)	(468,537)
Total	₩ 14,518,852	₩ 13,357,775

(*) Capitalization interest rates used for the years ended December 31, 2019 and 2018, are 2.52% and 2.51%, respectively.

27. OTHER NON-OPERATING INCOME AND EXPENSE:

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

	2019	2018
Reversal of other allowances	₩ -	₩ 505,881
Rental income	2,365,955	1,001,178
Commission	171,030	210,551
Gains on foreign currency transaction	7,833,804	3,790,275
Gain on foreign currency translation	1,790,463	-
Gain on disposal of tangible assets	370,523	387,596
Gain on disposal of intangible assets	3,479	216,911
Gain on transactions of derivatives	8,533,789	7,084,843
Gain on valuation of derivatives	1,981,158	928,051
Gain on disposal of investments in subsidiaries	700,000	143,062
Miscellaneous gain	171,324	345,782
Others	196,556	180,114
Reversal of impairment of intangible assets	890,000	-
OTHER NON-OPERATING INCOME:	25,008,081	14,794,244
Other Bad debt expenses	134,707	-
Loss on foreign currency transaction	5,375,404	4,417,570
Loss on foreign currency translation	1,902,921	1,886,203
Loss on disposal of tangible assets	49,203	13,713
Loss on impairment of tangible assets	176	-
Loss on disposal of intangible assets	7,145	23,204
Loss on impairment of intangible assets	-	100,000
Loss on transaction of derivatives	15,910,718	13,332,913
Loss on valuation of derivatives	275,703	5,423,750
Loss on disposal of investments in subsidiaries	-	168,908
Impairment loss on investments in subsidiaries	6,209,474	1,162,524
Impairment loss on investments in associates	-	7,362,667
Donations and contributions	862,786	961,900
Miscellaneous loss	268,675	-
Others	117,424	335,042
OTHER NON-OPERATING EXPENSES:	₩ (31,114,336)	₩ (35,188,394)

28. NET GAINS (LOSSES) ON FINANCIAL INSTRUMENT:

Net gains (losses) on 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 assets at FVTPL	₩ 10,733,378	₩ 8,115,372
Financial assets at FVTOCI	5,904	(9,385,837)
Financial assets at amortized cost (*)	9,138,953	5,865,806
Subtotal	19,878,235	4,595,341
Financial liabilities:		
Financial liabilities at FVTPL	(16,186,421)	(13,513,663)
Financial liabilities at amortized cost	(14,872,530)	(13,525,859)
Subtotal	(31,058,951)	(27,039,522)
Total	₩ (11,180,716)	₩ (22,444,181)

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

29. 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):

	2019	2018
Current income tax payable	₩ 30,904,229	₩ 44,856,584
Adjustment relating to prior income tax expense	545,372	(2,087,236)
Tax expenses related to the variation of temporary difference:	4,072,663	(1,336,615)
Beginning deferred tax assets due to temporary differences	45,461,850	41,068,947
Ending deferred tax assets due to temporary Differences	41,331,433	45,461,850
Deferred tax directly reflected in equity	(57,754)	3,056,288
Increase in deferred tax assets due to mergers	-	2,931,064
Income tax expense	₩ 35,522,264	₩ 44,363,797

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

	2019	2018
Profit before income tax expense	₩ 191,394,325	₩ 148,928,944
Tax at the applicable tax rate	45,855,426	35,578,805
Adjustments:	(10,333,162)	8,784,992
Non-taxable income	(13,802)	(5,789,055)
Non-deductible expense	2,253,546	3,711,170
Adjustment relating to prior income tax expense	545,371	(5,165,301)
Effect of tax credit and exemption	(8,077,027)	(4,993,837)
Temporary differences not recognized as deferred tax assets	(8,814,779)	1,651,233
Others	3,773,528	19,370,782
Income tax expense	₩ 35,522,264	₩ 44,363,797

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

	2019	2018
Gain (loss) on valuation of financial assets measured at FVTOCI	₩ 81,936	₩ 3,021,053
Remeasurement factor on a defined benefit plan	(139,690)	35,235
Total deferred tax directly reflected in equity	₩ (57,754)	₩ 3,056,288

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

1) For the year ended December 31, 2019

	Beginning balance	Reflected in income (loss)	Reflected in equity	Ending balance
Temporary differences:				
Valuation of derivative instruments	₩ (180,847)	₩ (231,873)	₩ -	₩ (412,720)
Property, plant and equipment	5,004,321	1,037,008	-	6,041,329
Intangible assets	1,266,263	(511,904)	-	754,359
Financial assets at FVTOCI	5,488,891	(4,422,607)	81,936	1,148,220
Accrued expense	8,046,153	745,988	-	8,792,141
Provisions	21,773,782	(2,757,743)	(139,690)	18,876,349
Doubtful receivable	984,796	-	-	984,796
Government subsidies	262,965	(25,311)	-	237,654
Others	1,502,104	118,158	-	1,620,262
Carried forward tax credit	1,313,422	1,975,621	-	3,289,043
Deferred income tax assets	<u>₩ 45,461,850</u>	<u>₩ (4,072,663)</u>	<u>₩ (57,754)</u>	<u>₩ 41,331,433</u>

2) For the year ended December 31, 2018

	Beginning balance	Reflected in income (loss)	Reflected in equity	Merger	Ending balance
Temporary differences:					
Valuation of derivative instruments	₩ 29,027	₩ (209,874)	₩ -	₩ -	₩ (180,847)
Property, plant and equipment	4,477,265	402,785	-	124,271	5,004,321
Intangible assets	1,154,010	(101,914)	-	214,167	1,266,263
Financial assets at FVTOCI	2,308,973	3,160,383	(24,200)	43,735	5,488,891
Accrued expense	6,890,056	241,287	-	914,810	8,046,153
Provisions	21,974,999	(701,596)	35,235	465,144	21,773,782
Doubtful receivable	124,716	(3,872)	-	863,952	984,796
Government subsidies	297,139	(34,174)	-	-	262,965
Others	3,076,892	(1,586,883)	-	12,095	1,502,104
Carried forward tax credit	735,868	577,554	-	-	1,313,422
Deferred income tax assets	<u>₩ 41,068,945</u>	<u>₩ 1,743,696</u>	<u>₩ 11,035</u>	<u>₩ 2,638,174</u>	<u>₩ 45,461,850</u>

(5) 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	₩ (3,933,428)	₩ 29,587,750
Investments in associates	21,896,229	23,199,229
Total	<u>₩ 17,962,801</u>	<u>₩ 52,786,979</u>

30. RELATED-PARTY TRANSACTIONS:

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

Year ended December 31, 2019		
Entity controlled by the Company ("Controlled entity")	Subsidiaries and jointly controlled entity of Controlled entity (domestic) (*1)	Subsidiaries and jointly controlled entity of Controlled entity (overseas) (*1)
Parent company and its subsidiaries:		
LG Corporation	S&I Corporation Co., Ltd. and six others (*2) LG Management Development Institute LG Sports Ltd.	LG Holdings Japan Co., Ltd. (*2) S&I (Nanjing) Co., Ltd. and nine others
Subsidiary: LG CNS Co., Ltd.	Biztechpartners Co., Ltd. Haembokmaru Co., Ltd. Sejong Green Power Co., Ltd. Open Source Consulting Co., Ltd.(*3)	LG CNS China Inc. and 13 others
Associates and jointly controlled entity:		
LG CNS Co., Ltd.	Tmoney Co.,Ltd. and two others(*4) Songdo U-Life LLC and two others Ulleungdo Natural Energy Co., Ltd. Daegu clean energy Co., Ltd.	T-money Asia sdn bhd and another RECAUDO BOGOTA S.A.S. Hellas SmarTicket Societe Anonyme KEPCO-LG CNS Mangilao Holdings LLC and three others
Associates and jointly controlled entities of parent company:		
LG Electronics Inc.	Hi Plaza Inc. High-M Solutech Co., Ltd. HITeleservice Co., Ltd. Ace R&A Co., Ltd. LG Innotek Co., Ltd. LG Innoteck Alliance Fund Innowith Co., Ltd. LG Hanuri Co. Ltd. ZKW Lighting Systems Korea Co.,Ltd(*3)	LG Electronics Mexico S.A.DE C.V. and others
LG Chem Ltd.	Haemboknuri Co., Ltd. FarmHannong Ugimagkorea Co., Ltd.	LG Chem America, Inc. and others
LG Hausys, Ltd. LG Uplus Corp.	Greennuri Co. Ltd. CS Leader Ain Teleservice Medialog Corp. CS ONE Partner WithU LG Hellovision Co., Ltd.(*5) LG Hellovision Hana Broadcasting Co., Ltd.(*5)	LG Hausys America, Inc. and others Dacom America, Inc.
LG Household & Health Care Ltd.	Coca-Cola Beverage Co. Hankook Beverage Co., Ltd.	Beijing LG Household Chemical Co., Ltd. and others

Year ended December 31, 2019		
Entity controlled by the Company ("Controlled entity")	Subsidiaries and jointly controlled entity of Controlled entity (domestic) (*1)	Subsidiaries and jointly controlled entity of Controlled entity (overseas) (*1)
	TheFaceShop Co., Ltd. HTB Co., Ltd. K&I Co., Ltd. CNP COSMETICS CO., LTD. Balkeunnuri. Co., Ltd. FMG Co., Ltd. OBM RAP Co., Ltd. LG Farouk TAI GUK PHARM Co., Ltd. JS Pharmaceutical Co., Ltd. Ulleungdo Choosan Water(*3) MiGenstory Co.Ltd(*6) RUCIPELLOKOREA INC.(*7)	
GIIR Corporation	HS Ad Co., Ltd. L.Best	GIIR America Inc. and another
LG Hitachi Co., Ltd. Silicon Works Inc. LG International Corp.	Dangjin Tank Terminal Co., Ltd. Pantos Logistics Co., Ltd. Pantos Logistics Pusan Co., Ltd. Helistar Air Co., Ltd. Hanultari Co., Ltd. ZKW Lighting Systems Korea.(*3)	Silicon Works Inc. and another LG International (America) Inc. and others Pantos Logistics (CHINA) Co., Ltd. and others
ZKW Holding GmbH ZKW Austria Immobilien Holding GmbH Joint Ventures of parent companies: LG MMA Corporation Conglomerate of many companies (*8):		ZKW Group GmbH. And others. ZKW Austria Immobilien GmbH
LG Display Sal de Vida Korea Co., Ltd. LG TOSTEM BM SEETEC Co., Ltd. Clean Soul Ltd. DACOM Crossing Robostar Co.,Ltd.	Nanumnuri Co., Ltd. Robomedi Co.,Ltd.	LG Display Nanjing Co. Ltd. and others Robostar(Shanghai) Co., Ltd.

(*1) Joint ventures of associates are excluded.

(*2) Direct shareholding of the relationship between corporate subsidiaries is included

(*3) Acquired and established during the current year.

(*4) The company's name has been changed during the current year,(formerly Korea Smart Card Co.)

(*5) Classified as a subsidiary of LG U Plus due to the acquisition of equity during the current year.

(*6) Classified as a LG Household & Health Care Ltd.'s subsidiary from its associate due to the exercise of convertible rights during the current year.

(*7) Classified as a subsidiary of LG Household & Health Care Ltd. due to the acquisition of equity during the current year.

(*8) 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 related parties 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.

Year ended December 31, 2018		
Controlled entity	Subsidiaries and jointly controlled entity of Controlled entity (domestic) (*2)	Subsidiaries and jointly controlled entity of Controlled entity (overseas) (*2)
Parent company and its subsidiaries:		
LG Corporation	S&I Corporation Co., Ltd. And five others(*1,3) LG Management Development Institute LG Sports Ltd.	LG Holdings Japan Co., Ltd. and two others(*1) Serveone (Nanjing) Co., Ltd. and five others(*4)
Subsidiary (*2): LG CNS Co., Ltd.	Biztechpartners Co., Ltd. Korea Elecom Co., Ltd.(*5) Haemgbokmaru Co., Ltd. Sejong Green Power Co., Ltd.(*6)	LG CNS China Inc. and 15 others
Associates and jointly controlled entity:		
LG CNS Co., Ltd.	Korea Smart Card Co., Ltd. and two others Songdo U-Life LLC and two others Ulleungdo Natural Energy Co., Ltd. Daegu clean energy Co., Ltd.	T-money Asia sdn bhd. and two others RECAUDO BOGOTA S.A.S. Hellas SmarTicket Societe Anonyme KEPCO-LG CNS Mangilao Holdings LLC and two others
Associates and jointly controlled entity of parent company:		
LG Electronics Inc.	Hi Plaza Inc. High-M Solutec Co., Ltd. HITeleservice Co., Ltd. New Growth Venture Fund(*7) New Growth Venture Fund II(*7) Ace R&A Co., Ltd. Hientec Co., Ltd.(*10) LG-Hitachi Water Solutions Co., Ltd. LG Innotek Co., Ltd. LG Innoteck Alliance Fund Innowith Co., Ltd. LG Hanuri Co. Ltd.	LG Electronics Mexico S.A.DE C.V. and others
LG Chem Ltd.	Haemgboknuri Co., Ltd. FarmHannong Ugimagkorea Co., Ltd.(*8)	LG Chem America, Inc. and others
LG Hausys, Ltd. LG Uplus Corp.	Greennuri Co. Ltd.(*11) CS Leader Ain Teleservice Medialog Corp. CS ONE Partner WithU	LG Hausys America, Inc. and others Dacom America, Inc.
LG Household & Health Care Ltd.	Coca-Cola Beverage Co. TheFaceShop Co., Ltd. Hankook Beverage Co., Ltd. HTB Co., Ltd. K&I Co., Ltd.	Beijing LG Household Chemical Co., Ltd. and others

Year ended December 31, 2018		
Controlled entity	Subsidiaries and jointly controlled entity of Controlled entity (domestic) (*2)	Subsidiaries and jointly controlled entity of Controlled entity (overseas) (*2)
GIIR Corporation	CNP COSMETICS CO., LTD. Balkeunnuri. Co., Ltd. FMB Co., Ltd. OBM RAP Co., Ltd. LG Farouk Ulleungdo Choosan Water Development Co., Ltd.(*7,11) TAI GUK PHARM Co., Ltd.(*12) JS Pharmaceutical Co., Ltd.(*12) HS Ad Co., Ltd. L.Best	GIIR America Inc. and another
LG Hitachi Co., Ltd. LG Fuel Cell Systems Inc.(*13) Silicon Works Inc. ZKW Holdings GmbH MGIV GmbH LG International Corp.	LG Fuel Cell Systems (Korea) Inc. Dangjin Tank Terminal Co., Ltd. Pantos Logistics Co., Ltd. Pantos Logistics Pusan Co., Ltd. Helistar Air Co., Ltd. Hanultari Co., Ltd.	Silicon Works Inc. and another ZKW Group GmbH and another Mommert Immobilien GmbH LG International (America) Inc. and other Pantos Logistics (CHINA) Co., Ltd. and other
Joint Ventures of parent companies: LG MMA Corp.		
Conglomerate of many companies:(*9)		
LG Display Global Dynasty Investment Fund Sal de Vida Korea Co., Ltd. LG TOSTEM BM SEETEC Co., Ltd. MiGenstory Co., Ltd.(*8) Clean Soul Ltd. DACOM Crossing Robostar Co.,Ltd.	Nanumnuri Co., Ltd. Robomedi Co.,Ltd.	LG Display Nanjing Co. Ltd. and others

(*1) Direct shareholding of the relationship between corporate subsidiaries is included.

(*2) Excluded joint venture of affiliates.

(*3) S&I Corporation (formerly Serveone Co., Ltd.) conducted physical division, which divides Serveone Co., Ltd. during the prior year and changed its name.

(*4) S & I Vietnam subsidiary was newly established during the prior year.

(*5) Excluded from the subsidiaries due to the disposal of its stock.

(*6) The acquisition of additional shares during the prior year has classified the company as a subsidiary from associate

(*7) The company has been liquidated during the current year.

(*8) Classified as an associate of a higher parent by acquiring additional shares during the prior year.

(*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.

(*10) Excluded from LG Electronics' subsidiary due to the disposal of shares during the current year.

(*11) Newly established during the prior year.

(*12) Classified as a subsidiary of LG Household & Health Care due to the acquisition of shares during the prior year.

(*13) The company has been liquidated during the current year.

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

Description	December 31, 2019		
	Revenue and others	Acquisitions of property, plant and equipment	Other purchase
Parent company and its subsidiaries:			
LG Corporation	₩ 3,722,608	₩ -	₩ 12,627,782
S&I Corporation Co., Ltd. (*1,2)	50,266,959	53,274	23,920,461
LG Sports Co., Ltd.	1,228,015	-	40,273
LG Management Development Institute	7,266,467	-	6,373,545
LUSEM Co., Ltd. (*3)	-	-	-
Subtotal	62,484,049	53,274	42,962,061
Subsidiaries:			
LG CNS China Inc.	78,103,798	-	8,220,096
LG CNS Europe B.V.	37,202,497	-	149,485
LG CNS America, Inc.	25,264,483	-	1,757,291
LG CNS India Pvt., Ltd.	3,891,774	-	-
PT LG CNS Indonesia	1,211,625	-	1,271,069
LG CNS BRASIL SERVICOS DE TI LTDA(*8)	267,912	-	-
Biztech Partners Co., Ltd. (formerly known as BNE Partners Co., Ltd.)	723,011	-	71,604,196
LG N-Sys Co., Ltd. (*3)	-	-	-
Korea Elecom(*4)	16,255	-	-
LG CNS COLOMBIA SAS	927,242	-	-
LG CNS Malaysia SDN Bhd	868,730	-	2,580,567
LG CNS JAPAN Co., Ltd.	4,778,040	-	-
Collain Healthcare LLC	-	-	-
LG CNS UZBEKISTAN, LLC	-	-	418,766
Haemgbokmaru Co., Ltd.	19,753	-	1,811,575
LG CNS Vietnam Co., Ltd.	12,575,060	-	-
Sejong Green Power Co., Ltd.	1,261,338	-	-
Opensource Consulting Co., Ltd.(*9)	200	-	754,274
Subtotal	167,111,718	-	88,567,319
Tmoney Co.,Ltd. (*5)	24,841,198	-	664,329
Sejong Green Power Co., Ltd.(*6)	-	-	-
Ulleungdo Natural Energy Co., Ltd.	-	-	-
Hellas SmarTicket Societe Anonyme	473,440	-	-
Subtotal	25,314,638	-	664,329
Top Controlled entity's associates and jointly controlled entity:			

Description	December 31, 2019		
	Revenue and others	Acquisitions of property, plant and equipment	Other purchase
LG Chem Ltd. (*1)	353,979,346	447,650	17,810,747
LG Household & Health Care Ltd. (*1)	29,504,432	-	3,846,430
LG Hausys, Ltd. (*1)	24,290,485	-	191,181
LG Electronics Inc. (*1)	554,642,292	-	129,496,812
GIIR Corporation (*1)	4,451,523	-	633,683
LG MMA Corp.	5,194,837	-	-
LG Hitachi Co., Ltd.	176,484	-	959,961
LG U Plus Co., Ltd. (*1)	373,738,383	-	25,876,460
Silicon Works Inc.	6,755,288	-	-
LG Fuel Cell Systems Inc.	1,115	-	-
LG International Corp. (*1)	35,854,725	-	694,814
Subtotal	1,388,588,910	447,650	179,510,088
LG Display	166,381,304	-	-
LG TOSTEM BM	29,244	-	-
DACOM Crossing Corporation	-	-	-
Subtotal	166,410,548	-	-
Total	₩ 1,809,909,863	₩ 500,924	₩ 311,7003,797

(*1) This includes transaction details for subsidiaries.

(*2) This includes transaction details for associates.

(*3) The transaction details were excluded from the related parties due to disposal of equity/liquidation during the prior year, and the transaction details shown above are the transactions before till the subsidiary was excluded from the related parties.

(*4) The transaction details were excluded from the related parties due to disposal of equity/liquidation during the prior year, and the transaction details shown above are the transactions before till the subsidiary was excluded from the related parties.

(*5) The company's name has been changed during the current year, (formerly Korea Smart Card Co., Ltd.)

(*6) During the prior year, it was classified as a subsidiary from an associate as LG CNS acquired additional shares.

(*7) The transaction details were excluded from the related parties due to disposal of equity/liquidation during the prior year, and the transaction details shown above are the transactions before till the subsidiary was excluded from the related parties.

(*8) The company's name has been changed during the current year, (Entru Brasil Servicos de T.I. Ltda.)

(*9) The company has been acquired and established in 2019.

Description	December 31, 2018		
	Revenue and others	Acquisitions of property, plant and equipment	Other purchase
Parent company and its subsidiaries:			
LG Corporation	₩ 3,540,989	₩ -	₩ 13,478,820
S&I Corporation Co., Ltd. (*1,2)	47,885,497	12,527,961	21,315,983
LG Sports Co., Ltd.	1,104,765	-	40,261
LG Management Development Institute	6,659,880	-	5,066,446
LUSEM Co., Ltd. (*3)	88,768	-	-
Subtotal	59,279,899	12,527,961	39,901,510
Subsidiaries:			
LG CNS China Inc.	61,636,582	-	8,362,871
LG CNS Europe B.V.	20,210,255	-	812,711
LG CNS America, Inc.	21,968,000	430,243	3,985,648
LG CNS India Pvt., Ltd.	3,981,539	-	13,876

Description	December 31, 2018		
	Revenue and others	Acquisitions of property, plant and equipment	Other purchase
PT LG CNS Indonesia	3,170,236	-	1,227,465
LG CNS BRASIL SERVICOS DE TI LTDA(*8)	145,955	-	-
Biztech Partners Co., Ltd. (formerly known as BNE Partners Co., Ltd. (*5))	448,665	666,805	64,564,141
LG N-Sys Co., Ltd. (*3)	1,072,044	2,992,568	25,229,799
Korea Elecom(*4)	32,460	-	-
LG CNS COLOMBIA SAS	674,293	-	293,808
LG CNS Malaysia SDN Bhd	2,562,049	-	2,014,237
LG CNS JAPAN Co., Ltd.	856,998	-	-
Collain Healthcare LLC	1,993,616	-	885,593
LG CNS UZBEKISTAN, LLC	-	-	837,650
Haemgbokmaru Co., Ltd.	14,404	-	1,737,889
LG CNS Vietnam Co., Ltd.	14,081,550	-	-
Sejong Green Power Co., Ltd. (*7)	1,163,892	-	7,934,415
Opensource Consulting Co.,Ltd(*9)	-	-	-
Subtotal	134,012,538	4,089,616	117,900,103
Associates:			
Tmoney Co.,Ltd. (*5)	26,110,378	-	3,210,758
Sejong Green Power Co., Ltd.(*6)	4,705,434	-	-
Ulleungdo Natural Energy Co., Ltd.	2,804,025	-	-
Hellas SmarTicket Societe Anonyme	-	-	-
Subtotal	33,619,837	-	3,210,758
Top Controlled entity's associates and jointly controlled entity:			
LG Chem Ltd. (*1)	331,705,269	857,350	54,697,452
LG Household & Health Care Ltd. (*1)	51,428,281	-	4,231,880
LG Hausys, Ltd. (*1)	22,487,082	945,000	3,118,209
LG Electronics Inc. (*1)	568,795,020	21,542	105,070,153
GIIR Corporation (*1)	4,308,369	498,700	785,524
LG MMA Corp.	5,472,075	-	-
LG Hitachi Co., Ltd.	92,498	-	971,426
LG U Plus Co., Ltd. (*1)	359,113,610	-	25,404,254
Silicon Works Inc.	7,658,291	-	-
LG Fuel Cell Systems Inc.(*1)	57,520	-	-
LG International Corp. (*1)	32,844,187	-	1,294,345
Subtotal	1,383,962,202	2,322,592	195,573,243
Conglomerate of many companies:			
LG Display	215,368,602	-	-
LG TOSTEM BM	29,404	-	-
DACOM Crossing Corporation	97,994	-	-
Subtotal	215,496,000	-	-
Total	₩ 1,826,370,476	₩ 18,940,169	₩ 356,585,614

(*1) This includes transaction details for subsidiaries.

(*2) This includes transaction details for associates.

(*3) The transaction details were excluded from the related parties due to disposal of equity/liquidation during the prior year, and the transaction details shown above are the transactions before till the subsidiary was excluded from the related parties.

(*4) The transaction details were excluded from the related parties due to disposal of equity/liquidation during the prior year, and the transaction details shown above are the transactions before till the subsidiary was excluded from the related parties.

(*5) The company's name has been changed during the current year,(formerly Korea Smart Card Co.,Ltd.)

(*6) During the prior year, it was classified as a subsidiary from an associate as LG CNS acquired additional shares.

(*7) The transaction details were excluded from the related parties due to disposal of equity/liquidation during the prior year, and the transaction details shown above are the transactions before till the subsidiary was excluded from the related parties.

(*8) The company's name has been changed during the current year,(Entru Brasil Servicos de T.I. Ltda..)

(*9) The company has been acquired and established in 2019.

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

Description	December 31, 2019			
	Account receivables and others (*1)	Loans	Account payables and others (*2)	Borrowings
Parent company and its subsidiaries:				
LG Corporation	₩ 4,916,754	₩ -	₩ 447,830	₩ -
S&I Corporation Co., Ltd. (*3,4)	27,765,393	-	2,088,875	-
LG Sports Co., Ltd.	83,373	-	24	-
LG Management Development Institute	4,285,700	-	333,117	-
Subtotal	37,051,220	-	2,869,846	-
Subsidiaries:				
LG CNS China Inc.	13,874,044	-	781,483	-
LG CNS Europe B.V. (*6)	23,469,539	-	2,069	-
LG CNS America Inc. (*7)	11,410,699	-	504,944	-
LG CNS India Pvt., Ltd.	5,066,519	-	-	-
PT LG CNS Indonesia	1,163,390	-	-	-
LG CNS BRASIL SERVICOS DE TI LTDA(*12)	136,051	-	-	-
Biztech Partners Co., Ltd. (formerly known as BNE Partners Co., Ltd.)	2,032	-	-	-
LG CNS COLOMBIA SAS	2,983,500	-	9,851,683	-
LG CNS Philippines, Inc. (*8)	74,025	2,557,708	-	-
LG CNS JAPAN Co., Ltd.	153,052	-	-	-
LG CNS Malaysia SDN Bhd	1,848,268	-	28,796	-
LG CNS UZBEKISTAN, LLC	699,108	-	415,918	-
Hangbokmaru Co., Ltd.	72	-	188,436	-
LG CNS Vietnam Co., Ltd.	7,944,288	-	23,214	-
Sejong Green Power Co., Ltd.	1,693,473	-	-	-
Opensource Consulting Co.,Ltd. Ltd.(*13)	-	-	445,690	-
Subtotal	70,488,060	2,557,708	12,242,233	-
Associates:				
Tmoney Co.,Ltd.. (*3,5)	2,728,025	-	155,410	-
RECAUDO BOGOTA S.A.S. (*9)	18,316,535	-	-	-
KEPCO-LG CNS Mangilao Holdings LLC(*10)	92,915	7,863,940	-	-
Subtotal	21,137,475	7,863,940	155,410	-
Top Controlled entity's associates and				-

December 31, 2019				
Description	Account receivables and others (*1)	Loans	Account payables and others (*2)	Borrowings
jointly controlled entity:				
LG Chem Ltd. (*3)	120,210,896	-	5,563,067	-
LG Household & Health Care Ltd. (*3)	3,948,188	-	411,793	-
LG Hausys, Ltd. (*3)	6,219,968	-	30,574	-
LG Electronics Inc. (*3,11)	169,221,787	-	19,577,047	-
GIIR Corporation (*3)	1,147,572	-	105,363	-
LG MMA Corp.	490,142	-	-	-
LG Hitachi Co., Ltd.	92,400	-	138,792	-
LG Uplus Corp. (*3)	133,264,633	-	766,077	-
Silicon Works Inc.	937,206	-	-	-
LG International (*3)	9,762,742	-	272,088	-
Subtotal	445,295,534	-	26,864,801	-
Conglomerate of many companies:				
LG Display	59,927,430	-	-	-
LG TOSTEM BM	-	-	-	-
Subtotal	59,927,430	-	-	-
Total	₩ 633,899,719	₩ 10,421,648	₩ 42,132,290	₩ -

(*1) Receivables from related party consist of trade receivables, other receivables and prepaid expenses.

(*2) Payables to related party consist of trade payables, other payables etc.

(*3) It includes transactions with subsidiaries.

(*4) It includes transactions with associates.

(*5) The company's name has been changed during the current year, (formerly Korea Smart Card Co.)

(*6) Bad debt allowances are recorded at ₩39,389 thousand and ₩1,453 thousand of receivables as of December 31, 2019 and 2018, respectively.

(*7) Bad debt allowances are recorded at ₩19,638 thousand and ₩20,793 thousand of receivables as of December 31, 2019 and 2018, respectively.

(*8) 100% of Bad debt allowances are recorded as of December 31, 2019 and 2018, respectively.

(*9) Bad debt allowances are recorded at ₩6,292,337 thousand and ₩5,807,166 thousand of receivables for the years ended December 31, 2019 and 2018, respectively.

(*10) Bad debt allowances are recorded at ₩3,775 thousand and ₩3,645 thousand of receivables for the years ended December 31, 2019 and 2018, respectively.

(*11) Bad debt allowances are recorded at ₩291,448 thousand and ₩210,006 thousand of receivables for the years ended December 31, 2019 and 2018, respectively.

(*12) The company's name has been changed during the current year. (formerly Entru Brasil Servicos de T.I. Ltda.)

(*13) The company has been acquired and established in 2019.

December 31, 2018				
Description	Account receivables and others (*1)	Loans	Account payables and others (*2)	Borrowings
Parent company and its subsidiaries:				
LG Corporation	₩ 5,178,125	₩ -	₩ 421,614	₩ -
S&I Corporation Co., Ltd. (*3,4)	25,248,504	-	3,339,380	-
LG Sports Co., Ltd.	73,957	-	27	-
LG Management Development Institute	5,942,672	-	321,179	-
Subtotal	36,443,258	-	4,082,200	-
Subsidiaries:				
LG CNS China Inc.	22,433,809	-	2,038,065	-
LG CNS Europe B.V. (*6)	11,634,792	-	16,787	-

December 31, 2018				
Description	Account receivables and others (*1)	Loans	Account payables and others (*2)	Borrowings
LG CNS America Inc. (*7)	11,449,677	-	100,096	-
LG CNS India Pvt., Ltd.	4,636,711	-	-	-
PT LG CNS Indonesia	2,589,945	-	-	-
LG CNS BRASIL SERVICOS DE TILTD(*12)	-	-	-	-
Biztech Partners Co., Ltd	15,236	-	10,374,493	-
LG CNS COLOMBIA SAS	2,142,704	-	-	-
LG System Philippines, Inc. (*8)	71,487	2,470,006	-	-
LG CNS JAPAN Co., Ltd.	253,946	-	-	-
LG CNS Malaysia SDN Bhd	4,146,219	-	434,641	-
LG CNS UZBEKISTAN, LLC	645,883	-	254,510	-
Hangbokmaru Co., Ltd.	80	-	37,592	-
LG CNS Vietnam Co., Ltd.	8,617,685	-	44,517	-
Sejong Green Power Co., Ltd.	11,893,218	-	-	-
Opensource Consulting Co.,Ltd. Ltd.(*13)	-	-	-	-
Subtotal	80,531,392	2,470,006	13,300,701	-
Associates:				
Tmoney Co.,Ltd.. (*3,5)	4,852,222	-	543,323	-
RECAUDO BOGOTA S.A.S.	17,688,476	-	-	-
KEPCO-LG CNS Mangilao Holdings LLC	-	7,594,292	-	-
Subtotal	22,540,698	7,594,292	543,323	-
Top Controlled entity's associates and jointly controlled entity:				
LG Chem Ltd. (*3)	142,181,332	-	8,118,231	-
LG Household & Health Care Ltd. (*3)	4,179,629	-	559,222	-
LG Hausys, Ltd. (*3)	2,720,123	-	136,967	-
LG Electronics Inc. (*3,11)	154,591,462	-	19,525,414	-
GIIR Corporation (*3)	1,236,666	-	138,389	-
LG MMA Corp.	952,333	-	-	-
LG Hitachi Co., Ltd.	45,375	-	163,556	-
LG Uplus Corp. (*3)	165,547,025	-	1,057,127	-
Silicon Works Inc.	824,550	-	-	-
LG International (*3)	5,736,310	-	123,877	-
Subtotal	478,014,805	-	29,822,783	-
Conglomerate of many companies:				
LG Display	81,225,444	-	-	-
LG TOSTEM BM	440	-	-	-
Subtotal	81,225,884	-	-	-
Total	₩ 698,756,037	₩ 10,064,298	₩ 47,749,007	₩ -

(*1) Receivables from related party consist of trade receivables, other receivables and prepaid expenses.

(*2) Payables to related party consist of trade payables, other payables etc.

(*3) It includes transactions with subsidiaries.

(*4) It includes transactions with associates.

(*5) The company's name has been changed during the current year,(formerly Korea Smart Card Co..)

(*6) Bad debt allowances are recorded at ₩39,389 thousand and ₩1,453 thousand of receivables as of December 31, 2019 and 2018, respectively.

(*7) Bad debt allowances are recorded at ₩19,638 thousand and ₩20,793 thousand of receivables as of December 31, 2019 and 2018, respectively.

(*8) 100% of Bad debt allowances are recorded as of December 31, 2019 and 2018, respectively.

(*9) Bad debt allowances are recorded at ₩6,292,337 thousand and ₩5,807,166 thousand of receivables for the years ended December 31, 2019 and 2018, respectively.

(*10) Bad debt allowances are recorded at ₩3,775 thousand and ₩3,645 thousand of receivables for the years ended December 31, 2019 and 2018, respectively.

(*11) Bad debt allowances are recorded at ₩291,448 thousand and ₩210,006 thousand of receivables for the years ended December 31, 2019 and 2018, respectively.

(*12) The company's name has been changed during the current year.(formerly Entru Brasil Servicos de T.I. Ltda.)

(*13) The company has been acquired and established in 2019.

(4) Cash 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, 2019				
Description	Payment in cash (reduction of capital)		Loans	
		Sale of interests	Loans	Payback
Subsidiaries:				
Sejong Green Power Co., Ltd.	₩ 29,399,007	₩ -	₩ -	₩ -
LG CNS FUND I LLC	5,109,082	-	-	-
Opensource Consulting Co.,Ltd.	8,994,403	-	-	-
Korea Elecom	-	700,000	-	-
Total	₩ 43,502,492	₩ 700,000	₩ -	₩ -
Year ended December 31, 2018				
Description	Payment in cash (reduction of capital)		Loans	
		Sale of interests	Loans	Payback
Subsidiaries:				
Entru Brasil Servicos de T.I. Ltda.	₩ 221,320	₩ -	₩ -	₩ -
LG CNS FUND I LLC	280,750	-	-	-
Top Controlled entity's associates and jointly controlled entity:				
LG Fuel Cell Systems Inc.	1,191,322	-	-	-
Total	₩ 1,693,392	₩ -	₩ -	₩ -

(5) Details of payment guarantees provided to related parties as of December 31, 2019, are as follows:

Related party	Guarantees	Limit of guarantees
LG CNS India Pvt., Ltd.	Credit line	INR 65,000,000
LG CNS India Pvt., Ltd.	Credit line	INR 66,000,000
LG CNS India Pvt., Ltd.	Payment guarantees	USD 500,000
PT LG CNS Indonesia	Credit line	USD 1,200,000
PT LG CNS Indonesia	Credit line	USD 500,000
PT LG CNS Indonesia	Credit line	USD 840,000
PT LG CNS Indonesia	Credit line	USD 960,000
PT LG CNS Indonesia	Credit line	USD 500,000
PT LG CNS Indonesia	Payment guarantees	IDR 25,075,673,700
PT LG CNS Indonesia	Payment guarantees	IDR 12,537,836,850
LG CNS America Inc.	Credit line	USD 10,000,000
LG CNS America Inc.	Credit line	USD 5,000,000
LG CNS America Inc.	Payment guarantees	USD 34,999,070
LG CNS COLOMBIA SAS	Credit line	USD 3,000,000
LG CNS COLOMBIA SAS	Credit line	USD 5,500,000

LG CNS COLOMBIA SAS	Credit line	USD 4,500,000
LG CNS Europe B.V.	Credit line	EUR 1,800,000
LG CNS MALAYSIA SDN BHD	Credit line	MYR 7,000,000
LG CNS MALAYSIA SDN BHD	Payment guarantees	USD 451,901
LG CNS MALAYSIA SDN BHD	Payment guarantees	MYR 2,110,000
LG CNS JAPAN Co., Ltd.	Payment guarantees	JPY 6,000,000
LG CNS JAPAN Co., Ltd.	Credit line	JPY 500,000,000
LG CNS JAPAN Co., Ltd.	Payment guarantees	JPY 1,254,566,340
Hellas SmarTicket Societe Anonyme	Payment guarantees	EUR 28,000,000

- (6) The compensation and benefits for the Company's key management (registered executives, including non-permanent and non-registered executives) who have significant control and responsibility on planning, operating and controlling the activities of the Company 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	₩ 19,687,903	₩ 17,506,379
Severance benefits	2,342,255	2,297,466
Other long-term employee liabilities	4,640	4,478
Total	₩ 22,034,798	₩ 19,808,323

31. FUNDING ARRANGEMENTS AND PLEDGING:

- (1) Financing agreements (Unit: Korean won and U.S. dollars in thousands):

Category (*1, 2)	Financial institution	Limit of credit
Comprehensive import and export	KEB Hana Bank and others	USD 41,700
Forward exchange	KB Bank and others	USD 97,100
Overdraft	Woori Bank	₩ 5,000,000
Other payment guarantee	Industry Bank and others	₩ 70,600,000

(*1) Both blanket credit agreement and individual credit agreement are presented.

(*2) Payment guarantees provided for the related parties are described in Note 30 (5).

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

Account	December 31, 2019
Financial institution deposits	₩ 12,500,000
Long-term deposits	9,500
Total	₩ 12,509,500

- (3) Details of pledging

1) Performance guarantee

The Company provides the following performance guarantees for contracts and warrants to customers by insuring guarantee insurance as of December 31, 2019 (Unit: Korean won in thousands):

Amounts of guarantees	Insurance company
-----------------------	-------------------

	₩	95,271,592	Seoul Guarantee Insurance
Guarantees of contract and warranties, etc.		315,395,360	Korea Software Financial Cooperative
		650,752	Engineering Financial Cooperative
		113,385,712	SHINHAN Bank and others
Total	₩	524,703,416	

2) Collateral

Out of Financial assets at FVTPL, capital stock investments to Korea Software Financial Cooperative and Engineering Financial Cooperative of Korea amounting to ₩1,341 million and ₩779 million, respectively, are provided as collateral in relation to performance guarantee provided by the cooperatives.

(4) There are no non-financial assets and financial assets pledged as collateral for the year ended December 31, 2019, under review.

32. Leases:

(1) The Company as lessee

- 1) The carrying amount of the right-of-use assets as of December 31, 2019 and 2018 is as follows(Unit: Korean won in thousands):

December 31, 2019					
	Buildings	Vehicles	Funitures and fixtures	Others	Total
Acquisition cost	₩63,663,094	₩ 1,535,401	₩1,879,201	₩63,010	₩67,140,706
Accumulated depreciation	(8,361,676)	(572,280)	(777,601)	(23,629)	(9,735,186)
Total	₩ 55,301,418	₩ 963,121	₩1,101,600	₩39,381	₩ 57,405,520

January 1, 2019					
	Buildings	Vehicles	Funitures and fixtures	Others	Total
Acquisition cost	₩ 62,046,126	₩ 1,411,643	₩ 1,879,201	₩ -	₩ 65,336,970
Accumulated depreciation	-	-	-	-	-
Total	₩ 62,046,126	₩ 1,411,643	₩ 1,879,201	₩ -	₩ 65,336,970

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

	Buildings	Vehicles	Furniture and fixtures	Others	Total
Beginning balance	₩ 62,046,126	₩ 1,411,643	₩ 1,879,201	₩ -	₩ 65,336,970
Additional(renewal) contracts	1,628,816	259,100	-	63,010	1,950,926
Depreciation of right-to-use assets	(8,363,410)	(622,093)	(777,601)	(23,629)	(9,786,733)
Termination of contracts	(10,114)	(85,529)	-	-	(95,643)
Ending balance	₩ 55,301,418	₩ 963,121	₩ 1,101,600	₩ 39,381	₩ 57,405,520

The company has operating lease contracts for buildings, furnitures and fixtures, vehicles and etc. The average lease term is 17.07 months.

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

	Amounts
Depreciation of right-to-use assets	₩ 9,786,733

Interest expense of lease liabilities	1,239,171
Expenses related to short-term leases	1,242,657
Expenses related to leases of low-value assets	468,156

As of December 31, 2019, the lease agreement for short-term and lease of low-value assets is ₩2,008,412 thousand and the total cash outflow due to leases is ₩10,393,731 thousand.

- 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	₩	10,107,629
Non-current liabilities		45,287,662
Total	₩	55,395,291

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

	Minimum lease payments	
Within one year	₩	10,238,476
One year-five years		24,763,590
Over five years		25,552,030
Total	₩	60,554,096

(2) The company as lessor

- 1) The company has a lease agreement to lease office buildings to nine companies other than LG Chem Co., Ltd., and the future lease payment plan as of December 31, 2019 and 2018 is as follows(Unit: Korean won in thousands):

	December 31, 2019		
	Within	One year-five years	Total
	One year		
LG CHEM LTD	₩ 1,205,961	₩ -	₩ 1,205,961
CJ E&M Corporation	1,119,373	1,452,722	2,572,095
and 8 other companies			
	December 31, 2018		
	Within	One year-five years	Total
	One year		
LG Uplus Corp	₩ 98,120	₩ -	₩ 98,120
BizTech Partners Co.,Ltd.	847,051	1,144,857	1,991,908
and 4 other companies			

- 2) The lease income recognized by the Company in relation to the lease agreement for the year of 2019 and 2018 is ₩2,365,955 thousand and ₩1,001,178 thousand_

33. PENDING LITIGATION AND DISPUTES:

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

	Amount of lawsuit	Plaintiff	Defendant
Claims for unfair joint activities	₩ 48,902,750	Kookmin Bank Co., Ltd.	LG CNS Co., Ltd. and others
Claims for unfair joint activities	13,298,811	Industrial Bank of Korea	LG CNS Co., Ltd. and others
Claims for unfair joint activities	21,313,900	Woori FIS.	LG CNS Co., Ltd. and others
Claims for unfair joint activities	78,755,530	National Agricultural Cooperatives Foundation	LG CNS Co., Ltd.
Claims for unfair joint activities	1,693,134	National Federation of Fisheries Cooperatives	LG CNS Co., Ltd.
Claims for unfair joint activities	200,000	KEB Hana Bank	LG CNS Co., Ltd. and others
Claims for National Defense Network	5,000,000	Republic of Korea	LG CNS Co., Ltd. and others
Litigation with the issue of the amount of compensation of deferment	3,421,163	LG CNS Co., Ltd.	KT CO., LTD.
Litigation of service payment	7,399,894	LG CNS Co., Ltd.	Korea Customs Service
ASAN Hospital service charge	10,000,000	LG CNS Co., Ltd.	ASAN Foundation
Claims for ASAN Hospital	37,933,444	ASAN Foundation	LG CNS Co., Ltd.
Claims for return of unreasonable gain in Majortech Co., Ltd.	317,652	Majortech Co., Ltd. Bankruptcy Trustee	LG CNS Co., Ltd. and others
Claims for denial	194,440	Majortech Co., Ltd. Bankruptcy Trustee	LG CNS Co., Ltd. and others
A damage suit	15,170,000	LG CNS Co., Ltd.	Republic of Korea(Korea Customs Service)

The final result of the litigation and effect on the separate financial statements cannot be estimated at the end of the reporting period.

34. RISK MANAGEMENT:

(1) Capital risk management

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

The Company'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 Company is unchanged from prior period. In addition, items managed as capital by the Company as of December 31, 2019 and 2018, are as follows (Unit: Korean won in thousands):

	December 31, 2019		December 31, 2018	
Total borrowings	₩	519,386,757	₩	518,863,575
Less: cash and cash equivalents		455,616,209		392,006,720
Borrowings, net		63,770,548		126,856,855
Total equity		1,177,896,822	₩	1,063,700,087
Debt ratio		5.41%		11.93%

(2) Financial risk management

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

1) Foreign currency risk

The Company is exposed to foreign currency risk as it makes transactions denominated in foreign currencies. The book value of the Company'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):

Currency	December 31, 2019			
	Assets		Liabilities	
USD	₩	119,605,225	₩	16,215,229
EUR		24,246,914		16,482,795
JPY		863,732		1,367,098
CNY		4,287,811		571,190
Others		38,081,077		695,993
Total	₩	187,084,759	₩	35,332,305

Currency	December 31, 2018			
	Assets		Liabilities	
USD	₩	137,803,643	₩	12,077,883
EUR		15,895,153		7,183,698
JPY		793,320		-
CNY		539,623		132,563
Others		39,516,820		22,711
Total	₩	194,548,559	₩	19,416,855

The Company internally assesses the foreign currency risk from changes in exchange rates on a regular basis. The Company's sensitivity to a 10% increase and 10% decrease in the Korean won (functional currency of the Company) against the major foreign currencies as of December 31, 2019 and 2018, is as follows (Unit: Korean won in thousands):

Currency	December 31, 2019	
	10% increase against foreign currency	10% decrease against foreign currency
USD	₩ 7,836,962	₩ (7,836,962)
EUR	588,520	(588,520)
JPY	(38,155)	38,155
CNY	281,720	(281,720)
Others	2,833,789	(2,833,789)
Total	₩ 11,502,836	₩ (11,502,836)

Currency	December 31, 2018	
	10% increase against foreign currency	10% decrease against foreign currency
USD	₩ 9,530,013	₩ (9,530,013)
EUR	660,328	(660,328)
JPY	60,134	(60,134)
CNY	30,855	(30,855)
Others	2,993,653	(2,993,653)
Total	₩ 13,274,983	₩ (13,274,983)

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 Company entered into cross-forward foreign currency 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 amount	Valuation gain and loss		Fair value	
		Gain	Loss	Assets	Liabilities
Currency forward	₩ 264,027,097	₩ 1,981,158	₩ 275,703	₩ 1,981,158	₩ 275,703

2) Price risk

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

3) Credit risk

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

The maximum amount of financial loss to be incurred by the counterparty due to non-fulfillment of obligations in case of collateral or other credit enhancement is equivalent to the carrying amount of each financial asset in the financial statement. The maximum amount we will be required to pay if we are warranted due to the financial guarantees we provide is ₩143,880 million (the financial guarantee limit described in Note 30 (5)).

To minimize credit risk, we use independent external credit rating agencies' information to classify exposure based on the extent of default. If the information from credit rating agencies is not available, we use officially available financial information to determine the ratings of key customers and other debtors. Our total exposure and the counterparty's credit rating are constantly reviewed and the total amount of these transactions is evenly distributed among the authorized accounts.

The exposure to credit risk based on book value by major industries, to which the Company's customers belong, is as follows (Unit: Korean won in thousands):

	Manufacturing	Financial service	Other service	Public institutions	Others	Total
Financial assets at FVTPL	₩ -	₩ 1,981,158	₩ -	₩ -	₩ 11,021,048	₩ 13,002,206
Financial Assets at amortized cost	547,575,600	220,694,247	20,923,262	24,518,310	3,596,019	817,307,438
Financial assets at FVTOCI	-	-	-	-	5,375,491	5,375,491
Limit of payment guarantee	-	-	143,880,429	-	-	143,880,429
Total	₩ 547,575,600	₩ 222,675,405	₩ 164,803,691	₩ 24,518,310	₩ 19,992,558	₩ 979,565,564

The carrying amount of financial assets at FVTPL is the best indication of the maximum exposure to credit risk. The Company has not provided any collateral for its financial assets other than those stated in Note 31.

4) Liquidity risk

The Company 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 Company believes that financial liability may be redeemed by cash flows 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 one year	One year– five years	After five years	Total
Non-interest-bearing financial instruments	₩ 459,527,772	₩ 1,437,150	₩ -	₩ 460,964,922
Variable interest rate financial instrument	240,075,500	302,212,200	-	542,287,700
Fixed interest rate financial instrument	143,880,429	-	-	143,880,429
Limit of payment guarantee	10,238,476	24,763,590	25,552,030	60,554,096
Total	₩ 853,722,177	₩ 328,412,940	₩ 25,552,030	₩ 1,207,687,147

(*1) It includes the payment guarantees for foreign subsidiaries (USD 67,950,971, EUR 29,800,000, JPY 1,760,566,340, MYR 9,110,000, INR 131,000,000 or IDR 37,613,510,550) in paragraph 30 (5). Based on the expectation as of December 31, 2019, the Company believes that possibility of payment on guaranteed amount is not higher. However, the expectation could be changed because warrantees may request payment to the Company according to the credit loss on the financial assets held by the warrantees.

The above maturity analysis is based on the earliest maturity date that the Company is required to pay on the basis of undiscounted cash flows and includes the cash flows of principal and interest.

The Company manages liquidity through cash inflows from financial assets and financing arrangements with financial institutions. The financial assets' maturity structures as of December 31, 2019 and 2018 are as follows (Unit: Korean won in thousands):

December 31, 2019				
	Within one year	One year– five years	After five years	Total
Trading Receivables and Other Receivables	₩ 808,682,837	₩ 20,404,241	₩ 2,914,140	₩ 832,001,218
Investment in equity and debt instruments	-	-	16,396,539	16,396,539
Total	₩ 808,682,837	₩ 20,404,241	₩ 19,310,679	₩ 848,397,757

December 31, 2018				
	Within one year	One year– five years	After five years	Total
Trading Receivables and Other Receivables	₩ 835,776,125	₩ 20,143,028	₩ 2,693,297	₩ 858,612,450
Investment in equity and debt instruments	-	1,030	12,271,243	12,272,273
Total	₩ 835,776,125	₩ 20,144,058	₩ 14,964,540	₩ 870,884,723

Meanwhile, the maturity analysis of derivative financial assets(liabilities) as of the end of the current year is as follows(Unit: Korean won in thousands):

		Within one year	One year– five years	After five years
Derivative assets for trading				
Foreign currency derivatives	Inflows	₩ 263,874,014	₩ -	₩ 263,874,014
(*)	Outflow	(262,168,559)	-	(262,168,559)
Total		₩ 1,705,455	₩ -	₩ 1,705,455

(*) As all foreign currency derivatives contracts are subject to total settlement, cash flows are recorded separately from outflows and inflows.

(3) Estimation of fair value

The fair values of financial instruments (i.e., financial assets measured at FVTPL and financial assets measured at FVTOCI) traded in active markets are determined with reference to quoted market prices. The Company 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 Company uses various valuation techniques using assumptions based on current market conditions. The fair values of long-term liabilities and financial liabilities available for settlement are determined using prices from observable current market transactions and dealer quotes for similar instruments. When such prices are not available, a discounted cash flow ("DCF") analysis or other valuation technique is performed to measure their fair values.

The fair values of trade receivable and trade payables are approximated as their carrying value, less impairment loss. The Company 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 Level 1 to Level 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 and are not based on observable market data (unobservable inputs).

1) Financial instruments that are measured subsequently 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				
		Book value	Level 1	Level 2	Level 3	Total
Financial assets:						
Financial assets at FVTPL		₩13,002,206	₩ -	₩ 1,981,158	₩11,021,048	₩13,002,206
Non-designated derivative instrument for trading		1,981,158		1,981,158	-	1,981,158
Investment		11,021,048	-	-	11,021,048	11,021,048
Financial assets at FVTOCI		5,375,491	1,794,048	-	3,581,443	5,375,491
Marketable equity securities		1,794,048	1,794,048	-	-	1,794,048
Non-marketable equity securities		3,581,443	-	-	3,581,443	3,581,443
Total		<u>₩18,377,697</u>	<u>₩ 1,794,048</u>	<u>₩ 1,981,158</u>	<u>₩14,602,491</u>	<u>₩18,377,697</u>
Financial liabilities:						
Financial liabilities at FVTPL		₩ 275,703	₩ -	₩ 275,703	₩ -	₩ 275,703
Derivative instrument for trading		275,703	-	275,703	-	275,703
Total		<u>₩ 275,703</u>	<u>₩ -</u>	<u>₩ 275,703</u>	<u>₩ -</u>	<u>₩ 275,703</u>
		December 31, 2018				
		Book value	Level 1	Level 2	Level 3	Total
Financial assets:						
Financial assets at FVTPL		₩ 8,864,279	₩ -	₩ 928,051	₩ 7,936,228	₩ 8,864,279
Non-designated derivative instrument for trading		928,051	-	928,051	-	928,051
Investment		7,935,198	-	-	7,935,198	7,935,198
Government bonds		1,030	-	-	1,030	1,030
Financial assets at FVTOCI		4,336,046	1,936,400	-	2,399,646	4,336,046
Marketable equity securities		1,936,400	1,936,400	-	-	1,936,400
Non-marketable equity securities		2,399,646	-	-	2,399,646	2,399,646
Total		<u>₩13,200,325</u>	<u>₩ 1,936,400</u>	<u>₩ 928,051</u>	<u>₩10,335,874</u>	<u>₩13,200,325</u>
Financial liabilities:						
Financial liabilities at FVTPL		₩ 180,750	₩ -	₩ 180,750	₩ -	₩ 180,750
Derivative instrument for trading		180,750	-	180,750	-	180,750
Total		<u>₩ 180,750</u>	<u>₩ -</u>	<u>₩ 1,835,613</u>	<u>₩ -</u>	<u>₩ 180,750</u>

- 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 separate statement of financial position, are as follows (Unit: Korean won in thousands):

	Fair value	Valuation technique	Input factor
Financial assets:			
Derivative instrument for trading	₩ 1,981,158	Future price determination model	Forward exchange rate Discount rate
Financial liabilities:			
Derivative instrument for trading	275,703	Future price determination model	Forward exchange rate Discount rate

- 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	₩	12,500,000	₩	-	₩	-	₩	12,500,000	₩	12,500,000
Trade receivables (*)		776,327,100		-		-		776,327,100		776,327,100
Loans (*)		11,429,207		-		-		11,429,207		11,429,207
Other accounts receivable (*)		9,637,230		-		-		9,637,230		9,637,230
Accrued income (*)		1,030,059		-		-		1,030,059		1,030,059
Deposits (*)		6,383,842		-		-		6,383,842		6,383,842
Total	₩	817,307,438	₩	-	₩	-	₩	817,307,438	₩	817,307,438
Financial liabilities:										
Trade payables (*)	₩	322,593,180	₩	-	₩	-	₩	322,593,180	₩	322,593,180
Other accounts payable (*)		29,951,547		-		-		29,951,547		29,951,547
Accrued expenses (*)		106,981,743		-		-		106,981,743		106,981,743
Dividend payables (*)		1,302		-		-		1,302		1,302
Deposits received		1,437,150		-		1,437,150		-		1,437,150
Long-term borrowings		519,386,757		-		525,126,349		-		525,126,349
Lease liabilities		55,395,291		-		-		55,395,291		55,395,291
Total	₩	1,035,746,970	₩	-	₩	526,563,499	₩	514,923,063	₩	1,041,486,562

- (*) Short-term receivables and short-term payment obligations that have been shown as Level 3, the discount effect of which 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	₩	12,500,000	₩	--	₩	-	₩	12,500,000	₩	12,500,000
Trade receivables (*)		792,636,078		--		-		792,636,078		792,636,078
Loans (*)		11,489,414		--		-		11,489,414		11,489,414
Other accounts receivable (*)		16,081,603		--		-		16,081,603		16,081,603
Accrued income (*)		654,819		--		-		654,819		654,819
Deposits (*)		6,243,980		--		-		6,243,980		6,243,980
Total	₩	839,605,894	₩	--	₩	-	₩	839,605,894	₩	839,605,894
Financial liabilities:										
Trade payables (*)	₩	356,537,879	₩	--	₩	-	₩	356,537,879	₩	356,537,879
Other accounts payable (*)		24,923,401		--		-		24,923,401		24,923,401
Accrued expenses (*)		98,303,238		--		-		98,303,238		98,303,238

Dividend payables (*)	749	--	-	749	749	
Deposits received	1,052,873	-	1,052,873	-	1,052,873	
Long-term borrowings	518,863,575	-	521,374,578	-	521,374,578	
Total	<u>₩ 999,681,715</u>	<u>₩</u>	<u>--</u>	<u>₩ 522,427,451</u>	<u>₩ 479,765,267</u>	<u>₩1,002,192,718</u>

(*) Short-term receivables and short-term payment obligations that have been shown as Level 3, the discount effect of which 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):

December 31, 2019									
	Beginning balance	Effects of changes in accounting	Net income (loss)	Comprehensive income	Purchases	Disposals	Increase due to merger	Replacement	Ending balance
Financial assets:									
Investment	₩7,935,197	₩	- ₩211,271	₩	- ₩ 2,699,580	₩	- ₩	₩ 175,000	₩ 11,021,048
Public bonds	1,030	-	-	-	255	(1,255)	-	-	-
Non-marketable equity securities	2,399,646	-	-	(369,203)	2,906,000	(1,180,000)	-	(175,000)	3,581,443
	₩						₩		₩
Total	10,335,873	₩	- ₩211,271	₩ (369,203)	₩ 5,605,805	(1,181,255)	₩	- ₩	₩ 14,602,491

December 31, 2018									
	Beginning balance	Effects of changes in accounting	Net income (loss)	Comprehensive income	Purchases	Disposals	Increase due to merger	Replacement	Ending balance
Financial assets:									
Investment	₩ 4,045,589	₩ 3,753,516	₩ 95,324	₩	- ₩	- ₩	- ₩ 40,768	₩	₩ 7,935,198
Public	-	-	-	-	1,030	-	-	-	1,030
Non-marketable equity securities	-	13,955,695	-	(13,140,545)	1,766,322	(195,000)	13,174	-	2,399,646
	₩			₩			₩		₩
Total	4,045,589	₩ 17,709,211	₩95,324	(13,140,545)	₩1,767,352	(195,000)	₩53,942	₩	₩ 10,335,873

Total gains and losses recognized in OCI relate to equity securities held as of the end of the current year and are recognized as changes in FVTOCI measurement gains and losses on financial assets (see note 22).

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

- Currency forward and interest rate swap

In principle, the fair value of currency forward was measured based on forward currency rates whose period is coincident with the residual period of the currency forward and that are advertised in the market at the end of the

reporting period. If forward currency rates whose period is coincident with the residual period are not advertised in the market, the fair value of currency forward was measured by estimating the forward currency rates whose period is similar to the residual period of the currency forward. The 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 currency rates used to measure the fair value of interest rate swaps were determined based on the applicable yield curves derived from interest rates that are advertised in the market at the end of the reporting period. The fair value of interest rate swaps measured on the amount of money discounted at an appropriate discount rate to future cash flows of interest rate swaps was estimated based on the forward currency rate that is obtained by the method described above.

As the input variables that are used to measure the fair value of currency forward and interest rate swaps for the end of the reporting period are derived via the forward exchange rate and the yield curve in the market, the fair values of currency forward and interest rate swap were classified as Level 2 value measurement.

- Corporate bonds

The fair value of corporate bonds was measured using DCF. The discount rates used in DCF were determined based on advertised-in-market swap rates and credit spreads of the bonds whose credit rating and period were similar to those of corporate bonds and cumulative redeemable preference stocks. The discount rates that influence the fair value of corporate bonds and cumulative redeemable preference stocks significantly were classified as Level 2 fair value measurement because they resulted in observable information in the market.

- Unlisted securities and unlisted securities-linked convertible securities

The fair value of non-listed shares and unlisted securities-linked convertible securities, which are measured using a DCF model that is not based on observable market prices or rates, will be used to estimate the future cash flows, such as sales growth, pretax operating profit margin and the weighted-average cost of capital. Capital asset pricing model ("CAPM") was used to calculate the weighted-average cost of capital. The key assumptions of estimation listed above are determined to have a significant impact on the fair value of non-listed shares, and the Company has classified the fair value hierarchy system as Level 3 of the fair value measurement for non-listed shares.

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

The Company measures fair value of assets and liabilities for financial reporting purposes and reports the result of fair value measurements to the chief finance officer directly.

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

- Stock volatilities and stock correlation used in measurement of the financial instruments linked to stocks (e.g., investments in convertible bonds, equity-linked securities and consideration for conversion rights) were measured based on change in stock price during certain period before 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 reflected for the purpose of the issuer of the shares; and capital structure based on the equity beta of comparable public companies derived based on the CAPM.

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. BUSINESS COMBINATION:

(1) The merger of LG N-Sys Co., Ltd.

1) On April 1, 2018, the Company merged with LG N-Sys Co., Ltd., a subsidiary, to enhance management efficiency and maximize shareholder value.

2) The Company measured acquired assets and liabilities at fair value and the difference between the fair value and consideration for merger as increase in capital.

The fair value of identifiable assets and liabilities acquired in business combination as of April 1, 2018, is as follows (Unit: Korean won in thousands):

Description	April 1, 2018
Assets:	
Cash and cash equivalents	₩ 136,861,042
Financial institution deposits	30,050,000
Trade receivables and other receivables	44,737,747
Other assets	4,959,245
Inventories	8,674,649
Property, plant and equipment	2,677,559
Intangible assets	2,631,956
Deferred income tax assets	2,931,064
Total	₩ 233,523,262
Liabilities:	
Trade payables and other payables	₩ 29,838,048
Short-term borrowings	59,952,176
Other payables	1,281,659
Provision	863,558
Severance and retirement benefits	1,225,908
Total	₩ 93,161,349

3) Transferred consideration for merger is only composed of stock (₩61,856,873 thousand). In addition, the difference between the fair value and consideration for merger is recognized as increase in capital amounting to ₩78,505,040 thousand.

36. 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 (Unit: Korean won in thousands):

	2019	2018
Reclassification of current of borrowings	₩ 229,762,319	₩ -
Reclassification of construction in progress to property, plant and equipment account	591,917	160,273,672
Other accounts payable related to acquisition of property, plant and equipment and intangible assets	(2,554,145)	(51,182,979)
Reclassification between property, plant and equipment and investment properties	12,771,988	(4,515,256)
Recognizing right to use.	67,194,663	-
Recognizing lease liabilities	64,548,977	-
Reclassification of current of lease liabilities	8,388,893	-

(2) Details of changes in liabilities arising from financing activities for the year ended December 31, 2019, are as follows (Unit: Korean won in thousands):

	Beginning	Cash flow	Non-cash change (Other)	Non-cash change (Liquidity Reclassification)	Others	Ending
Current portion of long-term borrowings	₩ -	₩ -	₩ -	₩229,762,319	₩ 171,395	₩229,933,714
Long-term borrowings	518,863,575	-	19,221	(229,762,319)	332,565	289,453,042
Current portion of lease liabilities	9,711,975	(10,393,731)	1,162,322	8,388,893	1,239,171	10,108,630
Lease liabilities	52,986,239	-	690,317	(8,388,893)	-	42,287,663
Total	₩ 581,561,789	₩ (10,393,731)	₩ 1,871,860	₩ -	₩ 1,743,131	₩574,783,049

37. SUBSEQUENT EVENTS:

(1) ATM claims for unfair joint action.

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) Acquired equity of 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.

38. APPROVAL OF SEPARATE FINANCIAL STATEMENTS:

The separate financial statements are 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.