

# **LG Chem, Ltd.**

**Separate Financial Statements  
December 31, 2018 and 2017**

**LG Chem, Ltd.**  
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**December 31, 2018 and 2017**

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## Independent Auditor's Report

(English Translation of a Report Originally Issued in Korean)

To the Shareholders and Board of Directors of  
LG Chem, Ltd.

### Opinion

We have audited the accompanying separate financial statements of LG Chem, Ltd. (the Company), which comprise the separate statements of financial position as at December 31, 2018 and 2017, and separate statements of profit or loss, separate statements of comprehensive income, separate statements of changes in equity and separate statements of cash flows for the years then ended, and notes to the separate financial statements, including a summary of significant accounting policies and other explanatory information.

In our opinion, the accompanying separate financial statements present fairly, in all material respects, the separate financial position of LG Chem, Ltd. as at December 31, 2018 and 2017, and its separate financial performance and its separate cash flows for the years then ended in accordance with International Financial Reporting Standards as adopted by the Republic of Korea (Korean IFRS).

### Basis for Opinion

We conducted our audits in accordance with Korean Standards on Auditing. Our responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Financial Statements* section of our report. We are independent of the Company in accordance with the ethical requirements of the Republic of Korea that are relevant to our audit of the separate financial statements and we have fulfilled our other ethical responsibilities in accordance with the ethical requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

### Key Audit Matters

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

### Goodwill impairment assessment for Life Sciences Cash Generating Unit

#### *Why we determined as Key Audit Matter*

We focused on goodwill impairment assessment as the goodwill balances (₩723,756 million as at December 31, 2018) are significant and the measurement of the recoverable amount of the Company's Cash Generating Units (CGUs) requires management's judgements about the future results of the business, the discount rates to forecast future cash flow and adjustments from the perspective of a market participants. Details are described in Note 12.

In particular, we have performed the audit procedures focusing on the goodwill balances recognized in relation to the Life Sciences CGU (₩686,229 million as at December 31, 2018) which is the most significant amount among all relevant CGUs with goodwill. The Life Sciences business was acquired by the Company in 2017 and has not recognized impairment since then. We focused on this area due to the significance of size of goodwill balance.

#### *How our audit addressed the Key Audit Matter*

We obtained an understanding and evaluated the process and relevant controls in connection with management's future cash flow forecasts. In particular, we focused on whether they had identified all the relevant CGUs, including Life Sciences. We found that management had followed their clearly documented process to forecast future cash flow, which was subject to timely oversight and challenge by the Board of Directors and which was consistent with the budgets approved by the Board except for the adjusted amount of cash flows relating to specific fixed assets in the perspective of market participants.

We compared the current year actual results with the prior year forecast to consider whether any forecasts included assumptions that, with hindsight, had been optimistic. Actual performance in Life Sciences was found to be higher than what had been expected and therefore management has reflected actual prior year's revenue growth rates and operating margins in this year's model.

For Life Sciences CGU, we also challenged management's assumptions in forecasts for:

- long term growth rates, by comparing them to economic and industry forecasts; and
- the discount rate, by assessing the cost of capital for the Company and comparable organizations, as well as considering territory specific factors.

In respect of Life Sciences CGU, we compared the assumptions for revenue growth, operating margin and investment expenditures applied to estimation of the future cash flows with both of the actual prior year performances and the current market condition to consider whether the assumptions are consistent. Also, we compared the future cash flow assumptions applied to the measurement of fair value less cost of disposal with both of the observable market data and similar transactions.

We challenged management on the adequacy of their sensitivity calculations over all their CGUs. We determined that the calculations were most sensitive to assumptions for perpetuity growth rates and discount rates. For all CGUs, we calculated the degree to which these assumptions would need to move before an impairment conclusion was triggered. We discussed the likelihood of such a movement with management. Finally, we assessed the completeness of the disclosures with regard to impairment of assets such as the carrying amount of goodwill allocated to each CGU, the basis to determine recoverable amounts of CGU, key assumption and others.

#### **Other Matter**

Auditing standards and their application in practice vary among countries. The procedures and practices used in the Republic of Korea to audit such financial statements may differ from those generally accepted and applied in other countries.

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

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

In preparing the separate financial statements, management 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.

Those charged with governance are responsible for overseeing the Company's financial reporting process.

## **Auditor's Responsibilities for the Audit of the 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 Korean Standards on Auditing 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 financial statements.

As part of an audit in accordance with Korean Standards on Auditing, 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, whether due to fraud or error, 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 entity'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 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 auditor's 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 auditor's 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 regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the separate financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

The engagement partner on the audit resulting in this independent auditor's report is Yongbeom Seo.

Seoul, Korea

February 28, 2019

This report is effective as of February 28, 2019, the audit report date. Certain subsequent events or circumstances, which may occur between the audit report date and the time of reading this report, could have a material impact on the accompanying separate financial statements and notes thereto. Accordingly, the readers of the audit report should understand that there is a possibility that the above audit report may have to be revised to reflect the impact of such subsequent events or circumstances, if any.

**LG Chem, Ltd.**  
**Separate Statements of Financial Position**  
**December 31, 2018 and 2017**

<i>(in millions of Korean won)</i>	<b>Notes</b>	<b>2018</b>	<b>2017</b>
<b>Assets</b>			
<b>Current assets</b>			
Cash and cash equivalents	3, 5, 6	1,690,862	1,649,689
Trade receivables	3, 5, 7, 31	4,004,920	3,781,000
Other receivables	3, 5, 7, 31	321,866	723,968
Other current assets	13	156,538	143,873
Inventories	9	2,426,364	2,074,555
Assets held for sale	34	2,287	4,594
Total current assets		8,602,837	8,377,679
<b>Non-current assets</b>			
Other receivables	3, 5, 7	118,086	114,834
Other financial assets	3, 5, 8	80,575	18,683
Investments in subsidiaries	10	3,689,709	2,462,468
Investments in associates and joint ventures	10	168,230	193,145
Deferred income tax assets	28	209,487	147,631
Property, plant and equipment	11	9,324,774	8,348,088
Intangible assets	12	1,475,272	1,418,188
Investment properties		1,015	1,027
Other non-current assets	13	60,593	66,393
Total non-current assets		15,127,741	12,770,457
<b>Total assets</b>		<b>23,730,578</b>	<b>21,148,136</b>
<b>Liabilities</b>			
<b>Current liabilities</b>			
Trade payables	3, 5, 31	1,940,124	1,397,841
Other payables	3, 5, 31	1,471,025	1,722,151
Borrowings	3, 5, 14	55,000	135,059
Other financial liabilities	3, 5, 8	29,156	6,374
Provisions	15	93,339	39,663
Income tax payables		218,065	373,745
Other current liabilities	17	513,999	783,943
Total current liabilities		4,320,708	4,458,776
<b>Non-current liabilities</b>			
Other payables	3, 5	7,372	5,704
Borrowings	3, 5, 14	2,436,714	875,176
Other financial liabilities	3, 5, 8	30,384	-
Provisions	15	95,650	86,175
Net defined benefit liabilities	16	194,149	148,554
Other non-current liabilities	17	95,695	68,219
Total non-current liabilities		2,859,964	1,183,828
<b>Total liabilities</b>		<b>7,180,672</b>	<b>5,642,604</b>

**LG Chem, Ltd.**  
**Separate Statements of Financial Position**  
**December 31, 2018 and 2017**

<i>(in millions of Korean won)</i>	<b>Notes</b>	<b>2018</b>	<b>2017</b>
<b>Equity</b>			
Share capital	1, 19	391,406	391,406
Capital surplus		2,283,378	2,283,378
Other components of equity	21	(354,945)	(354,945)
Accumulated other comprehensive income		(25,525)	(2,802)
Retained earnings	20	<u>14,255,592</u>	<u>13,188,495</u>
<b>Total equity</b>		<u>16,549,906</u>	<u>15,505,532</u>
<b>Total liabilities and equity</b>		<u>23,730,578</u>	<u>21,148,136</u>

The above separate statements of financial position should be read in conjunction with the accompanying notes.



**LG Chem, Ltd.**  
**Separate Statements of Profit or Loss**  
**Years Ended December 31, 2018 and 2017**

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<i>(in millions of Korean won, except per share amounts)</i>	<b>Notes</b>	<b>2018</b>	<b>2017</b>
<b>Revenue</b>	31	23,315,318	20,880,236
<b>Cost of sales</b>	23, 31	<u>(18,764,050)</u>	<u>(16,369,235)</u>
<b>Gross profit</b>		4,551,268	4,511,001
Selling and administrative expenses	22, 23, 31	<u>(2,597,650)</u>	<u>(2,217,772)</u>
<b>Operating profit</b>		1,953,618	2,293,229
Finance income	5, 25	291,231	229,046
Finance costs	5, 25	(189,088)	(220,556)
Other non-operating income	5, 26	267,347	362,882
Other non-operating expenses	5, 27	<u>(346,917)</u>	<u>(663,966)</u>
<b>Profit before income tax</b>	32	1,976,191	2,000,635
<b>Income tax expense</b>	28	<u>(395,127)</u>	<u>(395,412)</u>
<b>Profit for the year</b>		<u>1,581,064</u>	<u>1,605,223</u>
<b>Earnings per share for profit for the year</b>			
<b>(in won)</b>	29		
Basic earnings per ordinary share		20,632	20,929
Basic earnings per preferred share		20,682	21,166
Diluted earnings per ordinary share		20,457	20,929
Diluted earnings per preferred share		20,507	21,166

The above separate statements of profit or loss should be read in conjunction with the accompanying notes.

**LG Chem, Ltd.**  
**Separate Statements of Comprehensive Income**  
**Years Ended December 31, 2018 and 2017**

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(in millions of Korean won)

	Notes	2018	2017
<b>Profit for the year</b>		<u>1,581,064</u>	<u>1,605,223</u>
<b>Other comprehensive income</b>			
<i>Items that will not be reclassified to profit or loss</i>			
Remeasurements of net defined benefit liability	16	(74,357)	(4,141)
Loss on valuation of financial assets at fair value through other comprehensive income		(12,865)	-
Income tax relating to these items		23,986	1,138
<i>Items that may be subsequently reclassified to profit or loss</i>			
Changes in valuation of available-for-sale financial assets		-	(5,550)
Cash flow hedges	3	(18,477)	-
Income tax relating to these items		5,081	1,527
<b>Other comprehensive income for the year, net of tax</b>		<u>(76,632)</u>	<u>(7,026)</u>
<b>Total comprehensive income for the year</b>		<u>1,504,432</u>	<u>1,598,197</u>

The above separate statements of comprehensive income should be read in conjunction with the accompanying notes.

**LG Chem, Ltd.**

**Separate Statements of Changes in Equity  
Years Ended December 31, 2018 and 2017**

<i>(in millions of Korean won)</i>	Notes	Share capital	Capital surplus	Other components of equity	Accumulated other comprehensive income	Retained earnings	Total equity
<b>Balance at January 1, 2017</b>		369,500	1,166,764	(15,484)	1,221	11,954,330	13,476,331
<b>Comprehensive income</b>							
Profit for the year		-	-	-	-	1,605,223	1,605,223
Remeasurements of net defined benefit liability	16	-	-	-	-	(3,003)	(3,003)
Changes in valuation of available-for-sale financial instruments		-	-	-	(4,023)	-	(4,023)
<b>Total comprehensive income for the year</b>		-	-	-	(4,023)	1,602,220	1,598,197
<b>Transactions with owners</b>							
Business combination		21,906	1,116,614	(337,211)	-	-	801,309
Purchase of treasury shares		-	-	(2,250)	-	-	(2,250)
Dividends	30	-	-	-	-	(368,055)	(368,055)
<b>Total transactions with owners</b>		21,906	1,116,614	(339,461)	-	(368,055)	431,004
<b>Balance at December 31, 2017</b>		391,406	2,283,378	(354,945)	(2,802)	13,188,495	15,505,532
<b>Balance at January 1, 2018</b>		391,406	2,283,378	(354,945)	(2,802)	13,188,495	15,505,532
<b>Comprehensive income</b>							
Profit for the year		-	-	-	-	1,581,064	1,581,064
Remeasurements of net defined benefit liability	16	-	-	-	-	(53,909)	(53,909)
Loss on valuation of financial assets at fair value through other comprehensive income		-	-	-	(9,327)	-	(9,327)
Cash flow hedges	3	-	-	-	(13,396)	-	(13,396)
<b>Total comprehensive income for the year</b>		-	-	-	(22,723)	1,527,155	1,504,432
<b>Transactions with owners</b>							
Dividends	30	-	-	-	-	(460,058)	(460,058)
<b>Total transactions with owners</b>		-	-	-	-	(460,058)	(460,058)
<b>Balance at December 31, 2018</b>		391,406	2,283,378	(354,945)	(25,525)	14,255,592	16,549,906

The above separate statements of changes in equity should be read in conjunction with the accompanying notes.

**LG Chem, Ltd.**  
**Separate Statements of Cash Flows**  
**Years Ended December 31, 2018 and 2017**

<i>(in millions of Korean won)</i>	<b>Notes</b>	<b>2018</b>	<b>2017</b>
<b>Cash flows from operating activities</b>			
Cash generated from operations	32	2,506,358	3,153,801
Interest received		38,782	22,246
Interest paid		(52,022)	(26,642)
Dividends received		115,324	71,229
Income taxes paid		(583,595)	(361,696)
<b>Net cash inflow from operating activities</b>		<u>2,024,847</u>	<u>2,858,938</u>
<b>Cash flows from investing activities</b>			
Decrease in other receivables		872,530	651,839
Decrease in other non-current receivables		16	29,143
Proceeds from disposal of investments in joint ventures		19,714	-
Proceeds from disposal of business		-	14,500
Proceeds from disposal of available-for-sale financial assets		8,463	-
Proceeds from disposal of property, plant and equipment		415,478	384,169
Proceeds from disposal of intangible assets		600	7,714
Business combination, net of cash acquired		(3,491)	36,246
Increase in other receivables		(340,000)	(430,000)
Increase in other non-current receivables		(22,490)	(33,056)
Acquisition of investments in subsidiaries		(1,227,367)	(507,441)
Acquisition of investments in associates and joint ventures		(33,490)	(28,720)
Acquisition of available-for-sale financial assets		(83,629)	(3,001)
Acquisition of property, plant and equipment		(2,515,595)	(1,492,451)
Acquisition of intangible assets		(107,775)	(89,527)
<b>Net cash outflow from investing activities</b>		<u>(3,017,036)</u>	<u>(1,460,585)</u>
<b>Cash flows from financing activities</b>			
Proceeds from borrowings		1,640,502	797,632
Repayments of borrowings		(134,260)	(1,133,841)
Dividends		(460,058)	(368,055)
Purchase of treasury shares		-	(2,250)
<b>Net cash inflow (outflow) from financing activities</b>		<u>1,046,184</u>	<u>(706,514)</u>
<b>Net increase in cash and cash equivalents</b>			
Cash and cash equivalents at the beginning of the financial year		1,649,689	956,068
Effects of exchange rate changes on cash and cash equivalents		(12,822)	1,782
<b>Cash and cash equivalents at the end of year in the separate statement of financial position</b>		<u>1,690,862</u>	<u>1,649,689</u>

The above separate statements of cash flows should be read in conjunction with the accompanying notes.

# LG Chem, Ltd.

## Notes to the Separate Financial Statements

### December 31, 2018 and 2017

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#### 1. General Information

LG Chem, Ltd. (the Company) was spun off on April 1, 2001, from LG Chem Investment Ltd. (now LG Corp., formerly LG Chemical Ltd.).

As at December 31, 2018, the Company has its manufacturing facilities in Yeosu, Daesan, Ochang, Cheongju, Ulsan, Naju, Iksan, Paju, Osong, Onsan and Gimcheon.

The Company is authorized to issue 292 million shares of ordinary shares with par value of ₩5,000 per share. As at December 31, 2018, the Company has issued 70,592,343 ordinary shares (₩352,962 million) and 7,688,800 preferred shares (₩38,444 million). The largest shareholder of the Company is LG Corp., which owns 33.34% of the Company's ordinary shares. Preferred shareholders have no voting rights but are entitled to receive dividends at a rate 1% more than those paid to ordinary shareholders.

#### 2. Summary of Significant Accounting Policies

The principal accounting policies applied in the preparation of these separate financial statements are set out below. These policies have been consistently applied to all the years presented, unless otherwise stated.

##### 2.1 Basis of Preparation

The Company maintains its accounting records in Korean won and prepares statutory financial statements in the Korean language (Hangul) in accordance with International Financial Reporting Standards as adopted by the Republic of Korea (Korean IFRS). The accompanying separate financial statements have been condensed, restructured and translated into English from the Korean language financial statements.

Certain information attached to the Korean language financial statements, but not required for a fair presentation of the Company's financial position, financial performance or cash flows, is not presented in the accompanying separate financial statements.

The separate financial statements of the Company have been prepared in accordance with Korean IFRS. These are the standards, subsequent amendments and related interpretations issued by the International Accounting Standards Board (IASB) that have been adopted by the Republic of Korea.

The preparation of financial statements requires the use of critical accounting estimates. Management also needs to exercise judgement in applying the Company's accounting policies. The areas involving a higher degree of judgment or complexity, or areas where assumptions and estimates are significant to the separate financial statements are disclosed in Note 4.

##### 2.2 Changes in Accounting Policy and Disclosures

###### *(a) New and amended standards and interpretations adopted by the Company*

The Company has applied the following new and amended standards and interpretations for the first time for their annual reporting period commencing January 1, 2018.

###### *- Korean IFRS 1109 Financial Instruments*

The Company has applied Korean IFRS 1109 *Financial Instruments* on January 1, 2018, the date of initial application. In accordance with the transitional provisions in Korean IFRS 1109,

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comparative figures have not been restated. The application of the standard has following impacts on the financial statements.

On the date of initial application, January 1, 2018, the financial instruments of the Company with any reclassifications noted, were as follows:

(in millions of Korean won)	Measurement category		Carrying amount		Difference
	Korean IFRS	Korean IFRS	Korean IFRS	Korean IFRS	
	1039	1109	1039	1109	
<b>Current financial assets</b>					
		Amortized costs	3,781,000	3,550,527	(230,473)
Trade receivables	Amortized costs	Fair value through other comprehensive income	-	230,473	230,473
Cash and cash equivalents	Amortized costs	Amortized costs	1,649,689	1,649,689	-
Other receivables	Amortized costs	Amortized costs	723,968	723,968	-
<b>Non-current financial assets</b>					
Equity instruments	Available-for-sale financial assets	Fair value through other comprehensive income	18,683	11,883	(6,800)
Debt instruments	Available-for-sale financial assets	Fair value through profit or loss	-	6,800	6,800
Other receivables	Amortized costs	Amortized costs	114,834	114,834	-

(i) Financial assets at amortized cost classified as fair value through other comprehensive income

Certain trade receivables were reclassified from financial assets at amortized cost to fair value through other comprehensive income, as the Company's business model is achieved both by collecting contractual cash flows and selling of these assets. The contractual cash flows of these investments are solely principal and interest. As a result, debt instruments with a fair value of ₩230,473 million were reclassified from financial assets at amortized cost to financial assets at fair value through other comprehensive income on January 1, 2018.

(ii) Reclassification of equity investments from available-for-sale to fair value through other comprehensive income

The Company elected to present changes in the fair value of all its equity investments previously classified as available-for-sale, because these investments are not held for trading, in other comprehensive income. As a result, assets with a fair value of ₩11,883 million were reclassified from available-for-sale financial assets to financial assets at fair value through other comprehensive income. As at January 1, 2018, as related accumulated other comprehensive income of ₩1,017 million were not reclassified to profit or loss even though these assets are disposed of.

(iii) Reclassification of equity investments from available-for-sale to fair value through profit or loss

As at January 1, 2018, the Company classified equity investments, amounted of ₩6,800 million from available-for-sale to fair value through profit or loss, and did not classified to amortized

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costs as their cash flows are not solely payment of principal.

(iv) Other financial assets

Equity securities held for trading and contingent consideration are all required to be held as fair value through profit or loss under Korean IFRS 1109. There was no impact on the amounts recognized in relation to these assets from the adoption of Korean IFRS 1109.

- Korean IFRS 1115 *Revenue from Contracts with Customers*

The Company has elected to apply Korean IFRS 1115 *Revenue from Contracts with Customers*. In accordance with the transition provisions in Korean IFRS 1115, comparative figures have not been restated. The Company does not expect the amendment to have a significant impact on the financial statements and there were no significant adjustments on the financial statements in the current year accordance with Korean IFRS 1018 *Revenue*.

- Amendments to Korean IFRS 1028 *Investments in Associates and Joint Ventures*

- Amendments to Korean IFRS 1102 *Share-based Payment*

- Enactment of Interpretation 2122 *Foreign Currency Transaction and Advance Consideration*

- Amendments to Korean IFRS 1040 *Investment Property*

(b) *New standards and interpretations not yet adopted by the Company*

Certain new accounting standards and interpretations that have been published that are not mandatory for annual reporting period commencing January 1, 2018 and have not been early adopted by the Company are set out below.

- Korean IFRS 1116 *Leases*

Korean IFRS 1116 *Leases* issued on May 22, 2017 is effective for annual periods beginning on or after January 1, 2019, with early adoption permitted. This standard will replace Korean IFRS 1017 *Leases*, 2104 *Determining whether an Arrangement contains a Lease*, 2015 *Operating Leases-Incentives*, 2027 *Evaluating the Substance of Transactions Involving the Legal Form of a Lease*. The Company will apply the standards for annual periods beginning on or after January 1, 2019.

At inception of a contract, the Company shall assess whether the contract is, or contains, a lease. Also, at the date of initial application, the Company shall assess whether the contract is, or contains, a lease in accordance with the standard. However, the Company will not need to reassess all contracts if the Company elected to apply the practical expedient not to apply the standard to contracts that were not previously identified as containing a lease applying Korean IFRS 1017 and Interpretation 2104.

For a contract that is, or contains, a lease, the Company shall account for each lease component within the contract as a lease separately from non-lease components of the contract.

A lessee is required to recognize a right-of-use asset representing its right to use the underlying leased asset and a lease liability representing its obligation to make lease payments. The lessee may elect not to apply the requirements to short-term lease (a lease term of 12 months or less at the commencement date) and low value assets (e.g. underlying assets below \$ 5,000). In addition, as a practical expedient, the lessee may elect, by class of underlying asset, not to separate non-lease components from lease components, and instead account for each lease

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component and any associated non-lease components as a single lease component.

The accounting treatment as a lessor did not change significantly from the one under Korean IFRS 1017 Leases.

The Company plans to apply Korean IFRS 1116 retrospectively with the cumulative effect of initially applying the standard as at January 1, 2019. The Company will not restate any comparative information. Instead, the cumulative effect of applying the standard will be recognized as an adjustment to the opening balance of retained earnings (or another component of equity, as appropriate) at the date of initial application.

- Amendments to Korean IFRS 1109 *Financial Instruments*

The narrow-scope amendments made to Korean IFRS 1109 Financial Instruments enable entities to measure certain prepayable financial assets with negative compensation at amortized cost. When a modification of a financial liability measured at amortized cost that does not result in the derecognition, a modification gain or loss shall be recognized in profit or loss. These amendments will be applied for annual periods beginning on or after January 1, 2019, with early adoption permitted.

- Amendments to Korean IFRS 1019 *Employee Benefits*

The amendments require that an entity shall calculate current service cost and net interest for the remainder of the reporting period after a plan amendment, curtailment or settlement based on updated actuarial assumptions from the date of the change. The amendments also require that a reduction in a surplus must be recognized in profit or loss even if that surplus was not previously recognized because of the impact of the asset ceiling. The amendments are effective for plan amendments, curtailments and settlements occurring in reporting periods that begin on or after January 1, 2019.

- Amendments to Korean IFRS 1028 *Investments in Associates and Joint Ventures*

The amendments clarify that an entity shall apply Korean IFRS 1109 to 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. These amendments will be applied for annual periods beginning on or after January 1, 2019, with early adoption permitted. In accordance with the transitional provisions in Korean IFRS 1109, the restatement of the comparative information is not required and the cumulative effects of initially applying the amendments retrospectively should be recognized in the beginning balance of retained earnings (or other components of equity, as appropriate) at the date of initial application.

- Enactment to Interpretation of Korean IFRS 2123 *Uncertainty over Income Tax Treatments*

The Interpretation explains how to recognize and measure deferred and current income tax assets and liabilities where there is uncertainty over a tax treatment, and includes guidance on how to determine whether each uncertain tax treatment is considered separately or together. It also presents examples of circumstances where a judgement or estimate is required to be reassessed. This Interpretation will be applied for annual periods beginning on or after January 1, 2019, and an entity can either restate the comparative financial statements retrospectively or recognize the cumulative effect of initially applying the Interpretation as an adjustment in the beginning balance at the date of initial application.



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- Annual Improvements to Korean IFRS 2015 – 2017 Cycle:

- Korean IFRS 1103 *Business Combination*

The amendments clarify that when a party to a joint arrangement obtains control of a business that is a joint operation, and had rights to the assets and obligations for the liabilities relating to that joint operation immediately before the acquisition date, the transaction is a business combination achieved in stages. In such cases, the acquirer shall remeasure its entire previously held interest in the joint operation. These amendments will be applied to business combinations for which the acquisition date is on or after the beginning of the first annual reporting period beginning on or after 1 January 2019, with early adoption permitted.

- Amendments to Korean IFRS 1111 *Joint Agreements*

The amendments clarify that when a party that participates in, but does not have joint control of, a joint operation might obtain joint control of the joint operation in which the activity of the joint operation constitutes a business. In such cases, previously held interests in the joint operation are not remeasured. These amendments will be applied to transactions in which an entity obtains joint control on or after the beginning of the first annual reporting period beginning on or after 1 January 2019, with early adoption permitted.

- Paragraph 57A of Korean IFRS 1012 *Income Tax*

The amendment is applied to all the income tax consequences of dividends and requires an entity to recognize the income tax consequences of dividends in profit or loss, other comprehensive income or equity according to where the entity originally recognized those past transactions or events. These amendments will be applied for annual reporting periods beginning on or after January 1, 2019, with early adoption permitted.

- Korean IFRS 1023 *Borrowing Costs*

The amendments clarify that if a specific borrowing remains outstanding after the related qualifying asset is ready for its intended use (or sale), it becomes part of general borrowings. These amendments will be applied to borrowing costs incurred on or after the beginning of the first annual reporting period beginning on or after January 1, 2019, with early adoption permitted.

### 2.3 Subsidiaries, Joint Ventures, and Associates

The financial statements of the Company are the separate financial statements prepared in accordance with Korean IFRS 1027 *Separate Financial Statements*. Investments in subsidiaries, joint ventures and associates are recognized at cost under the direct equity method. Management applied the carrying amounts under the previous K-GAAP at the time of transition to Korean IFRS as deemed cost of investments. The Company recognizes dividend income from subsidiaries, joint ventures and associates in profit or loss when its right to receive the dividend is established.

### 2.4 Foreign Currency Translation

(a) *Functional and presentation currency*

Items included in the financial statements of each of the Company are measured using the currency of the primary economic environment in which each entity operates (the “functional currency”). The financial statements are presented in Korean won, which is the Company’s functional and presentation currency.

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#### *(b) Transactions and balances*

Foreign currency transactions are translated into the functional currency using the exchange rates at the dates of the transactions. Foreign exchange gains and losses resulting from the settlement of such transactions and from the translation of monetary assets and liabilities denominated in foreign currencies at year end exchange rates are generally recognized in profit or loss. Non-monetary items that are measured at fair value in a foreign currency are translated using the exchange rates at the date when the fair value was determined. Translation differences on assets and liabilities carried at fair value are reported as part of the fair value gain or loss. For example, translation differences on non-monetary assets and liabilities such as equities held at fair value through profit or loss are recognized in profit or loss as part of the fair value gain or loss and translation differences on non-monetary assets such as equities classified as available-for-sale financial assets are recognized in other comprehensive income.

#### **2.5 Cash and Cash Equivalents**

Cash and cash equivalents includes cash in hand, deposits held at call with banks, other short-term highly liquid investments with original maturities of three months or less.

#### **2.6 Financial Assets**

##### *(a) Classification*

From January 1, 2018, the Company classifies its financial assets in the following measurement categories:

- those to be measured subsequently at fair value (either through other comprehensive income, or through profit or loss), and
- those to be measured at amortized cost

The classification depends on the entity's business model for managing the financial assets and the contractual terms of the cash flows.

For financial assets measured at fair value, gains and losses are recorded in either profit or loss or other comprehensive income. For investments in debt instruments, this will depend on the business model in which the investment is held. The Company reclassifies debt investments only when its business model for managing those assets changes.

For investments in equity instruments that are not held for trading, the Company presents subsequent changes in fair value of the investments in equity instruments in other comprehensive income at initial recognition.

##### *(b) Measurement*

At initial recognition, the Company measures a financial asset, in the case of a financial asset not at fair value through profit or loss, at its fair value plus transaction costs that are directly attributable to the acquisition of the financial asset or the issuance of the financial liabilities. Transaction costs of financial assets carried at fair value through profit or loss are expensed in profit or loss.

Hybrid (combined) contracts with embedded derivatives are considered in their entirety when determining whether their cash flows are solely payment of principal and interest.

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#### *A. Debt instruments*

Subsequent measurement of debt instruments depends on the Company's business model for managing the asset and the cash flow characteristics of the asset. The Company classifies its debt instruments into one of the following three measurement categories:

- **Amortized cost:** Assets that are held for collection of contractual cash flows where those cash flows represent solely payments of principal and interest are measured at amortized cost. A gain or loss on a debt investment that is subsequently measured at amortized cost and is not part of a hedging relationship is recognized in profit or loss when the asset is derecognized or impaired. Interest income from these financial assets using the effective interest rate method is included in 'finance income'.
- **Fair value through other comprehensive income:** Assets that are held for collection of contractual cash flows and for selling the financial assets, where the assets' cash flows represent solely payments of principal, are measured at fair value through other comprehensive income. Movements in the carrying amount are taken through other comprehensive income, except for the recognition of impairment loss (and reversal of impairment loss), interest income and foreign exchange gains and losses which are recognized in profit or loss. When the financial asset is derecognized, the cumulative gain or loss previously recognized in other comprehensive income is reclassified from equity to profit or loss. Interest income from these financial assets using the effective interest rate method is included in 'finance income'. Foreign exchange gains and losses are presented in 'finance income/costs' or 'other non-operating/expenses' and impairment loss is presented in 'other non-operating expenses'.
- **Fair value through profit or loss:** Assets that do not meet the criteria for amortized cost or fair value through other comprehensive income are measured at fair value through profit or loss. A gain or loss on a debt investment that is subsequently measured at fair value through profit or loss and is not part of a hedging relationship is recognized in profit or loss and presented net in the statement of profit or loss within 'finance income/costs' or 'other non-operating/expenses' in the period in which it arises.

#### *Equity instruments*

The Company subsequently measures all equity investments at fair value. Fair value gains and losses on equity investments in other comprehensive income is no subsequent reclassification of fair value gains and losses to profit or loss following the derecognition of the investment. Dividends from such investments continue to be recognized in profit or loss as 'finance income' when the Company's right to receive payments is established.

Changes in the fair value of financial assets at fair value through profit or loss are recognized in 'other non-operating income or other non-operating expenses' in the statement of profit or loss as applicable. Impairment loss (and reversal of impairment loss) on equity investments measured at fair value through other comprehensive income are not reported separately from other changes in fair value.

#### *(c) Impairment*

The impairment methodology applied depends on whether there has been a significant increase in credit risk. For trade receivables, the Company applies the simplified approach, which requires expected lifetime losses to be recognized from initial recognition of the receivables.

#### *(d) Recognition and Derecognition*

Regular way purchases and sales of financial assets are recognized or derecognized on trade-

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date, the date on which the Group commits to purchase or sell the asset. Financial assets are derecognized when the rights to receive cash flows from the financial assets have expired or have been transferred and the Group has transferred substantially all the risks and rewards of ownership.

If a transfer does not result in derecognition because the Group has retained substantially all the risks and rewards of ownership of the transferred asset, the Group continues to recognize the transferred asset in its entirety and recognizes a financial liability for the consideration received. The Group classified the financial liability as “borrowings” in the statement of financial position.

#### 2.7 Derivative Financial Instruments

Derivatives are initially recognized at fair value on the date a derivative contract is entered into and are subsequently remeasured to their fair value at the end of each reporting period. The accounting for subsequent changes in fair value depends on whether the derivative is designated as a hedging instrument, and if so, the nature of the item being hedged. The Company has hedge relationships and designates certain derivatives as either:

- hedges of the fair value of recognized assets or liabilities or a firm commitment (fair value hedges)
- hedges of a particular risk associated with the cash flows of recognized assets and liabilities and highly probable forecast transactions (cash flow hedges), or
- hedges of a net investment in a foreign operation (net investment hedges)

At inception of the hedge relationship, the Company documents the economic relationship between hedging instruments and hedged items including whether changes in the cash flows of the hedging instruments are expected to offset changes in the cash flows of hedged items.

The full fair value of a hedging derivative is classified as a non-current asset or liability when the remaining maturity of the hedged item is more than 12 months; it is classified as a current asset or liability when the remaining maturity of the hedged item is less than 12 months. A non-derivative financial asset and a non-derivative financial liability is classified as a current or non-current based on its expected maturity and its settlement, respectively.

#### Cash flow hedge

The effective portion of changes in the fair value of derivatives that are designated and qualify as cash flow hedges is recognized in the cash flow hedge reserve within equity, limited to the cumulative change in fair value (present value) of the hedged item (the present value of the cumulative change in the future expected cash flows of the hedged item) from the inception of the hedge. The ineffective portion is recognized in ‘other non-operating income (expenses)’.

When option contracts are used to hedge forecast transactions, the Company designates only the intrinsic value of the option contract as the hedging instrument. Gains or losses relating to the effective portion of the change in intrinsic value of the option contracts are recognized in the cash flow hedge reserve within equity. The changes in the time value of the option contracts that relate to the hedged item (‘aligned time value’) are recognized within the costs of hedging in other comprehensive income within equity.

When forward contracts are used to hedge forecast transactions, the Company generally designates only the change in fair value of the forward contract related to the spot element as the hedging instrument. Gains or losses relating to the effective portion of the change in the spot

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element of the forward contracts are recognized in the cash flow hedge reserve within equity. The change in the forward element of the contract that relates to the hedged item is recognized within other comprehensive income within equity. In some cases, the Company may designate the full change in fair value of the forward contract (including forward points) as the hedging instrument. In such cases, the gains or losses relating to the effective portion of the change in fair value of the entire forward contract are recognized in the cash flow hedge reserve within equity.

Amounts accumulated in equity are reclassified in the periods when the hedged item affects profit or loss, as follows:

- Where the hedged item subsequently results in the recognition of a non-financial asset (such as inventory), both the deferred hedging gains and losses and the deferred time value of the option contracts or deferred forward points, if any, are included within the initial cost of the asset. The deferred amounts are ultimately recognized in profit or loss as the hedged item affects profit or loss (for example through cost of sales).
- The gain or loss relating to the effective portion of the interest rate swaps hedging variable rate borrowings is recognized in profit or loss within 'finance cost' at the same time as the interest expense on the hedged borrowings.

When a hedging instrument expires, or is sold, terminated, exercised, or when a hedge no longer meets the criteria for hedge accounting, any accumulated cash flow hedge reserve at that time remains in equity until the forecast transaction occurs, resulting in the recognition of a non-financial asset such as inventory. When the forecast transaction is no longer expected to occur, the cash flow hedge reserve and deferred costs of hedging that were reported in equity are immediately reclassified to profit or loss.

Changes in the fair value of any derivative instrument that does not qualify for hedge accounting are recognized immediately in profit or loss within 'other non-operating income (expenses)' or 'finance income (costs)' based on the nature of transactions.

## **2.8 Trade Receivables**

Trade receivables are recognized initially at fair value and subsequently measured at amortized cost using the effective interest method, less loss allowance.

## **2.9 Inventories**

Inventories are stated at the lower of cost and net realizable value. Cost is determined using weighted average cost method, except for goods in transit which is determined using the specific identification method.

## **2.10 Assets Held for sale**

Assets are classified as held for sale when their carrying amount will be recovered principally through a sale transaction rather than through continuing use and a sale is considered highly probable. The assets are measured at the lower amount between their carrying amount and the fair value less costs to sell.

## **2.11 Property, Plant and Equipment**

Property, plant and equipment are stated at historical cost less accumulated depreciation and

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accumulated impairment losses. Historical cost includes expenditure that is directly attributable to the acquisition of the items.

Depreciation of all property, plant and equipment, except for land, is calculated using the straight-line method to allocate their cost or revalued amounts, net of their residual values, over their estimated useful lives as follows:

	<b>Useful lives</b>
Buildings	25 - 50 years
Structures	15 - 50 years
Machinery	4 - 15 years
Others	1-6 years

The assets' depreciation method, residual values and useful lives are reviewed, and adjusted if appropriate, at the end of each reporting period.

### **2.12 Investment Property**

Investment property is property held to earn rentals or for capital appreciation or both. An investment property is measured initially at its cost. An investment property is measured after initial measurement at depreciated cost (less any accumulated impairment losses.) The Company depreciates investment properties, except for land, using the straight-line method over their useful lives of 25 ~ 50 years.

### **2.13 Borrowing Costs**

General and specific borrowing costs that are directly attributable to the acquisition, construction or production of a qualifying asset are capitalized during the period of time that is required to complete and prepare the asset for its intended use or sale. Investment income earned on the temporary investment of specific borrowings pending their expenditure on qualifying assets is deducted from the borrowing costs eligible for capitalization. Other borrowing costs are expensed in the period in which they are incurred.

### **2.14 Government Grants**

Grants from the government are recognized at their fair value where there is a reasonable assurance that the grant will be received and the Company will comply with all attached conditions. Government grants related to assets are presented in the statement of financial position by deducting the grant in arriving at the carrying amount of the asset, and government grants related to income are deferred and later deducted from the related expense.

### **2.15 Intangible Assets**

Goodwill is recognized as the excess of the aggregate of the consideration transferred and the fair value at acquisition date of the acquirer's previously held equity interest in the acquiree over the identifiable net assets acquired. Goodwill is carried at cost less accumulated impairment losses. Impairment losses on goodwill are not reversed.

Intangible assets, except for goodwill, are initially recognized at its historical cost, and carried at cost less accumulated amortization and accumulated impairment losses.

Development costs that are directly attributable to internally generated by the Company are recognized when the criteria; such as, technically feasible, generate probable future economic

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benefits and other, are met. Membership rights that have an indefinite useful life are not subject to amortization because there is no foreseeable limit to the period over which the assets are expected to be utilized. The Company amortizes intangible assets with a limited useful life using the straight-line method over the following periods:

	<b>Useful lives</b>
Development costs	3 - 15 years
Industrial property rights	5 - 15 years
Other intangible assets	6 - 20 years

### **2.16 Research and Development**

Costs associated with research are recognized as an expense as incurred. Costs that are identifiable, controllable and directly attributable to development projects are recognized as intangible assets when the following criteria are met:

- It is technically feasible to complete the development project so that it will be available for use;
- Management intends to complete the development project for its own use or selling;
- There is an ability to use or sell the development project;
- It can be demonstrated how the development project will generate probable future economic benefits;
- Adequate technical, financial resources and other resources to complete the development and to use or sell the development project are available; and
- The expenditure attributable to the development project during its development can be reliably measured.

Generally, internally generated development projects have the following stages; formulation and selection of a project, verification of idea and technology, development and testing, decision of commercialization, test of final application. Expenditures can be capitalized as intangible assets only after the decision of commercialization. Expenditures incurred in other stages are recognized as expenses on the research phase.

Internally generated development projects in the Life Sciences business have the following stages; formulation of potential candidates, preclinical research, clinical researches such as phase 1, 2 and 3 trials, approval of regulatory body and new product launch. Expenditures incurred from new drug development project are recognized as expensed on the research phase. However, expenditures incurred during clinical phase 1~3 trials from development projects for generic drugs or biosimilars are recognized as intangible assets depending on the nature of the products.

Expenditures incurred from technology license agreement with the third parties are recognized as intangible assets.

Development costs previously recognized as an expense are not recognized as an asset in a subsequent period. Capitalized development costs that are recognized as intangible assets are amortized using the straight-line method over their estimated useful lives when the assets are available for use and are tested for impairment.

### **2.17 Impairment of Non-financial Assets**

Goodwill and intangible assets that have an indefinite useful life are not subject to amortization and are tested annually for impairment, or more frequently if events or changes in circumstances

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indicate that they might be impaired. Other assets are tested for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. An impairment loss is recognized for the amount by which the asset's carrying amount exceeds its recoverable amount. The recoverable amount is the higher of an asset's fair value less costs of disposal and value in use. Non-financial assets other than goodwill that suffered an impairment are reviewed for possible reversal of the impairment at the end of each reporting period.

#### **2.18 Trade and other payables**

These amounts represent liabilities for goods and services provided to the Company prior to the end of reporting period which are unpaid. Trade and other payables are presented as current liabilities, unless payment is not due within 12 months after the reporting period. They are recognized initially at their fair value and subsequently measured at amortized cost using the effective interest method.

#### **2.19 Financial Liabilities**

##### *(a) Classification and measurement*

The Company's financial liabilities at fair value through profit or loss are financial instruments held for trading. A financial liability is held for trading if it is incurred principally for the purpose of repurchasing in the near term. A derivative that is not a designated as hedging instruments and an embedded derivative that is separated are also classified as held for trading.

The Company classifies non-derivative financial liabilities, except for financial liabilities at fair value through profit or loss, financial guarantee contracts and financial liabilities that arise when a transfer of financial assets does not qualify for derecognition, as financial liabilities carried at amortized cost and present as 'trade payables', 'borrowings', and 'other payables' in the statement of financial position.

##### *(b) Derecognition*

Financial liabilities are removed from the statement of financial position when it is extinguished; for example, when the obligation specified in the contract is discharged or cancelled or expired or when the terms of an existing financial liability are substantially modified.

#### **2.20 Financial Guarantee Contracts**

Financial guarantee contracts are recognized as a financial liability at the time the guarantee is issued. The liability is initially measured at fair value, subsequently at the higher of the amount determined in accordance with Korean IFRS 1037 *Provisions, Contingent Liabilities and Contingent Assets* and the amount initially recognized less cumulative amortization in accordance with Korean IFRS 1115 *Revenue*, and recognized in the statement of financial position within 'other financial liabilities'.

#### **2.21 Compound Financial Instruments**

Compound financial instruments issued by the Company are convertible notes that can be converted into equity instruments at the option of the holder.

The liability component of a compound financial instrument is recognized initially at the fair value of each component. The bond component is subsequently recognized at amortized cost until extinguished on conversion or maturity of the bonds. The conversion option component is subsequently recognized at fair value through profit or loss. Any directly attributable transaction



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costs are allocated to the liability and equity components in proportion to their initial carrying amounts.

## **2.22 Current and Deferred Tax**

The tax expense for the year consists of current and deferred tax. Current and deferred tax is recognized in profit or loss, except to the extent that it relates to items recognized in other comprehensive income or directly in equity. In this case, the tax is also recognized in other comprehensive income or directly in equity, respectively. The tax expense is measured at the amount expected to be paid to the taxation authorities, using the tax rates (and tax laws) that have been enacted or substantively enacted by the end of the reporting period.

Deferred income tax is provided in full, using the liability method, on temporary differences arising between the tax bases of assets and liabilities and their carrying amounts in the financial statements. However, deferred income tax is not accounted for if it arises from initial recognition of an asset or liability in a transaction other than a business combination that at the time of the transaction affects neither accounting nor taxable profit or loss.

Deferred tax assets are recognized only if it is probable that future taxable amounts will be available to utilize those temporary differences and losses.

The Company recognizes a deferred tax liability all taxable temporary differences associated with investments in subsidiaries, 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. In addition, The Company recognizes a deferred tax asset for all deductible temporary differences arising from such investments to the extent that it is probable the temporary difference will reverse in the foreseeable future and taxable profit will be available against which the temporary difference can be utilized.

Deferred tax assets and liabilities are offset when there is a legally enforceable right to offset current tax assets and liabilities and when the deferred tax balances relate to the same taxation authority. Current tax assets and tax liabilities are offset where the entity has a legally enforceable right to offset and intends either to settle on a net basis.

## **2.23 Provisions**

Provisions are measured at the present value of the expenditures expected to be required to settle the obligation and the increase in the provision due to passage of time is recognized as interest expense.

## **2.24 Greenhouse Gas Emissions Permits and Obligations**

With enforcement of *The Act on the Allocation and Trading of Greenhouse Gas Emission Permits*, the permits that are received free of charge from the government are measured at zero while permits purchased are measured at acquisition cost and stated net of accumulated impairment loss. Emissions obligations are measured as the sum of the carrying amount of the allocated permits that will be submitted to the government and the best estimate of expenditure required to settle the obligation at the end of reporting period for any excess emission. The permits and emissions obligations are classified as intangible assets and provisions, respectively, in the statement of financial position.

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**2.25 Employee Benefits**

*(a) Post-employment benefits*

The Company operates both defined contribution and defined benefit pension plans. For defined contribution plans, the Company pays contribution to publicly or privately administered pension insurance plans on mandatory, contractual or voluntary basis. The Company has no further payment obligation once the contribution have been paid. The contribution are recognized as employee benefit expense when they are due. A defined benefit plan is a pension plan that is not a defined contribution plan.

Generally, post-employment benefits are payable after the completion of employment, and the benefit amount depended on the employee's age, periods of service or salary levels. The liability recognized in the statement of financial position in respect of defined benefit pension plans is the present value of the defined benefit obligation at the end of the reporting period less the fair value of plan assets. The defined benefit obligation is calculated annually by independent actuaries using the projected unit credit method. The present value of the defined benefit obligation is determined by discounting the estimated future cash outflows using interest rates of high-quality corporate bonds that are denominated in the currency in which the benefits will be paid, and that have terms approximating to the terms of the related obligation. Remeasurement gains and losses arising from experience adjustments and changes in actuarial assumptions are recognized in the period in which they occur, directly in other comprehensive income.

Changes in the present value of the defined benefit obligation resulting from plan amendments or curtailments are recognized immediately in profit or loss as past service costs.

*(b) Other long-term employee benefits*

Certain entities within the Company provide long-term employee benefits that are entitled to employees with service period for ten years and above. The expected costs of these benefits are accrued over the period of employment using the same accounting methodology as used for defined benefit pension plans. The Company recognizes service cost, net interest on other long-term employee benefits and remeasurements as profit or loss for the years. These liabilities are valued annually by an independent qualified actuary.

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**2.26 Revenue Recognition**

From January 1, 2018, the Company has applied Korean IFRS 1115 Revenue from Contracts with Customers.

*(a) Identify performance obligation*

With regard to the contract of selling products to the customer, the Company identifies the services provided separately to the customer as a different performance obligation. When the Company makes a sales contract with the customer, the standard warranty period for each product and customer is set up considering the legal warranty period. Even though the standard warranty period has been expired, the warranties are recognized as a revenue and is identified as a separate performance obligation when the Company provides additional warranties for the quality of product or when the customer has an option to purchase additional warranties separately.

*(b) A performance obligation satisfied at a point in time*

The revenue from the sale of goods is recognized at the time they are delivered to the customer. Delivery occurs when the products have been shipped to the specific location, the risks of obsolescence and loss have been transferred to the customer, and either the customer has accepted the products in accordance with the sales contract, the acceptance provisions have lapsed, or the Company has objective evidence that all criteria for acceptance have been satisfied.

The goods are often sold with volume discounts, and it is the Company's policy to sell its products to the customer with a right of return. Accumulated experience is used to estimate for the discounts and the refund, and the volume discounts is calculated based on the periodical forecast sales. The warranty provision for the sales and refund is reasonably estimated and recognized properly.

*(c) Refunds*

A gross contract liability for the expected refunds to customers is recognized as adjustment to revenue, and the Company has a right to recover the product from the customer where the customer exercises his right of return and recognizes an asset and a corresponding adjustment to cost of sales. A right to recover the products is measured at former carrying amount of the product less the costs to recover the products.

*(d) Significant financing component*

As a practical expedient, the Company need not adjust the promised amount of consideration for the effects of a significant financing component as the period between when the entity transfers a promised good or service to a customer and when the customer pays for that good or service is generally one year or less.

**2.27 Lease**

A lease is an agreement, whereby the lessor conveys to the lessee, in return for a payment or series of payments, the right to use an asset for an agreed period of time. Leases in which a significant portion of the risks and rewards of ownership are not transferred to the Company are classified as operating leases. Payments made under operating leases are charge to profit or loss on a straight-line basis over the period of lease.

Leases where the Company, as lessee, has substantially all the risks and rewards of ownership

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are classified as finance leases. Finance leases are capitalized at the lease's inception at the fair value of the leased property or, if lower, the present value of the minimum lease payments. The corresponding rental obligations, net of finance charges, are included in other short-term and long-term payables. Each lease payment is allocated between the liability and finance cost.

If the Company is a lessor, a lease is classified as a finance lease if it transfers substantially all the risks and rewards incidental to ownership at the inception of the lease. A lease other than a finance lease is classified as an operating lease. Lease income from operating leases is recognized in income on a straight-line basis over the lease term. Initial direct costs incurred by the lessor in negotiating and arranging an operating lease is added to the carrying amount of the leased asset and recognized as an expense over the lease term on the same basis as the lease income.

### **3. Financial Risk Management**

#### **3.1 Financial risk factors**

The Company's activities expose it to a variety of financial risks: market risk, credit risk and liquidity risk. The Company's overall risk management program focuses on the unpredictability of financial markets and seeks to minimize potential adverse effects on the financial performance of the Company. The Company uses derivative financial instruments to hedge certain risk exposures.

Risk management is carried out by the Company's finance team under policies approved by the Corporate Management Committee. The finance team identifies, evaluates and hedges financial risks in close co-operation with the Company's operating units. The Corporate Management Committee reviews and approves written principles for overall risk management, as well as written policies covering specific areas, such as foreign exchange risk, interest rate risk, credit risk, use of derivative financial instruments and non-derivative financial instruments and investment of excess liquidity.

(1) Market risk

1) Foreign exchange risk

The Company operates internationally and is exposed to foreign exchange risk arising from foreign currency transactions, primarily with respect to the US dollar. Foreign exchange risk arises from future commercial transactions, recognized assets and liabilities.

Management has set up a policy to require Company companies to manage their foreign exchange risk against their functional currency. The Company manages maximum loss for currency risk exposures within acceptable range by using currency risk management model and hires employees who are exclusively responsible for currency risk management.

As at December 31, 2018 and 2017, the Company's monetary assets and liabilities denominated in currencies other than its functional currency, are as follows:

<i>(in millions of Korean won)</i>	<b>December 31, 2018</b>		<b>December 31, 2017</b>	
	<b>Assets</b>	<b>Liabilities</b>	<b>Assets</b>	<b>Liabilities</b>
USD	3,104,300	1,642,009	2,832,426	1,020,174
EUR	424,792	434,118	352,184	18,644
JPY	27,505	102,914	35,501	100,892
CNY and others	142,222	6,663	74,703	6,627

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As at December 31, 2018 and 2017, if the Company's functional currency had weakened / strengthened by 10% against the US dollar with all other variables held constant, profit before income tax would have been affected as follows:

<i>(in millions of Korean won)</i>	<b>December 31, 2018</b>		<b>December 31, 2017</b>	
	<b>10% Increase</b>	<b>10% Decrease</b>	<b>10% Increase</b>	<b>10% Decrease</b>
USD	146,229	(146,229)	181,225	(181,225)

The above sensitivity analysis has been performed for monetary assets and liabilities denominated in foreign currencies other than the Company's functional currency at the reporting date.

2) Price risk

The Company is exposed to equity securities price risk arises from investments held by the Company and classified in the separate statement of financial position either as available-for-sale or at fair value through profit or loss. The Company's equity investments are publicly traded and are related to the KOSDAQ, NASDAQ and HSI index.

The table below summarizes the impact of increases/decreases of the listed stock price index on the Company's equity before tax effects as at December 31, 2018 and 2017. The analysis is based on the assumption that the equity index has increased/decreased by 10% with all other variables held constant, and that all the Company's equity instruments moved in line with the index.

<i>(in millions of Korean won)</i>	<b>December 31, 2018</b>		<b>December 31, 2017</b>	
	<b>10% Increase</b>	<b>10% Decrease</b>	<b>10% Increase</b>	<b>10% Decrease</b>
KOSPI	-	-	553	(553)
KOSDAQ	315	(315)	-	-
NASDAQ	168	(168)	-	-
HSI	7,798	(7,798)	-	-
	<u>8,281</u>	<u>(8,281)</u>	<u>553</u>	<u>(553)</u>

3) Interest rate risk

Interest rate risk is defined as the risk that the interest income or expenses arising from deposits and borrowings will fluctuate because of changes in future market interest rate. The interest rate risk mainly arises on floating rate deposits and borrowings. The objective of interest rate risk management lies in maximizing corporate value by minimizing uncertainty in interest rates fluctuations and net interest expense.

The Company adequately minimizes risks from interest rate fluctuations through various policies, such as sharing excess cash within the Company (internal cash sharing) to minimize external borrowings, avoiding high rate borrowings, reforming capital structure, managing an appropriate ratio of fixed rate borrowings and floating rate borrowings, monitoring a fluctuation of domestic and foreign interest rates daily, weekly and monthly, establishing alternatives, and balancing floating rate short-term borrowings with floating rate deposits.

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The Company has no floating rate deposits and borrowings outstanding at the end of the reporting period.

(2) Credit risk

Credit risk arises from trade receivables that the Company holds, as well as debt instruments at amortized cost or fair value through other comprehensive income.

1) Trade receivables

The Company applies the simplified approach to measuring expected credit losses which uses a lifetime expected loss allowance for trade receivables. To measure the expected credit losses, trade receivables have been grouped based on shared credit risk characteristics and the days past due. The loss allowance provision as at December 31, 2018, is as follows. Expected credit losses include forward-looking information.

<i>(in millions of Korean won)</i>	<b>Receivables not past due<sup>1</sup></b>	<b>Receivables past due but not impaired<sup>1</sup></b>	<b>Impaired receivables<sup>2</sup></b>	<b>Total</b>
<b>December 31, 2018</b>				
<b>(Trade receivables)</b>				
Gross carrying amount	3,818,389	188,063	4,416	4,010,868
Expected loss rate	0.1%	0.2%	72.7%	0.1%
Loss allowance provision	2,278	460	3,210	5,948
<b>January 1, 2018</b>				
<b>(Trade receivables)</b>				
Gross carrying amount	3,751,427	31,213	3,891	3,786,531
Expected loss rate	0.1%	0.3%	88.7%	0.1%
Loss allowance provision	1,980	99	3,452	5,531

<sup>1</sup> See Note 7.(3)

<sup>2</sup> Impaired receivables are those for which impairment indicators have been confirmed, such as significant lack of collectability. (See Note 7.(3))

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Movements in the loss allowance provision for trade receivables for the years ended December 31, 2018 and 2017, are as follows:

<i>(in millions of Korean won)</i>	<b>Trade receivables</b>	
	<b>2018</b>	<b>2017<sup>1</sup></b>
<b>Beginning balance - Korean IFRS 1039</b>	5,531	6,562
Amounts restated through beginning balance of retained earnings	-	-
Loss allowance as at January 1, 2018 - calculated under Korean IFRS 1109	5,531	-
Increase in loss allowance recognized in profit or loss during the year	750	(756)
Receivables written off during the year as uncollectible	(333)	(275)
<b>Ending balance</b>	<b>5,948</b>	<b>5,531</b>

<sup>1</sup> The amounts as at December 31, 2017, were calculated under Korean IFRS 1039.

As at December 31, 2018, the carrying amount of trade receivables representing the maximum exposure to credit risk amounts to ₩4,010,868 million (2017: ₩3,786,531 million).

*2) Other financial at assets amortized cost*

Movements in loss allowance provision for other financial assets at amortized cost for the year ended December 31, 2018, are as follows:

<i>(in millions of Korean won)</i>	<b>Other receivables</b>
<b>Beginning balance - Korean IFRS 1039</b>	959
Amounts restated through beginning balance of retained earnings	-
Loss allowance as at initial application date - calculated under Korean IFRS 1109	959
Increase in loss allowance recognized as 'other expenses' in profit or loss during the year	1,150
<b>Ending balance</b>	<b>2,109</b>

All of the financial assets at amortized costs are considered to have low credit risk, and the loss allowance recognized during the period was, therefore, limited to 12 months expected losses.

The Company has established the following policies and procedures to manage credit risks.

To manage credit risks relating to trade receivables, the Company evaluates the credit rating of customers and determines credit limit for each customer based on the information provided by credit rating agencies and other available financial information before commencing business with customers. The credit risks relating to trade receivables are also mitigated by insurance contracts, collaterals as well as payment guarantees.

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The Company has entered into export insurance contracts with Korea Trade Insurance Corporation to mitigate credit risks relating to export trade receivables to overseas customers. The Company is also provided with collaterals by customers depending on their credit rating or payment guarantees from the customers' financial institutions as necessary.

The Company has deposited its cash and cash equivalents, and other long-term deposits in several financial institutions, such as Woori Bank and others. The Company has also entered into derivative contract with several financial institutions. The Company maintains business relationship with those financial institutions with high credit ratings evaluated by independent credit rating agencies and accordingly, credit risks associated with these financial institutions are limited.

(3) Liquidity risk

The Company monitors rolling forecasts of the Company's liquidity requirements to ensure it has sufficient cash to meet operational needs while maintaining sufficient headroom on its undrawn committed borrowing facilities at all times so that the Company does not breach borrowing limits or covenants (where applicable) on any of its borrowing facilities. The Company's liquidity management policy involves projecting cash flows in major currencies and considering the level of liquid assets necessary to meet these, monitoring balance sheet liquidity ratios against internal and external regulatory requirements and maintaining debt financing plans.

1) The table below analyzes the Company's non-derivative financial liabilities into relevant maturity groupings based on the remaining period at the reporting date to the contractual maturity date. Cash flows presented below are gross cash flows before discount, and includes cash flows for interests.

(in millions of Korean won)

	<b>December 31, 2018</b>			
	<b>Less than 1 year</b>	<b>Between 1-2 years</b>	<b>Between 2-5 years</b>	<b>Over 5 years</b>
Borrowings (excluding finance lease liabilities)	98,941	167,301	1,585,307	905,800
Finance lease liabilities	5,177	5,177	15,887	5,000
Trade and other payables	3,411,149	4,273	3,099	-
<b>Total</b>	<b>3,515,267</b>	<b>176,751</b>	<b>1,604,293</b>	<b>910,800</b>

(in millions of Korean won)

	<b>December 31, 2017</b>			
	<b>Less than 1 year</b>	<b>Between 1-2 years</b>	<b>Between 2-5 years</b>	<b>Over 5 years</b>
Borrowings (excluding finance lease liabilities)	153,745	69,027	565,259	290,630
Finance lease liabilities	5,253	5,178	15,532	10,532
Trade and other payables	3,119,992	4,254	1,450	-
<b>Total</b>	<b>3,278,990</b>	<b>78,459</b>	<b>582,241</b>	<b>301,162</b>

2) As at December 31, 2018, the Company has entered into swap contracts for which cash flow hedge accounting is applied, to avoid market price fluctuation of raw materials.



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(in millions of Korean won)

	December 31, 2018				
	Purpose of the contracts	Hedged items	Financial institution	Maturity	Fair value
Merchandise (raw materials) swap <sup>1</sup>	Cash flow hedges	Non-ferrous metal	Citi bank	~2021.12	18,477

Details of derivative assets and liabilities as at December 31, 2018 and 2017, are as follows.

(in millions of Korean won)

	December 31, 2018		December 31, 2017	
	Assets	Liabilities	Assets	Liabilities
Merchandise(raw materials) swap <sup>1</sup>	-	18,477	-	-
<b>Total</b>	-	18,477	-	-

<sup>1</sup> Gain (loss) resulting from the contracts to avoid cash flow fluctuation risk of expected future transaction is accounted for as accumulated other comprehensive income (Note 5).

3) The table below analyzes the Company's financial guarantee contracts into relevant maturity groupings based on the remaining maturity as at the reporting date to the contractual maturity date.

(in millions of Korean won)

	December 31, 2018			
	Less than 1 year	Between 1-2 years	Between 2-5 years	Over 5 years
Financial guarantee contracts <sup>1</sup>	622,415	-	-	-

  

	December 31, 2017			
	Less than 1 year	Between 1-2 years	Between 2-5 years	Over 5 years
Financial guarantee contracts <sup>1</sup>	346,810	-	-	-

<sup>1</sup> The Company has provided financial guarantee for subsidiaries. The amount represented the maximum amount of the guarantee as at December 31, 2018 and 2017, in which the guarantee could be called (Note 18).

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**3.2 Capital Risk Management**

The Company's objectives when managing capital are to safeguard the Company's ability to continue as a going concern in order to provide returns for shareholders and benefits for other stakeholders and to maintain an optimal capital structure to reduce the cost of capital.

Consistent with others in the industry, the Company monitors capital on the basis of the gearing ratio. This ratio is calculated as net debt divided by total capital. Net debt is calculated as total borrowings less cash and cash equivalents. Total capital is calculated as 'equity' as shown in the statement of financial position plus net debt.

The gearing ratios and debt-to-equity ratios at December 31, 2018 and 2017, were as follows:

<i>(in millions of Korean won, except for ratios)</i>	<b>December 31, 2018</b>	<b>December 31, 2017</b>
Total borrowings (Note 14) (A)	2,491,714	1,010,235
Less: cash and cash equivalents (B)	<u>(1,690,862)</u>	<u>(1,649,689)</u>
Net debt (C=A+B)	<u>800,852</u>	<u>(639,454)</u>
Total liabilities (D)	7,180,672	5,642,604
Total equity (E)	<u>16,549,906</u>	<u>15,505,532</u>
Total capital (F=C+E)	<u>17,350,758</u>	<u>14,866,078</u>
Gearing ratio (C/F)	4.6%	-
Debt-to-equity ratio (D/E)	43.4%	36.4%

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**3.3 Fair Value**

(1) Carrying amount and fair value of financial instruments by category as at December 31, 2018 and 2017, are as follows:

(in millions of Korean won)

	<b>December 31, 2018</b>		<b>December 31, 2017</b>	
	<b>Carrying amount</b>	<b>Fair value</b>	<b>Carrying amount</b>	<b>Fair value</b>
<b>Financial assets (current)</b>				
Cash and cash equivalents	1,690,862	1	1,649,689	1
Deposits held by financial institutions	-	1	500,000	1
Trade receivables	4,004,920	1	3,781,000	1
Other receivables (excluding deposits held by financial institutions)	321,866	1	223,968	1
<b>Financial assets (non-current)</b>				
Deposits held by financial institutions	63,421	1	63,421	1
Other receivables (excluding deposits held by financial institutions)	54,665	1	51,413	1
Other non-current financial assets (carried at cost)	-	-	12,621	2
Other non-current financial assets (carried at fair value)				
Marketable financial assets	49,212	49,212	6,062	6,062
Non-marketable financial assets	31,363	1	-	-
<b>Financial liabilities (current)</b>				
Trade and other payables	3,411,149	1	3,119,992	1
Current borrowings (excluding finance lease liabilities)	49,992	1	129,922	1
Current finance lease liabilities	5,008	1	5,137	1
Current derivative financial liabilities	18,477	18,477	-	-
Other current financial liabilities (excluding derivative liabilities)	10,679	1	6,374	1
<b>Financial liabilities (non-current)</b>				
Non-current borrowings (excluding finance lease liabilities)	2,413,478	2,467,921	847,809	841,697
Non-current finance lease liabilities	23,236	24,689	27,367	28,776
Other non-current payables	7,372	1	5,704	1
Other non-current financial liabilities (Conversion rights)	30,384	30,384	-	-

<sup>1</sup> These financial assets and liabilities are not included in the disclosure above as their carrying amount is a reasonable approximation of their fair values.

<sup>2</sup> As at December 31, 2017, all non-marketable financial assets of other non-current financial assets of the Company consist of available-for-sale equity securities. These equity securities are measured at cost as the range of reasonable fair value estimates is significant and the probabilities of the various estimates cannot be reasonably assessed.

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(2) Fair value for measurement and disclosure are determined based on the following method:

1) Financial liabilities (non-current)

Fair values of financial liabilities (non-current) are based on cash outflows discounted using Korean won currency note yield in the same credit grade with the Company (AA+), and the applied discount rates as at December 31, 2018 and 2017, are as follows:

<i>(in percentage)</i>	<b>December 31, 2018</b>	<b>December 31, 2017</b>
Discount rate	2.01%~2.53%	1.95%~2.90%

(3) Fair Value Hierarchy

Items that are measured at fair value or for which the fair value is disclosed are categorized by the fair value hierarchy levels, and the defined levels are as follows:

- Quoted prices (unadjusted) in active markets for identical assets or liabilities (Level 1).
- Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly (that is, prices) or indirectly (that is, derived from prices) (Level 2).
- Inputs for the asset or liability that are not based on observable market data (that is, unobservable inputs) (Level 3).

Fair value hierarchy classifications of the financial instruments that are measured at fair value or its fair value is disclosed as at December 31, 2018 and 2017, are as follows:

<i>(in millions of Korean won)</i>	<b>December 31, 2018</b>			
	<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>	<b>Total</b>
<b>Financial assets/liabilities measured at fair value</b>				
Other non-current financial assets (Marketable financial assets)	49,212	-	-	49,212
Current derivative financial liabilities	-	18,477	-	18,477
Other non-current financial liabilities (Conversion rights)	-	-	30,384	30,384
<b>Financial assets/liabilities not measured at fair value</b>				
Non-current borrowings (excluding finance lease liabilities)	-	1,848,242	619,679	2,467,921
Non-current finance lease liabilities	-	24,689	-	24,689

<i>(in millions of Korean won)</i>	<b>December 31, 2017</b>			
	<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>	<b>Total</b>
<b>Financial assets/liabilities measured at fair value</b>				
Other non-current financial assets (Marketable financial assets)	6,062	-	-	6,062
<b>Financial assets/liabilities not measured at fair value</b>				
Non-current borrowings (excluding finance lease liabilities)	-	841,697	-	841,697
Non-current finance lease liabilities	-	28,776	-	28,776

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(4) Valuation Technique and the Inputs

Valuation techniques and inputs used in level 3 fair value measurements are as follows:

<i>(in millions of Korean won)</i>	<b>Fair value</b>	<b>Level</b>	<b>Valuation Technique</b>	<b>Inputs</b>	<b>Coverage of Level 3 inputs</b>
<b>Financial liabilities</b>					
<b>- Convertible Bond</b>					
Convertible Bond	619,679	3	Present value technique	Annual rates of credit volatility	-0.5%p ~ +0.5%p
Equity Conversion Option	30,384	3	Binominal option pricing model	Annual rates of credit volatility Underlying asset (equity) volatility	-0.5%p ~ +0.5%p -0.5% ~ +0.5%

(5) Sensitivity analysis for Recurring Fair Value Measurements Categorized Within Level 3

Sensitivity analysis of financial instruments is performed to measure favorable and unfavorable changes in the fair value of financial instruments which are affected by the unobservable parameters, using a statistical technique. When the fair value is affected by more than two input parameters, the most favorable or most unfavorable amounts are presented.

The results of the sensitivity analysis for the effect on profit or loss from changes in inputs for convertible notes categorized as level 3 and subject to sensitivity analysis, are as follows:

<i>(in millions of Korean won)</i>	<b>December 31, 2018</b>	
	<b>The effect on profit</b>	<b>The effect on loss</b>
<b>Financial liabilities</b>		
<b>- Convertible Bond</b>		
Annual rates of credit volatility	6,899	(7,011)
<b>Financial liabilities</b>		
<b>- Equity Conversion Option</b>		
Annual rates of credit volatility	985	(966)
Underlying asset (equity) volatility	3,237	(3,434)

<i>(in millions of Korean won)</i>	<b>December 31, 2017</b>	
	<b>The effect on profit</b>	<b>The effect on loss</b>
<b>Financial liabilities</b>		
<b>- Convertible Bond</b>		
Annual rates of credit volatility	-	-
<b>Financial liabilities</b>		
<b>- Equity Conversion Option</b>		
Annual rates of credit volatility	-	-
Underlying asset (equity) volatility	-	-

**4. Critical Accounting Estimates and Assumptions**

The preparation of financial statements requires the Company makes estimates and assumptions concerning the future. The estimates and judgments are continuously evaluated with consideration to factors such as events reasonably predictable in the foreseeable future within the present circumstance according to historical experience. The resulting accounting estimates

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will, by definition, seldom equal the related actual results. The estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are addressed below.

#### (1) Impairment test of goodwill

The Group tests whether goodwill has suffered any impairment on an annual basis. The recoverable amount of a cash generating unit (CGU) is determined based on value-in-use or fair value less cost of disposal calculations. (Note 12).

#### (2) Income taxes

The Company recorded, based on its best estimate, current taxes and deferred taxes that the Company will be liable in the future for the operating results as at the financial year end. However, the final tax outcome in the future may be different from the amounts that were initially recorded. Such differences will impact the current and deferred tax assets and liabilities in the period in which such determination is made (Note 28).

#### (3) Provisions

The Company recognizes provisions for product warranties and estimated returns as explained in Note 15. These provisions are estimated based on past experience.

#### (4) Fair value of financial instruments

The fair value of financial instruments that are not traded in an active market is determined by using valuation techniques. The Company uses its judgment to select a variety of methods and make assumptions that are mainly based on market conditions existing at the end of each reporting period (Note 3.3).

#### (5) Impairment of financial assets

The provision for impairment for financial assets are based on assumptions about risk of default and expected loss rates. The Company uses judgement in making these assumptions and selecting the inputs to the impairment calculation based on the Company's past history, existing market conditions as well as forward looking estimates at the end of each reporting period (Note 3.1 (2)).

#### (6) Net defined benefit liability

The present value of net defined benefit liability depends on a number of factors that are determined on an actuarial basis using a number of assumptions including the discount rate (Note 16).

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**5. Financial Instruments by Category**

Categorizations of financial instruments as at December 31, 2018 and 2017, are as follows:

*(in millions of Korean won)*

Financial assets	December 31, 2018			Total
	Financial assets at amortized cost	Financial assets at fair value through profit or loss	Financial assets at fair value through other comprehensive income	
Cash and cash equivalents	1,690,862	-	-	1,690,862
Trade receivables	3,610,396	-	394,524	4,004,920
Other receivables	321,866	-	-	321,866
Other non-current receivables	118,086	-	-	118,086
Other non-current financial assets	-	15,677	64,898	80,575
<b>Total</b>	<b>5,741,210</b>	<b>15,677</b>	<b>459,422</b>	<b>6,216,309</b>

*(in millions of Korean won)*

Financial liabilities	December 31, 2018			Total
	Financial liabilities at fair value through profit or loss	Financial liabilities at amortized cost	Other financial liabilities <sup>1</sup>	
Trade payables	-	1,940,124	-	1,940,124
Other payables	-	1,471,025	-	1,471,025
Borrowings (current)	-	49,992	5,008	55,000
Other current financial liabilities	-	-	29,156	29,156
Other non-current financial liabilities	30,384	-	-	30,384
Other non-current payables	-	7,372	-	7,372
Borrowings (non-current)	-	2,413,478	23,236	2,436,714
<b>Total</b>	<b>30,384</b>	<b>5,881,991</b>	<b>57,400</b>	<b>5,969,775</b>

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Financial assets	December 31, 2017			Total
	Loans and receivables	Financial assets at fair value through profit or loss	Available-for-sale financial assets	
Cash and cash equivalents	1,649,689	-	-	1,649,689
Trade receivables	3,781,000	-	-	3,781,000
Other receivables	723,968	-	-	723,968
Other non-current receivables	114,834	-	-	114,834
Other non-current financial assets	-	-	18,683	18,683
<b>Total</b>	<b>6,269,491</b>	<b>-</b>	<b>18,683</b>	<b>6,288,174</b>

(in millions of Korean won)

Financial liabilities	December 31, 2017			Total
	Financial liabilities at fair value through profit or loss	Financial liabilities at amortized cost	Other financial liabilities <sup>1</sup>	
Trade payables	-	1,397,841	-	1,397,841
Other payables	-	1,722,151	-	1,722,151
Borrowings (current)	-	129,922	5,137	135,059
Other current financial liabilities	-	-	6,374	6,374
Other non-current payables	-	5,704	-	5,704
Borrowings (non-current)	-	847,809	27,367	875,176
<b>Total</b>	<b>-</b>	<b>4,103,427</b>	<b>38,878</b>	<b>4,142,305</b>

<sup>1</sup> Other financial liabilities are financial liabilities that are not subject to the categorizations such as finance lease liabilities and financial liabilities related to transfer transactions not qualified for derecognition.

Net gains or losses on each category of financial instruments for the years ended December 31, 2018 and 2017, are as follows:

(in millions of Korean won)

	2018	2017
<b>Dividend income</b>		
Financial assets at fair value through other comprehensive income	123	-
Available-for-sale financial assets	-	331
<b>Interest income</b>		
Financial assets at fair value through other comprehensive income	-	-
Financial assets at amortized cost	36,073	22,382
<b>Interest expense</b>		
Derivative instruments	-	-
Financial liabilities at amortized cost	(64,554)	(22,349)
Other financial liabilities	(1,014)	(6,930)



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<i>(in millions of Korean won)</i>	<b>2018</b>	<b>2017</b>
<b>Gain (loss) on valuation</b>		
Financial assets at fair value through profit or loss	73	-
Derivative instruments	(11,807)	(4,328)
Financial assets at fair value through other comprehensive income	(15,721)	-
<b>Gain (loss) on disposal</b>		
Financial assets at fair value through profit or loss	-	-
Derivative instruments	-	170
Financial assets at fair value through other comprehensive income	(1,542)	-
<b>Gain (loss) on foreign currency translation</b>		
Financial assets at amortized cost	(36,532)	(70,445)
Financial liabilities at amortized cost	10,154	24,707
Other financial liabilities	(527)	-
<b>Gain (loss) on foreign currency transaction</b>		
Financial assets at amortized cost	129,539	(204,388)
Financial liabilities at amortized cost	(71,050)	52,933
Other financial liabilities	(212)	64,653

**6. Cash and Cash Equivalents**

Details of cash and cash equivalents as at December 31, 2018 and 2017, are as follows:

<i>(in millions of Korean won)</i>	<b>December 31, 2018</b>	<b>December 31, 2017</b>
Bank deposits and cash on hand	102,911	90,323
Deposits held by financial institutions and others	1,587,951	1,559,366
<b>Total</b>	<u>1,690,862</u>	<u>1,649,689</u>

As at December 31, 2018, cash and cash equivalents include ₩4,174 million which is subject to a restriction on the use in association with the national R&D projects.

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**7. Trade and Other Receivables**

Trade and other receivables and its provisions for impairment, as at December 31, 2018 and 2017, are as follows:

*(in millions of Korean won)*

	<b>December 31, 2018</b>		
	<b>Gross amount</b>	<b>Provision for impairment</b>	<b>Carrying amount</b>
Trade receivables	4,010,868	(5,948)	4,004,920
Other current receivables	323,975	(2,109)	321,866
Other non-current receivables <sup>1</sup>	118,086	-	118,086
<b>Total</b>	<b>4,452,929</b>	<b>(8,057)</b>	<b>4,444,872</b>

*(in millions of Korean won)*

	<b>December 31, 2017</b>		
	<b>Gross amount</b>	<b>Provision for impairment</b>	<b>Carrying amount</b>
Trade receivables	3,786,531	(5,531)	3,781,000
Other current receivables	724,927	(959)	723,968
Other non-current receivables <sup>1</sup>	114,834	-	114,834
<b>Total</b>	<b>4,626,292</b>	<b>(6,490)</b>	<b>4,619,802</b>

<sup>1</sup> As at December 31, 2018, ₩21 million in other non-current receivables represents deposits which are restricted from withdrawal in connection with maintaining checking accounts (2017: ₩21 million).

Details of other receivables as at December 31, 2018 and 2017, are as follows:

*(in millions of Korean won)*

	<b>December 31, 2018</b>	<b>December 31, 2017</b>
<b>Current</b>		
Non-trade receivables	294,993	182,785
Deposits held by financial institutions	-	500,000
Accrued income	1,152	3,862
Loans	554	-
Guarantee deposits provided	25,167	37,321
	<u>321,866</u>	<u>723,968</u>
<b>Non-current</b>		
Non-trade receivables	7,029	4,246
Deposits held by financial institutions <sup>1</sup>	63,421	63,421
Loans	-	548
Guarantee deposits provided	47,636	46,619
	<u>118,086</u>	<u>114,834</u>
<b>Total</b>	<b>439,952</b>	<b>838,802</b>

<sup>1</sup> As at December 31, 2018, ₩63,400 million (2017: ₩63,400 million) is restricted from being withdrawn in relation to large, small and medium-sized companies cooperation agreement and

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others.

The aging analysis of trade and other receivables as at December 31, 2018 and 2017, is as follows:

(in millions of Korean won)

	December 31, 2018		December 31, 2017	
	Trade receivables	Other receivables	Trade receivables	Other receivables
<b>Receivables not past due</b>	3,818,389	436,842	3,751,427	831,787
<b>Past due but not impaired</b>				
Up to 3 months	169,063	2,683	31,037	6,944
Between 3-6 months	4,067	393	164	71
Over 6 months	14,933	34	12	-
	188,063	3,110	31,213	7,015
<b>Impaired receivables</b>	4,416	2,109	3,891	959
	4,010,868	442,061	3,786,531	839,761

Movements on the provision for impairment of trade and other receivables for the years ended December 31, 2018 and 2017, are as follows:

(in millions of Korean won)

	2018			
	Trade receivables		Other receivables	
	Current	Non-current	Current	Non-current
<b>Beginning balance</b>	5,531	-	959	-
Business combination (Note 34)	-	-	-	-
Additions	750	-	1,150	-
Write-off	(333)	-	-	-
Reversals	-	-	-	-
<b>Ending balance</b>	5,948	-	2,109	-

(in millions of Korean won)

	2017			
	Trade receivables		Other receivables	
	Current	Non-current	Current	Non-current
<b>Beginning balance</b>	6,562	-	331	-
Business combination (Note 34)	1,985	-	-	-
Additions	-	-	628	-
Write-off	(275)	-	-	-
Reversals	(2,741)	-	-	-
<b>Ending balance</b>	5,531	-	959	-

As at December 31, 2018 and 2017, the carrying amounts of trade and other receivables are approximation of their fair values.

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The Company transferred trade and other receivables to financial institutions for ₩385,249 million at December 31, 2018, and derecognized the trade and other receivables from the financial statements at the date of disposal, as substantial all the risks and rewards were transferred.

**8. Other Financial Assets and Liabilities**

Details of other financial assets and liabilities as at December 31, 2018 and 2017, are as follows:

<i>(in millions of Korean won)</i>	<b>December 31, 2018</b>	<b>December 31, 2017</b>
<b>Other financial assets</b>		
Financial assets at fair value through other comprehensive income (non-current)	64,898	-
Financial assets at fair value through profit or loss (non-current)	15,677	-
Available-for-sale financial assets	-	18,683
	<u>80,575</u>	<u>18,683</u>
<b>Other financial liabilities</b>		
Financial guarantee contracts	10,679	6,374
Financial liabilities at fair value through other comprehensive income (futures contracts)(current)	18,477	-
Derivative instruments (non-current)	30,384	-
	<u>59,540</u>	<u>6,374</u>

Changes in available-for-sale financial assets for the years ended December 31, 2018 and 2017, are as follows:

<i>(in millions of Korean won)</i>	<b>2018</b>	<b>2017</b>
<b>Beginning balance</b>	18,683	18,785
Business combination (Note 34)	-	2,447
Acquisitions / Transfer	83,631	3,001
Disposals	(10,005)	-
Loss on valuation (before income tax effects), through other comprehensive income	(11,323)	(5,550)
Loss on valuation (before income tax effects), through profit or loss	73	-
Foreign currency translation effect	(484)	-
<b>Ending balance</b>	<u>80,575</u>	<u>18,683</u>

No impairment losses on other financial assets were recognized for the years ended December 31, 2018 and 2017.

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**9. Inventories**

Details of inventories as at December 31, 2018 and 2017, are as follows:

*(in millions of Korean won)*

	<b>December 31, 2018</b>		
	<b>Gross amount</b>	<b>Valuation allowance</b>	<b>Carrying amount</b>
Merchandise	42,192	(249)	41,943
Finished / Semi-finished products	1,473,560	(78,626)	1,394,934
Work-in-process	14,390	-	14,390
Raw materials	669,876	(10,092)	659,784
Supplies	109,359	-	109,359
Materials-in-transit	205,954	-	205,954
<b>Total</b>	<b>2,515,331</b>	<b>(88,967)</b>	<b>2,426,364</b>

*(in millions of Korean won)*

	<b>December 31, 2017</b>		
	<b>Gross amount</b>	<b>Valuation allowance</b>	<b>Carrying amount</b>
Merchandise	35,913	(840)	35,073
Finished / Semi-finished products	1,305,550	(71,255)	1,234,295
Work-in-process	9,852	-	9,852
Raw materials	552,590	(5,711)	546,879
Supplies	96,950	-	96,950
Materials-in-transit	151,506	-	151,506
<b>Total</b>	<b>2,152,361</b>	<b>(77,806)</b>	<b>2,074,555</b>

During the year, the cost of inventories recognized as expense and included in 'cost of sales' amounted to ₩14,779,646 million (2017: ₩12,331,304 million).

**10. Investments in Subsidiaries, Associates and Joint ventures**

Changes in investments in subsidiaries, associates and joint ventures for the years ended December 31, 2018 and 2017, are as follows:

*(in millions of Korean won)*

	<b>2018</b>	<b>2017</b>
Beginning balance	2,655,613	2,154,357
Business combination (Note 34)	-	3,977
Additions / Transfer	1,260,857	536,161
Impairment <sup>1,2</sup>	(58,406)	(19,383)
Others <sup>3,4</sup>	(125)	(19,499)
Ending balance	<b>3,857,939</b>	<b>2,655,613</b>

<sup>1</sup> The Company reviews whether there are any events or changes in circumstances indicate that assets might be impaired at the end of each reporting period. If the indications are present, the

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recoverable amount of that asset is estimated by future cashflow discount method or other method. If the recoverable amount is less than its carrying amount, the carrying amount of the asset shall be reduced and the impairment loss shall be recognized.

<sup>2</sup> During the year, LG Fuel Cell Systems Inc. was determined to be liquidated and the entire carrying amount was recognized as impairment loss.

<sup>3</sup> The carrying amount of Sarangnuri Ltd. was reduced due to the merger into HAENGBOKNURI CO., LTD., a subsidiary of the Company, during 2018.

During 2017, the amount of impairment loss recognized as other non-operating expenses and key assumptions used for calculation of value in use are as follows:

*(in millions of Korean won and in percentage)*

**December 31, 2017**  
**LG Fuel Cell Systems Inc.**

Impaired amount	19,383
Pre-tax discount rate	12.08%
Growth rate for subsequent years after five years	1.00%

<sup>4</sup> The carrying amount of LG Holdings (HK) Ltd., associates, was reduced due to a capital reduction with consideration during 2017.

Details of investments in subsidiaries, associates and joint ventures as at December 31, 2018 and 2017, are as follows:

<i>(in millions of Korean won and in percentage)</i>	<u>Location</u>	Percentage of ownership (%)		Carrying amount	
		December	December	December	December
		31, 2018	31, 2017	31, 2018	31, 2017
<b>Subsidiaries</b>					
Ningbo LG Yongxing Chemical Co.,Ltd.	China	75	75	135,908	135,908
LG Chem HK Ltd.	Hong Kong	100	100	11,159	11,159
LG Chem America, Inc. <sup>1</sup>	USA	-	100	-	3,620
LG Chemical India Pvt. Ltd.	India	100	100	54,929	54,929
LG Chemical (Guangzhou) Engineering Plastics Co.,Ltd.	China	100	100	21,911	21,911
LG Chem (Nanjing) Information & Electronics Materials Co.,Ltd. <sup>2</sup>	China	81	81	850,348	617,887
LG Chem (Taiwan), Ltd.	Taiwan	100	100	18	18
LG Chem Display Materials (Beijing) Co.,Ltd.	China	90	90	13,444	13,444
Tianjin LG Bohai Chemical Co.,Ltd. <sup>3</sup>	China	68	68	77,871	77,871
Tianjin LG BOTIAN Chemical Co.,Ltd. <sup>3</sup>	China	58	41	10,423	9,550
LG Chem (China) Investment Co.,Ltd. <sup>4</sup>	China	100	100	195,642	140,696
LG Chem (Tianjin) Engineering Plastics Co.,Ltd.	China	90	90	14,733	14,733
LG Chem Europe GmbH	Germany	100	100	3,085	3,085
LG Chem Poland Sp. z o.o.	Poland	100	100	26,948	26,948
LG Chem Michigan Inc. <sup>1</sup>	USA	100	100	376,209	63,422
LG Chem Power Inc. <sup>1</sup>	USA	-	100	-	19,553
LGC Petrochemical India Private Ltd.	India	100	100	299	299
HAENGBOKNURI CO.,LTD. <sup>5</sup>	Korea	100	100	600	600
LG CHEM TK Kimya SANAYI VE TIC. Ltd. STI.	Turkey	100	100	174	174

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LG Chem Japan Co.,Ltd.	Japan	100	100	1,406	1,406
LG NanoH2O, Inc. <sup>1</sup>	USA	-	100	-	143,195
NanoH2O (Jiangsu) Water Processing Technology Co. Ltd.	China	100	100	6,400	6,400
Nanjing LG Chem New Energy Battery Co., Ltd. <sup>6</sup>	China	50	50	88,706	88,706
LG Chem (Chongqing) Engineering Plastics Co., Ltd.	China	100	100	37,410	37,410
LG Chem Wroclaw Energy sp. z o.o. <sup>7</sup>	Poland	100	100	595,469	138,575
LG Chem(HUIZHOU) Petrochemical Co., Ltd.	China	70	70	99,000	99,001
LG Chem Hai Phong Veitnam Co.,Ltd.	Vietnam	100	100	3,079	3,079
LG Chem Austrailia Pty Ltd.	Australia	100	100	429	429
LG Chem Mexico S.A. de C.V. <sup>8</sup>	Mexico	100	-	394	-
LG Chem Hai Phong Engineering Plastics Co.,Ltd. <sup>9</sup>	Vietnam	100	-	15,344	-
LG Chem (Guangzhou) Information & Electronics Materials Co.,Ltd. <sup>10</sup>	China	100	-	127,752	-
FarmHannong Co.,Ltd.	Korea	100	100	724,500	724,500
LG Life Sciences India Pvt. Ltd.	India	100	100	2,170	2,170
LG Life Sciences (Beijing) Co., Ltd.	China	100	100	1,233	1,233
LG Life Sciences (Thailand) Ltd.	Thailand	100	100	431	431
Sarangnuri Ltd. <sup>5</sup>	Korea	-	100	-	126
LG CHEM FUND I LLC <sup>11</sup>	USA	100	-	7,886	-
LEYOU NEW ENERGY MATERIALS(WUXI)CO.,LTD <sup>12</sup>	China	51	-	48,808	-
Ugimag Korea Co., Ltd. <sup>13</sup>	Korea	100	-	23,020	-
LG Chem Nanjing Energy Solution <sup>14</sup>	China	100	-	112,570	-
				<u>3,689,708</u>	<u>2,462,468</u>
<b>Associates</b>					
LG Holdings (HK) Ltd.	Hong Kong	26	26	58,036	58,036
TECHWIN Co.,Ltd.	Korea	21	21	2,861	2,861
LG Chem BRASIL INTERMEDICAO DE NEGOCIOS DO SETOR QUIMICO LTDA.	Brazil	100	100	579	579
LG Chem Malaysia SDN.BHD.	Malaysia	100	100	150	150
LG Fuel Cell Systems Inc. <sup>15</sup>	USA	23	23	-	53,370
FJ Composite Material Co., Ltd.	Japan	33	33	3,015	3,015
WUXI CL New Energy Technology Ltd. <sup>16</sup>	China	30	30	1,737	1,178
LG Life Sciences Poland Ltd. <sup>17</sup>	Poland	100	100	17	17
HUAJIN NEW ENERGY MATERIALS(QUZHOU)CO.,LTD <sup>18</sup>	China	49	-	26,128	-
				<u>92,523</u>	<u>119,206</u>
<b>Joint ventures</b>					
LG Vina chemical Co.,Ltd. <sup>19</sup>	Vietnam	50	40	3,080	1,313
HL Greenpower Co.,Ltd.	Korea	49	49	14,210	14,210
SEETEC Co.,Ltd.	Korea	50	50	58,416	58,416
				<u>75,706</u>	<u>73,939</u>
<b>Total</b>				<u>168,229</u>	<u>193,145</u>

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- <sup>1</sup> During the year, LG Chem Power Inc. was merged into LG Chem Michigan Inc. The Company invested its subsidiaries, LG Chem America, Inc. and LG NanoH2O, Inc., in kind to LG Chem Michigan Inc.
- <sup>2</sup> During the year, the Company acquired additional shares of LG Chem (Nanjing) Information & Electronics Materials Co.,Ltd. for ₩232,461 million.
- <sup>3</sup> During the year, the Company acquired additional 17.25% of shares of Tianjin LG BOTIAN Chemical Co.,Ltd.
- <sup>4</sup> During the year, the Company acquired additional shares of LG Chem (China) Investment Co.,Ltd. for ₩54,946 million.
- <sup>5</sup> During the year, Sarangnuri Ltd. was merged into HAENGBOKNURI CO., LTD.
- <sup>6</sup> Although the Company owns less than 50% of the voting rights of Nanjing LG Chem New Energy Battery Co., Ltd., the Company is considered to have control over the investee as the Company can exercise the majority voting rights in its decision-making process in accordance with the shareholders' agreement.
- <sup>7</sup> During the year, the Company acquired additional shares of LG Chem Wroclaw Energy sp. z o.o. for ₩456,894 million.
- <sup>8</sup> LG Chem Mexico S.A. de C.V. was established during the year, and the Company newly acquired 100% of shares of LG Chem Mexico S.A. de C.V. for ₩394 million.
- <sup>9</sup> LG Chem Hai Phong Engineering Plastics Co.,Ltd. was established during the year, and the Company newly acquired 100% of shares of LG Chem Hai Phong Engineering Plastics Co.,Ltd. for ₩15,344 million.
- <sup>10</sup> LG Chem (Guangzhou) Information & Electronics Materials Co.,Ltd. was established during the year, and the Company newly acquired 100% of shares of LG Chem (Guangzhou) Information & Electronics Materials Co.,Ltd. for ₩127,752 million.
- <sup>11</sup> LG CHEM FUND I LLC was established during the year, and the Company newly acquired 100% of shares of LG CHEM FUND I LLC for ₩7,886 million.
- <sup>12</sup> LEYOU NEW ENERGY MATERIALS(WUXI)CO.,LTD was established during the year, and the Company newly acquired 51% of shares of LEYOU NEW ENERGY ATERIALS(WUXI)CO.,LTD for ₩48,808 million.
- <sup>13</sup> The Company newly acquired 100% of shares of Ugimag Korea Co., Ltd. In the amounts of ₩23,020 million.
- <sup>14</sup> LG Chem Nanjing Energy Solution Co., Ltd. was established during the year, and the Company newly acquired 100% of shares of LG Chem Nanjing Energy Solution Co., Ltd. In the amounts of ₩112,570 million.
- <sup>15</sup> During the year, the Company additionally acquired shares of LG Fuel Cell Systems Inc. in the amounts of ₩5,035 million, and then impaired the whole carrying value of the investment amounting to ₩58,406 million.
- <sup>16</sup> During the year, the Company acquired additional shares of WUXI CL New Energy Technology Ltd. for ₩559 million.
- <sup>17</sup> Classified as an investment in associate due to its small size.
- <sup>18</sup> HUAJIN NEW ENERGY MATERIALS(QUZHOU)CO.,LTD. was established during the year, and the Company newly acquired 49% shares of HUAJIN NEW ENERGY MATERIALS(QUZHOU)CO.,LTD. for ₩26,128 million.
- <sup>19</sup> The Company newly acquired 100% of shares of LG VINA Chemical Co. ,Ltd. for ₩1,767 million.



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**11. Property, Plant and Equipment**

Changes in property, plant and equipment for the years ended December 31, 2018 and 2017, are as follows:

(in millions of Korean won)

	2018										
	Land	Buildings	Structures	Machinery	Vehicles	Tools	Equipment	Others	Construction -in-progress	Machinery -in-transit	Total
<b>Beginning balance</b>	1,082,438	2,190,414	555,425	2,999,040	12,221	312,887	75,232	73,397	904,748	142,286	8,348,088
Cost	1,119,390	2,683,007	1,013,720	10,243,349	35,764	895,714	271,536	211,584	942,202	142,286	17,558,552
Accumulated depreciation	-	(470,547)	(452,658)	(7,127,238)	(23,422)	(569,981)	(194,332)	(136,035)	-	-	(8,974,213)
Accumulated impairment	(36,952)	(22,046)	(5,637)	(117,071)	(121)	(12,846)	(1,972)	(2,152)	(37,454)	-	(236,251)
Acquisitions/ Transfer	41,176	182,963	203,741	1,439,662	1,434	138,400	67,813	113,758	2,531,804	181,833	4,902,584
Disposals/ Transfer	(24)	(1,281)	(206)	(726,019)	(44)	(6,023)	(171)	(3,485)	(2,057,634)	(150,003)	(2,944,890)
Depreciation	-	(59,324)	(37,975)	(643,152)	(2,598)	(103,749)	(28,573)	(67,767)	-	-	(943,138)
Impairment	-	(1,248)	(253)	(26,313)	(3)	(855)	(93)	-	(9,557)	-	(38,322)
Reversal of impairment	-	24	42	365	5	1	15	-	-	-	452
<b>Ending balance</b>	<b>1,123,590</b>	<b>2,311,548</b>	<b>720,774</b>	<b>3,043,583</b>	<b>11,015</b>	<b>340,661</b>	<b>114,223</b>	<b>115,903</b>	<b>1,369,361</b>	<b>174,116</b>	<b>9,324,774</b>
Cost	1,160,542	2,863,091	1,216,503	10,775,322	36,473	992,866	331,043	315,051	1,416,372	174,116	19,281,379
Accumulated depreciation	-	(529,521)	(490,109)	(7,605,723)	(25,353)	(640,512)	(214,792)	(196,996)	-	-	(9,703,006)
Accumulated impairment	(36,952)	(22,022)	(5,620)	(126,016)	(105)	(11,693)	(2,028)	(2,152)	(47,011)	-	(253,599)

(in millions of Korean won)

	2017										
	Land	Buildings	Structures	Machinery	Vehicles	Tools	Equipment	Others	Construction -in-progress	Machinery -in-transit	Total
<b>Beginning balance</b>	981,921	1,689,257	553,182	3,208,156	7,543	281,782	67,460	100,361	352,369	26,194	7,268,225
Cost	1,018,849	2,138,763	970,513	9,865,322	37,094	790,264	246,788	238,907	358,907	26,194	15,691,601
Accumulated depreciation	-	(421,435)	(413,525)	(6,626,250)	(29,431)	(499,102)	(177,916)	(138,098)	-	-	(8,305,757)
Accumulated impairment	(36,928)	(28,071)	(3,806)	(30,916)	(120)	(9,380)	(1,412)	(448)	(6,538)	-	(117,619)
Business combination (Note 34)	62,738	81,276	6,590	108,953	184	8,195	2,796	-	164,722	57,392	492,846
Acquisitions/ Transfer	37,779	465,385	36,981	487,603	8,057	128,613	31,422	41,655	1,597,609	133,175	2,968,279
Disposals/ Transfer	-	(1,255)	(524)	(7,923)	(5)	(3,444)	(579)	-	(1,178,904)	(74,475)	(1,267,109)
Depreciation	-	(50,340)	(38,959)	(701,606)	(3,521)	(95,518)	(25,246)	(66,915)	-	-	(982,105)
Impairment	-	(745)	(3,039)	(96,828)	(39)	(6,142)	(695)	(1,704)	(31,048)	-	(140,240)
Reversal of impairment	-	6,836	1,194	3,721	2	797	91	-	-	-	12,641
Transfer to assets held for sale (Note 35)	-	-	-	(3,036)	-	(1,396)	(17)	-	-	-	(4,449)
<b>Ending balance</b>	<b>1,082,438</b>	<b>2,190,414</b>	<b>555,425</b>	<b>2,999,040</b>	<b>12,221</b>	<b>312,887</b>	<b>75,232</b>	<b>73,397</b>	<b>904,748</b>	<b>142,286</b>	<b>8,348,088</b>
Cost	1,119,390	2,683,007	1,013,720	10,243,349	35,764	895,714	271,536	211,584	942,202	142,286	17,558,552
Accumulated depreciation	-	(470,547)	(452,658)	(7,127,238)	(23,422)	(569,981)	(194,332)	(136,035)	-	-	(8,974,213)
Accumulated impairment	(36,952)	(22,046)	(5,637)	(117,071)	(121)	(12,846)	(1,972)	(2,152)	(37,454)	-	(236,251)

During the year, the Company capitalized ₩16,554 million of borrowing costs (2017: ₩7,081 million) in relation to acquisition of property, plant and equipment, on property, plant and equipment. The capitalization rate of borrowings used to determine the amount of borrowing costs eligible for capitalization is 2.59% (2017: 2.44%).

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Line items including depreciation in the separate statements of profit or loss for the years ended December 31, 2018 and 2017, are as follows:

<i>(in millions of Korean won)</i>	<b>2018</b>	<b>2017</b>
Cost of sales	838,217	894,304
Selling and administrative expenses	102,263	85,619
Others	2,658	2,182
<b>Total</b>	<u>943,138</u>	<u>982,105</u>

Details of property, plant and equipment classified as a finance lease as at December 31, 2018 and 2017, are as follows:

<i>(in millions of Korean won)</i>	<b>December 31, 2018</b>	<b>December 31, 2017</b>	
	<b>Machinery</b>	<b>Machinery</b>	<b>Construction-in-progress</b>
Cost- capitalized finance leases	45,025	43,274	1,275
Accumulated depreciation	(17,660)	(12,952)	-
Net book amount	<u>27,365</u>	<u>30,322</u>	<u>1,275</u>

The Company leases machinery and construction-in-progress under non-cancellable finance lease agreements. The lease terms are 3~10 years and the contracts include an agreement that the ownership of the assets is transferred by the end of the lease term.

The Company reviews annually whether there is any indication that an asset may be impaired. During 2018, the Company recognized impairment loss of ₩38,322 million relating to the property and equipments held by Basic materials & Chemicals segment and others, which are not expected to contribute to the generation of future economic benefits due to the changes in the usage pattern of the assets.

During 2017, certain equipment in LED Encap business, a CGU in IT & Electronic materials and Advanced materials segment, were tested for reversal of impairment as the future economic performance of OLED material division was estimated to exceed the previous expectation due to a transfer of LED Encap business to OLED material compound process.

The amount of (reversal of) impairment loss recognized as other non-operating (income) expenses and key assumptions used for calculation of value in use for the year ended December 31, 2017, are as follows:

<i>(in millions of Korean won)</i>	<b>2017</b>	
	<b>Glass Substrate<sup>1</sup></b>	<b>LED Encap</b>
<b>Impaired amount</b>		
Property, plant and equipment	124,138	(11,320)
Intangible assets	2,345	(6)
<b>Key assumptions</b>		
Pre-tax discount rate	Not applicable	12.3%
Growth rate for subsequent years exceeding five years	Not applicable	-%

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<sup>1</sup> The recoverable amount is calculated based on fair value less cost of disposal and it is a nonrecurring fair value measured by an observable transaction price. It is categorized as level 2 of the fair value hierarchy.

**12. Intangible Assets**

Changes in intangible assets for the years ended December 31, 2018 and 2017, are as follows:

(in millions of Korean won)

	2018					
	Development costs	Industrial property rights	Goodwill	Memberships	Others	Total
<b>Beginning balance</b>	164,136	229,943	723,756	50,156	250,197	1,418,188
Separate acquisitions/ Transfer	69,572	62,688	-	701	34,178	167,139
Additions – internal development	15,353	-	-	-	-	15,353
Disposals/ Transfer	(12,829)	(49)	-	(623)	(23,102)	(36,603)
Amortization	(35,348)	(22,163)	-	-	(29,583)	(87,094)
Impairment	(1,661)	-	-	-	(50)	(1,711)
<b>Ending balance</b>	<b>199,223</b>	<b>270,419</b>	<b>723,756</b>	<b>50,234</b>	<b>231,640</b>	<b>1,475,272</b>

(in millions of Korean won)

	2017					
	Development costs	Industrial property rights	Goodwill	Memberships	Others	Total
<b>Beginning balance</b>	73,749	189,958	37,527	50,433	45,786	397,453
Business combination (Note 34)	53,913	12,714	686,229	3,723	203,097	959,676
Separate acquisitions/ Transfer	62,484	46,439	-	1,542	30,042	140,507
Additions – internal development	13,361	-	-	-	-	13,361
Disposals/ Transfer	(8,086)	(55)	-	(4,409)	(138)	(12,688)
Amortization	(29,941)	(17,887)	-	-	(28,437)	(76,265)
Impairment	(1,350)	(868)	-	(1,133)	(153)	(3,504)
Reversal of impairment	6	-	-	-	-	6
Transfer to assets held for sale (Note 35)	-	(358)	-	-	-	(358)
<b>Ending balance</b>	<b>164,136</b>	<b>229,943</b>	<b>723,756</b>	<b>50,156</b>	<b>250,197</b>	<b>1,418,188</b>

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Line items including amortization of intangible assets for the years ended December 31, 2018 and 2017, as follows:

<i>(in millions of Korean won)</i>	<b>2018</b>	<b>2017</b>
Cost of sales	18,111	15,509
Selling and administrative expenses	68,983	60,756
<b>Total</b>	<u>87,094</u>	<u>76,265</u>

The Company recognized total research and development costs of ₩920,652 million (2017: ₩791,500 million) as expenses.

Changes in greenhouse gas emission permits for the years ended December 31, 2018 and 2017, are as follows:

<i>(in thousands of tons and millions of Korean won)</i>	<b>2018</b>					
	<b>2017</b>		<b>2018</b>		<b>Total</b>	
	<b>Quantity</b>	<b>Amount</b>	<b>Quantity</b>	<b>Amount</b>	<b>Quantity</b>	<b>Amount</b>
<b>Beginning balance</b>	7,366	18,635	6,588	-	13,954	18,635
Allocation with nil consideration	159	-	891	-	1,050	-
Purchase	531	11,826	-	-	531	11,826
Carry forward between years	(330)	(7,359)	330	7,359	-	-
Surrendered to the government	(7,726)	(23,102)	-	-	(7,726)	(23,102)
<b>Ending balance</b>	<u>-</u>	<u>-</u>	<u>7,809</u>	<u>7,359</u>	<u>7,809</u>	<u>7,359</u>

<i>(in thousands of tons and millions of Korean won)</i>	<b>2017</b>					
	<b>2016</b>		<b>2017</b>		<b>Total</b>	
	<b>Quantity</b>	<b>Amount</b>	<b>Quantity</b>	<b>Amount</b>	<b>Quantity</b>	<b>Amount</b>
<b>Beginning balance</b>	6,145	-	6,442	-	12,587	-
Allocation with nil consideration	350	-	726	-	1,076	-
Purchase	250	5,133	873	18,635	1,123	23,768
Business combination	24	-	25	-	49	-
Carry forward between years	700	-	(700)	-	-	-
Surrendered to the government	(7,469)	(5,133)	-	-	(7,469)	(5,133)
<b>Ending balance</b>	<u>-</u>	<u>-</u>	<u>7,366</u>	<u>18,635</u>	<u>7,366</u>	<u>18,635</u>

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Goodwill is allocated to the Company's CGUs identified for each operating segment. The carrying amounts of goodwill allocation by CGUs as at December 31, 2018 and 2017, are as follows:

(in millions of Korean won)

CGUs	December 31, 2018				Total
	Acquisition of LG Petrochemical Co., Ltd	Acquisition of SAP business	Acquisition of PSAA business	Merger of LG Life Sciences, Ltd,	
<b>Basic materials&amp; Chemicals</b>					
NCC	2,639	-	-	-	2,639
ABS	1,472	-	-	-	1,472
PO	1,054	-	-	-	1,054
PVC	808	-	-	-	808
Acrylic	350	25,222	-	-	25,572
Plasticizer	53	-	-	-	53
BPA	467	-	-	-	467
Others	1,350	-	-	-	1,350
<b>IT &amp; Electronic materials and Advanced materials</b>					
PSAA	-	-	4,112	-	4,112
<b>Life Sciences</b>					
Life sciences	-	-	-	686,229	686,229
<b>Total</b>	<b>8,193</b>	<b>25,222</b>	<b>4,112</b>	<b>686,229</b>	<b>723,756</b>

(in millions of Korean won)

CGUs	December 31, 2017				Total
	Acquisition of LG Petrochemical Co., Ltd	Acquisition of SAP business	Acquisition of PSAA business	Merger of LG Life Sciences, Ltd,	
<b>Basic materials&amp; Chemicals</b>					
NCC	2,639	-	-	-	2,639
ABS	1,472	-	-	-	1,472
PO	1,054	-	-	-	1,054
PVC	808	-	-	-	808
Acrylic	350	25,222	-	-	25,572
Plasticizer	53	-	-	-	53
BPA	467	-	-	-	467
Others	1,350	-	-	-	1,350
<b>IT &amp; Electronic materials and Advanced materials</b>					
PSAA	-	-	4,112	-	4,112
<b>Life Sciences</b>					
Life sciences	-	-	-	686,229	686,229
<b>Total</b>	<b>8,193</b>	<b>25,222</b>	<b>4,112</b>	<b>686,229</b>	<b>723,756</b>

The recoverable amounts of CGUs have been determined based on value-in-use or fair value less cost of disposal calculations. Value-in-use calculations use pre-tax cash flow projections based on financial budgets approved by management covering a five-year period. Fair value less cost of disposal reflects expectation of future business and usage pattern of assets from the perspective of market participants. Management determined the estimated pre-tax cash flow based on past performance and its expectations of market development. Discount rates applied by the management are the pre-tax discount rates reflecting specific risks relating to the relevant operating segments.

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During 2018, key assumptions used for calculation of value in use and fair value less cost of disposal are as follows:

<i>(in millions of Korean won)</i>	<b>2018</b>	
	<b>Pre-tax discount rate</b>	<b>Growth rate for subsequent years after five years</b>
Acquisition of LG Petrochemical Co., Ltd.	10.8%	0.0%
Acquisition of SAP business	10.5%	0.0%
Acquisition of PSAA business	9.9%	0.0%
Merger of LG Life Sciences	10.8%	3.0%

The results of the sensitivity analysis for the fair value less cost of disposal calculation of Life Sciences CGU are as follows:

<i>(in millions of Korean won)</i>	<b>0.5% Increase</b>	<b>0.5% Decrease</b>
<b>Discount rate</b>		
Increase(decrease) in fair value	(145,672)	171,911
<b>Growth rate</b>		
Increase(decrease) in fair value	116,573	(98,805)

Had the discount rate been 0.5% higher than the management's estimate, the Company should have recognized impairment loss of ₩22,296 million from the carrying value of goodwill.

**13. Other Current and Non-current Assets**

Details of other current and non-current assets as at December 31, 2018 and 2017, consist of:

<i>(in millions of Korean won)</i>	<b>December 31, 2018</b>	<b>December 31, 2017</b>
<b>Current</b>		
Prepayments to suppliers and prepaid expense	50,399	39,290
Prepaid value added tax	88,525	83,433
Others	17,614	21,150
<b>Total</b>	<b>156,538</b>	<b>143,873</b>
<b>Non-current</b>		
Long-term prepayments and prepaid expenses	60,593	66,393
<b>Total</b>	<b>60,593</b>	<b>66,393</b>

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**14. Borrowings**

Borrowings as at December 31, 2018 and 2017, are as follows:

<i>(in millions of Korean won)</i>	<b>December 31, 2018</b>	<b>December 31, 2017</b>
<b>Current</b>		
Current portion of long-term borrowings of bank loans	49,992	129,922
Finance lease liabilities	5,008	5,137
	<u>55,000</u>	<u>135,059</u>
<b>Non-current</b>		
Debentures	2,413,478	847,809
Finance lease liabilities	23,236	27,367
	<u>2,436,714</u>	<u>875,176</u>
<b>Total</b>	<u>2,491,714</u>	<u>1,010,235</u>

Details of debentures as at December 31, 2018 and 2017, are as follows:

<i>(in millions of Korean won)</i>		<b>December 31, 2018</b>				
<b>Financial institution</b>	<b>Annual interest rate (%)</b>	<b>Latest maturity date</b>	<b>Amount in Korean won</b>	<b>Current</b>	<b>Non-current</b>	
<b>48<sup>th</sup> Debenture (non-guaranteed/public)</b>	NH Investment & Securities Co., Ltd. and others	3.77	2019.02.21	50,000	50,000	-
<b>50-1<sup>st</sup> Debenture (non-guaranteed/public)</b>	NH Investment & Securities Co., Ltd. and others	1.95	2020.05.19	120,000	-	120,000
<b>50-2<sup>nd</sup> Debenture (non-guaranteed/public)</b>	NH Investment & Securities Co., Ltd. and others	2.28	2022.05.19	400,000	-	400,000
<b>50-3<sup>rd</sup> Debenture (non-guaranteed/public)</b>	NH Investment & Securities Co., Ltd. and others	2.53	2024.05.19	280,000	-	280,000
<b>51-1<sup>st</sup> Debenture (non-guaranteed/public)</b>	NH Investment & Securities Co., Ltd. and others	2.56	2021.02.20	190,000	-	190,000
<b>51-2<sup>nd</sup> Debenture (non-guaranteed/public)</b>	NH Investment & Securities Co., Ltd. and others	2.88	2023.02.20	240,000	-	240,000
<b>51-3<sup>rd</sup> Debenture (non-guaranteed/public)</b>	NH Investment & Securities Co., Ltd. and others	3.07	2025.02.20	270,000	-	270,000
<b>51-4<sup>th</sup> Debenture (non-guaranteed/public)</b>	NH Investment & Securities Co., Ltd. and others	3.29	2028.02.20	300,000	-	300,000
<b>1-1<sup>st</sup> USD Overseas Convertible bonds<sup>1</sup></b>	Credit Suisse	-	2021.04.16	245,982	-	245,982
<b>1-2<sup>nd</sup> EUR Overseas Convertible bonds<sup>2</sup></b>	Credit Suisse	-	2021.04.16	403,191	-	403,191
Less: discount on debentures				<u>(35,703)</u>	<u>(8)</u>	<u>(35,695)</u>
<b>Total</b>				<u>2,463,470</u>	<u>49,992</u>	<u>2,413,478</u>

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<sup>1</sup> Details of 1-1<sup>st</sup> USD overseas convertible bonds are as follows:

	<b>Details</b>
<b>Aggregate principal amount</b>	USD 220,000,000
<b>Issue price</b>	USD 220,000,000
<b>Coupon rate (%)</b>	0.00
<b>Issue date</b>	April 16, 2018
<b>Maturity date</b>	April 16, 2021
<b>Redemption</b>	- Redemption at maturity: Outstanding bond principal, which is not repaid early or which call option is not exercised on, is repaid at maturity as a lump sum. - Prepayment: The issuer has a call option.
<b>Underlying shares</b>	509,606 registered ordinary shares (treasury shares)
<b>Conversion price (Korean won/shares)</b>	460,000
<b>Conversion period</b>	From May 27, 2018 to April 06, 2021
<b>Call option by the issuer</b>	- Share price (based on closing price) is higher than 130% of conversion price for more than 20 trading days during 30 consecutive trading days in a row, after 1 year from the closing date. - The amount of outstanding bonds is less than 10% in aggregate principal amount of the bonds originally issued (clean up call). - As a result of changes relating to tax laws in Korea, the issuer becomes obliged to pay any additional amounts.
<b>Call option by bondholders</b>	- The shares cease to be listed or admitted to trading or are suspended for a period equal to or exceeding 30 consecutive trading days. - The occurrence of a change of control

<sup>2</sup> Details of 1-2<sup>nd</sup> EUR overseas convertible bonds are as follows:

	<b>Details</b>
<b>Aggregate principal amount</b>	EUR 315,200,000
<b>Issue price</b>	EUR 315,200,000
<b>Coupon rate (%)</b>	0.00
<b>Issue date</b>	April 16, 2018
<b>Maturity date</b>	April 16, 2021
<b>Redemption</b>	- Redemption at maturity: Outstanding bond principal, which is not repaid early or which call option is not exercised on, is repaid at maturity as a lump sum. - Prepayment: The issuer has a call option.
<b>Underlying shares</b>	775,128 registered ordinary shares (treasury shares)
<b>Conversion price (Korean won/shares)</b>	533,600
<b>Conversion period</b>	From May 27, 2018 to April 06, 2021
<b>Call option by the issuer</b>	- Share price (based on closing price) is higher than 130% of conversion price for more than 20 trading days during 30 consecutive trading days in a row, after 1 year from the closing date. - The amount of outstanding bonds is less than 10% in aggregate principal amount of the bonds originally issued (clean up call). - As a result of changes relating to tax laws in Korea, the issuer becomes obliged to pay any additional amounts.
<b>Call option by bondholders</b>	- The shares cease to be listed or admitted to trading or are suspended for a period equal to or exceeding 30 consecutive trading days. - The occurrence of a change of control



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(in millions of Korean won)

		December 31, 2017				
	Financial institution	Annual interest rate (%)	Latest maturity date	Amount in Korean won	Current	Non-current
<b>47<sup>th</sup> Debenture (non-guaranteed/private)</b>	Government Employees Pension Service and others	3.20	2018.04.30	30,000	30,000	-
<b>48<sup>th</sup> Debenture (non-guaranteed/public)</b>	NH Investment & Securities Co., Ltd. and others	3.77	2019.02.21	50,000	-	50,000
<b>49<sup>th</sup> Debenture (non-guaranteed/private)</b>	KB Asset Management Co., Ltd and others	2.82	2018.12.12	100,000	100,000	-
<b>50-1<sup>st</sup> Debenture (non-guaranteed/public)</b>	NH Investment & Securities Co., Ltd. and others	1.95	2020.05.19	120,000	-	120,000
<b>50-2<sup>nd</sup> Debenture (non-guaranteed/public)</b>	NH Investment & Securities Co., Ltd. and others	2.28	2022.05.19	400,000	-	400,000
<b>50-3<sup>rd</sup> Debenture (non-guaranteed/public)</b>	NH Investment & Securities Co., Ltd. and others	2.53	2024.05.19	280,000	-	280,000
Less: discount on debentures				(2,269)	(78)	(2,191)
<b>Total</b>				<b>977,731</b>	<b>129,922</b>	<b>847,809</b>

Details of finance lease liabilities as at December 31, 2018 and 2017, are as follows:

(in millions of Korean won)

		December 31, 2018			
Leaser	Annual interest rate (%)	Latest maturity date	Total amount	Current	Non-current
Hyundai Oil Bank	3.12	2024.12.31	27,168	4,886	22,282
CHUNGBUK					
TECHNOPARK	4.13	2023.12.31	1,076	122	954
<b>Total</b>			<b>28,244</b>	<b>5,008</b>	<b>23,236</b>

(in millions of Korean won)

		December 31, 2017			
Leaser	Annual interest rate (%)	Latest maturity date	Total amount	Current	Non-current
Hyundai Oil Bank	3.12	2024.12.31	31,226	4,886	26,340
Others	3.7 ~ 4.13	2023.12.31	1,278	251	1,027
<b>Total</b>			<b>32,504</b>	<b>5,137</b>	<b>27,367</b>

The present value of finance lease liabilities as at December 31, 2018 and 2017, is as follows:

(in millions of Korean won)

	December 31, 2018			December 31, 2017		
	Minimum lease payments	Future finance costs	Present value	Minimum lease payments	Future finance costs	Present value
Within 1 year	5,177	169	5,008	5,253	116	5,137
Between 1-5 years	21,064	2,013	19,051	20,710	2,006	18,704
Over 5 years	5,000	815	4,185	10,532	1,869	8,663

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**15. Provisions**

Changes in the carrying amount of provisions for the years ended December 31, 2018 and 2017, are as follows:

(in millions of Korean won)

	2018				
	Warranty <sup>1</sup>	Greenhouse gas emission <sup>2</sup>	Legal claims <sup>3</sup>	Restoration <sup>4</sup>	Total
<b>Beginning balance</b>	81,105	23,069	18,806	2,858	125,838
Additions	191,959	11,733	6,718	1,513	211,923
Used	(99,871)	(23,102)	(25,166)	(633)	(148,772)
<b>Ending balance</b>	173,193	11,700	358	3,738	188,989
Less : current portion	(81,639)	(11,700)	-	-	(93,339)
<b>Total</b>	<b>91,554</b>	<b>-</b>	<b>358</b>	<b>3,738</b>	<b>95,650</b>

(in millions of Korean won)

	2017				
	Warranty <sup>1</sup>	Greenhouse gas emission <sup>2</sup>	Legal claims <sup>3</sup>	Restoration <sup>4</sup>	Total
<b>Beginning balance</b>	41,734	27,801	7,894	800	78,229
Business combination	5,994	59	-	-	6,053
Additions	92,507	342	72,187	2,720	167,756
Used	(59,130)	(5,133)	(61,275)	(662)	(126,200)
<b>Ending balance</b>	81,105	23,069	18,806	2,858	125,838
Less : current portion	(16,594)	(23,069)	-	-	(39,663)
<b>Total</b>	<b>64,511</b>	<b>-</b>	<b>18,806</b>	<b>2,858</b>	<b>86,175</b>

<sup>1</sup> Warranty provisions have been accrued for the estimated warranty costs to be incurred due to quality control, exchange, refunds with regard to products based on historical experience.

<sup>2</sup> Greenhouse gas emission provisions have been accrued for estimated expenditures to be obligated for any excess emission. The estimated emission for the year ended December 31, 2018, amounts to 7,758 thousand tons (2017: 7,631 thousand tons).

<sup>3</sup> Lawsuit provisions have been accrued for certain pending cases.

<sup>4</sup> Restoration provisions have been accrued based on the estimated expenses to restore land pollutions.

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**16. Net Defined Benefit Liability**

Details of net defined benefit liabilities recognized in the statements of financial position as at December 31, 2018 and 2017, are as follows:

<i>(in millions of Korean won)</i>	<b>December 31, 2018</b>	<b>December 31, 2017</b>
Present value of defined benefit obligations <sup>1</sup>	1,108,144	994,826
Fair value of plan assets	<u>(913,995)</u>	<u>(846,272)</u>
<b>Liability in the separate statement of financial position</b>	<b><u>194,149</u></b>	<b><u>148,554</u></b>

<sup>1</sup> The present value of retirement benefit obligations is net of existing contributions to the National Pension Plan of ₩786 million as at December 31, 2018 (2017: ₩806 million).

The amounts recognized in the separate statements of profit or loss for the years ended December 31, 2018 and 2017, are as follows:

<i>(in millions of Korean won)</i>	<b>2018</b>	<b>2017</b>
Current service cost <sup>1</sup>	137,257	129,744
Interest cost	<u>4,694</u>	<u>1,806</u>
<b>Total, included in employee benefit expenses</b>	<b><u>141,951</u></b>	<b><u>131,550</u></b>

<sup>1</sup> The above amounts excluded ₩1,095 million (2017: ₩826 million) of expenses capitalized to construction in progress and development costs.

Post-employment benefits recognized for defined contribution plan for the year ended December 31, 2018, amounted to ₩4,580 million (2017: ₩2,395 million).

Post-employment benefits recognized in the separate statements of profit or loss for the years ended December 31, 2018 and 2017, are as follows:

<i>(in millions of Korean won)</i>	<b>2018</b>	<b>2017</b>
Cost of sales	98,500	91,740
Selling and administrative expenses	<u>48,031</u>	<u>43,035</u>
<b>Total</b>	<b><u>146,531</u></b>	<b><u>134,775</u></b>

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Movements in the present value of defined benefit obligations for the years ended December 31, 2018 and 2017, are as follows:

<i>(in millions of Korean won)</i>	<b>2018</b>	<b>2017</b>
<b>Beginning balance</b>	994,826	830,340
Business combination (Note 34)	-	69,600
Transfer in	11,153	7,466
Transfer out	(8,411)	(2,278)
Current service cost	138,352	130,570
Interest expense	30,811	25,214
Remeasurements:		
Actuarial loss from change in demographic assumptions	2,553	4,100
Actuarial loss (gain) from change in financial assumptions	61,088	(38,397)
Actuarial loss from experience adjustments	2,139	30,069
Others	(91)	1,060
Payments from plans	(124,277)	(62,918)
<b>Ending balance</b>	<u>1,108,143</u>	<u>994,826</u>

Movements in the fair value of plan assets for the years ended December 31, 2018 and 2017, are as follows:

<i>(in millions of Korean won)</i>	<b>2018</b>	<b>2017</b>
<b>Beginning balance</b>	846,272	783,950
Business combination (Note 34)	-	57,771
Transfer in	1,546	-
Transfer out	(628)	(504)
Interest income	26,117	23,408
Remeasurements:		
Return on plan assets (excluding amounts included in interest income)	(8,668)	(7,309)
Contributions:		
Employers	150,000	45,000
Payments from plans	(99,717)	(55,132)
Administrative costs	(927)	(912)
<b>Ending balance</b>	<u>913,995</u>	<u>846,272</u>

The actual return on plan assets for the year ended December 31, 2018, was ₩17,449 million (2017: ₩16,099 million).

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The significant actuarial assumptions as at December 31, 2018 and 2017, are as follows:

	<b>December 31, 2018</b>	<b>December 31, 2017</b>
Discount rate	2.7%	3.1%
Salary growth rate	5.0%	5.0%

The sensitivity analysis for changes in key actuarial assumptions as at December 31, 2018, is as follows:

<i>(in millions of Korean won)</i>	<b>Increase by 0.5%</b>	<b>Decrease by 0.5%</b>
Discount rate:		
Increase (decrease) in defined benefit obligations	(61,555)	67,507
Salary growth rate:		
Increase (decrease) in defined benefit obligations	65,789	(60,673)

A decrease in corporate bond yields may lead most significantly to an increase in defined benefit liabilities.

The above sensitivity analyses are based on a change in an assumption while holding all other assumptions constant. In practice, this is unlikely to occur, and changes in some of the assumptions may be correlated. The sensitivity of the defined benefit obligation to changes in principal actuarial assumptions is calculated using the projected unit credit method, the same method applied when calculating the defined benefit obligations recognized on the statement of financial position.

The methods and types of assumptions used in preparing the sensitivity analysis did not change compared to the prior period.

Plan assets as at December 31, 2018 and 2017, consist of:

<i>(in millions of Korean won)</i>	<b>December 31, 2018</b>		<b>December 31, 2017</b>	
	<b>Amount</b>	<b>Composition</b>	<b>Amount</b>	<b>Composition</b>
Insurance contracts with guaranteed yield	913,995	100%	846,272	100%

Plan assets consist of various debt instruments with principal and interest protection and others which have no quoted market prices in an active market.

As at December 31, 2018, the weighted average duration of defined benefit obligation is 12.29 years.

The Company reviews the funding level on an annual basis and has a policy of eliminating deficit from the fund. Expected contributions to post-employment benefit plans for the year ending December 31, 2019, are ₩356,522 million.

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**17. Other Current and Non-current Liabilities**

Details of other current and non-current liabilities as at December 31, 2018 and 2017, are as follows:

<i>(in millions of Korean won)</i>	<b>December 31, 2018</b>	<b>December 31, 2017</b>
<b>Current</b>		
Advances from customers	149,075	471,067
Withholding	102,302	76,294
Unearned revenues	9,193	7,426
Accrued expenses	253,429	229,156
<b>Total</b>	<u>513,999</u>	<u>783,943</u>
<b>Non-current</b>		
Long-term accrued expenses	51,635	43,983
Long-term unearned revenues	44,060	24,236
<b>Total</b>	<u>95,695</u>	<u>68,219</u>

**18. Commitments and Contingencies**

- (1) As at December 31, 2018, the Company has been guaranteed from the Seoul Guarantee Insurance Company for the execution of contracts and others.
- (2) As at December 31, 2018, the Company has provided one blank promissory note to the Korea National Oil Corporation as collateral in relation to petroleum import surcharges.
- (3) As at December 31, 2018, the Company has bank overdraft agreements with several banks for up to ₩59,100 million, and has entered into contracts with several financial institutions, for discounting notes from export for up to US\$ 1,193 million, and for letters of credit for up to ₩32,000 million and US\$ 498 million, and for the guaranteed payments in foreign currency for up to US\$ 135 million. The Company also has comprehensive line of credit agreements with several financial institutions for up to ₩20,000 million and US\$ 55 million.
- (4) As at December 31, 2018, the Company has B2B purchase arrangements with several financial institutions amounting to ₩410,000 million.
- (5) As at December 31, 2018, in relation to price fixing of mobile batteries, the consumers in Canada and Israel have filed two class actions against the Company. However, the ultimate outcome of these cases cannot be determined at the reporting date.
- (6) In addition, as at December 31, 2018, the Company have been named as a plaintiff in 11 legal actions involving ₩18,907 million, and as a defendant in 102 legal actions with ₩58,524 million. The ultimate outcome of these cases cannot be determined at the reporting date.
- (7) The Company has entered into technology transfer contracts with ExxonMobile and others and agreed to be provided technologies and services.
- (8) The Company has entered into a license agreement with LG Corp. to use trademarks on the products that the Company manufactures and sells, and on the services the Company provides in relation to its business.
- (9) As at December 31, 2018, the Company has contracts of US\$ 4 million and EUR 6 million in guarantees with financial institutions in regard to warranty for certain products.

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(10) As at December 31, 2018, the Company has guaranteed the repayment of various obligations of its subsidiaries. The outstanding balance of such guarantees as at December 31, 2018, amounts to ₩622,415 million (2017: ₩346,810 million). Details of guarantees provided as at December 31, 2018 and 2017, are as follows:

<i>(in millions of Korean won)</i>			Amount of guarantee		Outstanding loan amount	
			December 31, 2018	December 31, 2017	December 31, 2018	December 31, 2017
Guarantee beneficiary	Financial institution	Guarantee period				
LG Chem Wroclaw Energy sp. z o.o.	Citibank	2017.07.31 ~ 2020.04.06	38,356	38,298	38,356	38,298
LG Chem Wroclaw Energy sp. z o.o.	Citibank	2017.07.28 ~ 2019.07.27	25,570	25,532	-	-
LG Chem Wroclaw Energy sp. z o.o.	Citibank	2018.11.02 ~ 2023.10.31	63,926	-	63,926	-
LG Chem Wroclaw Energy sp. z o.o.	Citibank	2018.12.12 ~ 2019.12.11	31,963	-	-	-
LG Chem Wroclaw Energy sp. z o.o.	BNP	2017.09.27 ~ 2019.12.13	19,178	19,151	19,178	19,151
LG Chem Wroclaw Energy sp. z o.o.	ING	2017.09.01 ~ 2022.09.01	63,926	63,829	63,926	63,829
LG Chem Wroclaw Energy sp. z o.o.	ING	2018.11.23 ~ 2023.11.23	63,926	-	63,926	-
LG Chem Wroclaw Energy sp. z o.o.	ING	2018.11.23 ~ 2023.11.23	25,570	-	25,570	-
FarmHannong Co.,Ltd.	Creditors	2017.02.16 ~ 2020.02.16	100,000	100,000	100,000	100,000
FarmHannong Co.,Ltd.	Creditors	2017.02.16 ~ 2022.02.16	100,000	100,000	100,000	100,000
FarmHannong Co.,Ltd.	Creditors	2018.03.02 ~ 2021.03.02	50,000	-	50,000	-
FarmHannong Co.,Ltd.	Creditors	2018.03.02 ~ 2023.03.02	40,000	-	40,000	-
<b>Total</b>			<b>622,415</b>	<b>346,810</b>	<b>564,882</b>	<b>321,278</b>

In addition, the Company provides Letters of Comfort (LOC) in relation to certain borrowings of subsidiaries.

Further, as at December 31, 2018, the Company provided no financial guarantee to its associates in relation to their borrowings.

(11) Capital expenditure arrangement that has not incur at the end of the reporting period is as follows:

<i>(in millions of Korean won)</i>	December 31, 2018	December 31, 2017
Property, plant and equipment	1,374,031	1,268,079

(12) The Company has entered into operating lease agreements for offices, equipment, ports and others. Most of the agreements will be terminated within a year.

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**19. Share Capital**

Changes in share capital and share premium for the years ended December 31, 2018 and 2017, are as follows:

*(in millions of Korean won and in shares)*

	Ordinary shares		Preferred shares		Share premium
	Number of shares	Share capital	Number of shares	Share capital	
January 1, 2017	66,271,100	331,356	7,628,921	38,144	897,840
Share issuance due to business combination	4,321,243	21,606	59,879	300	1,116,614
December 31, 2017	70,592,343	352,962	7,688,800	38,444	2,014,454
December 31, 2018	70,592,343	352,962	7,688,800	38,444	2,014,454

Changes in treasury shares for the years ended December 31, 2018 and 2017, are as follows:

<i>(in millions of Korean won and in shares)</i>	Number of shares		Carrying amount	Gain on disposal of treasury shares
	Ordinary shares	Preferred shares		
January 1, 2017	359,795	5,519	15,484	13,855
Purchase of treasury shares due to business combination	1,284,891	10,328	337,211	-
Acquisition of fractional shares due to business combination	7,730	520	2,250	-
December 31, 2017	1,652,416	16,367	354,945	13,855
Odd-lot stock acquisition	1	-	-	-
December 31, 2018	1,652,417	16,367	354,945	13,855



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**20. Retained Earnings**

Retained earnings as at December 31, 2018 and 2017, consist of:

<i>(in millions of Korean won)</i>	<b>December 31, 2018</b>	<b>December 31, 2017</b>
Legal reserve <sup>1</sup>	195,703	184,750
Discretionary reserve <sup>2</sup>	12,532,733	11,401,525
Retained earnings before appropriation	<u>1,527,156</u>	<u>1,602,220</u>
<b>Total</b>	<b><u>14,255,592</u></b>	<b><u>13,188,495</u></b>

<sup>1</sup> The Commercial Code of the Republic of Korea requires the Company to appropriate for each financial period, as a legal reserve, an amount equal to a minimum of 10% of cash dividends paid until such reserve equals 50% of its issued share capital. The reserve is not available for cash dividends payment, but may be transferred to share capital or used to reduce accumulated deficit. When the accumulated legal reserves (the sum of capital reserves and earned profit reserves) are greater than 1.5 times the paid-in capital amount, the excess legal reserves may be distributed in accordance with a resolution of the shareholders' meeting.

<sup>2</sup> The Company separately accumulates a discretionary reserve for research and human resource development through appropriation of retained earnings, which has been included as deductible expense for the corporate income tax return according to the Special Tax Treatment Law. The reserve could be reversed in accordance with the terms of related tax laws.

**21. Other Components of Equity**

Details of other components of equity as at December 31, 2018 and 2017, are as follows:

<i>(in millions of Korean won)</i>	<b>December 31, 2018</b>	<b>December 31, 2017</b>
Treasury shares (Note 19)	(354,945)	(354,945)

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**22. Selling and Administrative Expenses**

Selling and administrative expenses for the years ended December 31, 2018 and 2017, are as follows:

<i>(in millions of Korean won)</i>	<b>2018</b>	<b>2017</b>
Wages and salaries	655,698	571,176
Post-employment benefits (Note 16)	48,031	43,035
Employee benefits	109,866	95,910
Travel expense	46,136	37,764
Water & utilities	42,714	34,256
Packaging expenses	6,998	6,323
Rental expenses	94,939	84,035
Commission expenses	469,289	391,798
Depreciation (Note 11)	102,263	85,619
Advertising expense	27,436	25,485
Freight expenses	420,491	404,303
Training expense	21,138	16,569
Amortization (Note 12)	68,982	60,756
Sample expense	12,447	13,021
Development costs	187,660	156,639
Others	283,562	191,083
<b>Total</b>	<u>2,597,650</u>	<u>2,217,772</u>

**23. Breakdown of Expenses by Nature**

Cost of sales, and selling and administrative expenses by nature for the years ended December 31, 2018 and 2017, consist of:

<i>(in millions of Korean won)</i>	<b>2018</b>	<b>2017</b>
Changes in inventories of merchandise, finished goods, semi-finished goods and work in process	(172,048)	(98,893)
Raw materials and consumables used	13,698,788	11,213,911
Purchase of merchandise	1,252,906	1,216,286
Employee benefit expenses (Note 24)	1,903,689	1,794,299
Advertising expenses	28,903	26,801
Freight expenses	445,800	428,773
Commission expenses	653,185	550,909
Depreciation and amortization	1,027,585	1,056,188
Operating lease payments	53,799	51,280
Other expenses	2,469,093	2,347,453
<b>Total</b>	<u>21,361,700</u>	<u>18,587,007</u>

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**24. Employee Benefit Expenses**

Details of employee benefit expenses for the years ended December 31, 2018 and 2017, are as follows:

<i>(in millions of Korean won)</i>	<b>2018</b>	<b>2017</b>
Salaries	1,612,708	1,524,019
Post-employment benefits – Defined benefit plan (Note 16)	141,951	131,550
Post-employment benefits – Defined contribution plan (Note 16)	4,580	3,225
Others	144,450	135,505
<b>Total</b>	<u>1,903,689</u>	<u>1,794,299</u>

**25. Finance Income and Costs**

Details of finance income and costs for the years ended December 31, 2018 and 2017, are as follows:

<i>(in millions of Korean won)</i>	<b>2018</b>	<b>2017</b>
<b>Finance income</b>		
Interest income <sup>1</sup>	36,073	22,382
Dividend income	116,134	71,229
Gain on foreign exchange	121,856	131,573
Gain on foreign currency translation	14,313	3,692
Gain on valuation of derivative instruments	2,855	-
Gain on disposal of derivative instruments	-	170
<b>Total</b>	<u>291,231</u>	<u>229,046</u>
<b>Finance costs</b>		
Interest expense <sup>2</sup>	49,014	22,198
Loss on foreign exchange	114,505	196,450
Loss on foreign exchange translations	25,470	1,908
Loss on valuation of derivative instruments	99	-
<b>Total</b>	<u>189,088</u>	<u>220,556</u>

<sup>1</sup> Details of interest income for the years ended December 31, 2018 and 2017, are as follows:

<i>(in millions of Korean won)</i>	<b>2018</b>	<b>2017</b>
Deposits held by financial institutions	35,983	21,828
Other loans and receivables	90	554
<b>Total</b>	<u>36,073</u>	<u>22,382</u>

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<sup>2</sup> Details of interest expense for the years ended December 31, 2018 and 2017, are as follows:

<i>(in millions of Korean won)</i>	<b>2018</b>	<b>2017</b>
Interest on bank overdraft and borrowings	4,846	7,988
Interest on finance lease liabilities	993	1,578
Interest on debentures	59,729	19,713
Capitalized interest for qualifying assets	(16,554)	(7,081)
<b>Total</b>	<u>49,014</u>	<u>22,198</u>

**26. Other Non-Operating Income**

Details of other non-operating income for the years ended December 31, 2018 and 2017, are as follows:

<i>(in millions of Korean won)</i>	<b>2018</b>	<b>2017</b>
Gain on foreign exchange	228,034	267,003
Gain on foreign currency translation	11,328	26,432
Gain on disposal of property, plant and equipment	6,521	11,256
Reversal of impairment loss on property, plant and equipment (Note 11)	452	12,641
Gain on disposal of investments in joint ventures	89	-
Others	20,923	45,550
<b>Total</b>	<u>267,347</u>	<u>362,882</u>

**27. Other Non-Operating Expenses**

Details of other non-operating expenses for the years ended December 31, 2018 and 2017, are as follows:

<i>(in millions of Korean won)</i>	<b>2018</b>	<b>2017</b>
Loss on foreign exchange	177,107	288,928
Loss on foreign currency translation	27,077	73,953
Loss on disposal of property, plant and equipment	12,572	12,565
Loss on disposal of intangible assets	180	2,208
Impairment loss on property, plant and equipment (Note 11)	38,322	140,240
Impairment loss on intangible assets (Note 12)	1,711	3,504
Donations	13,836	34,528
Others	76,112	108,040
<b>Total</b>	<u>346,917</u>	<u>663,966</u>

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**28. Tax Expense and Deferred Tax**

Income tax expense for the years ended December 31, 2018 and 2017, are as follows:

<i>(in millions of Korean won)</i>	<b>2018</b>	<b>2017</b>
Current tax on profit for the year	430,296	558,316
Adjustments in respect of prior years	(2,380)	(19,362)
Deferred tax movement in temporary differences	(59,576)	(138,030)
Deferred tax - change in tax rate	-	(16,776)
Deferred tax - credit carryforwards	(2,280)	8,599
	<u>366,060</u>	<u>392,747</u>
Deferred tax charged directly to equity	8,619	1,527
Current tax charged directly to equity	20,448	1,138
Income tax expense	<u>395,127</u>	<u>395,412</u>

The aggregate current and deferred tax charged directly to equity (other comprehensive income) for the years ended December 31, 2018 and 2017, are as follows:

<i>(in millions of Korean won)</i>	<b>2018</b>	<b>2017</b>
<b>Current tax</b>		
Remeasurements of net defined benefits liabilities	20,448	1,138
<b>Deferred tax</b>		
Gain on disposal of financial assets at fair value through other comprehensive income	424	-
Gain on valuation of financial assets at fair value through other comprehensive income	3,114	1,527
Loss on valuation of derivative instruments	5,081	-
<b>Total</b>	<u>29,067</u>	<u>2,665</u>

Movements in deferred tax assets (liabilities) for the years ended December 31, 2018 and 2017, are as follows:

<i>(in millions of Korean won)</i>	<b>2018</b>			
	<b>Beginning balance</b>	<b>Increase (decrease)</b>		<b>Ending balance</b>
		<b>Profit (loss) for the year</b>	<b>Other comprehensive income</b>	
Defined benefit liability	262,576	36,989	-	299,565
Plan assets	(232,724)	(18,624)	-	(251,348)
Reserve for research and human resources development	(18,334)	18,334	-	-
Provision for impairment on receivables	254	-	-	254
Property, plant and equipment	56,227	(15,556)	-	40,671
Investments in subsidiaries, associates and joint ventures	(1,046)	16,188	-	15,142
Accrued income	(1,062)	754	-	(308)
Others	72,864	12,872	8,619	94,355

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	138,755	50,957	8,619	198,331
Tax credit carryforwards	8,876	2,280	-	11,156
Deferred income tax assets	147,631	53,237	8,619	209,487

(in millions of Korean won)

	<b>2017</b>				
	<b>Increase (decrease)</b>				<b>Ending balance</b>
	<b>Beginning balance</b>	<b>Business combination</b>	<b>Profit (loss) for the year</b>	<b>Other comprehensive income</b>	
Defined benefit liability	192,101	15,483	54,992	-	262,576
Plan assets	(189,433)	(13,965)	(29,326)	-	(232,724)
Reserve for research and human resources development	(56,467)	-	38,133	-	(18,334)
Provision for impairment on receivables	17	-	237	-	254
Property, plant and equipment	24,124	405	31,698	-	56,227
Investments in subsidiaries, associates and joint ventures	(1,046)	-	-	-	(1,046)
Accrued income	(899)	(3)	(160)	-	(1,062)
Others	43,181	(29,548)	57,705	1,526	72,864
	11,578	(27,628)	153,279	1,526	138,755
Tax credit carryforwards	9,352	8,123	(8,599)	-	8,876
Deferred income tax assets (liabilities)	20,930	(19,505)	144,680	1,526	147,631

The reconciliations between income tax expense and accounting profit for the years ended December 31, 2018 and 2017, are as follows:

(in millions of Korean won)

	<b>2018</b>	<b>2017</b>
<b>Profit before income tax expense</b>	<u>1,976,191</u>	<u>2,000,635</u>
<b>Tax at domestic tax rates applicable</b>	533,090	483,692
<b>Tax effects of:</b>		
Income not subject to tax	(31,410)	(4,084)
Expenses not deductible for tax purposes	12,952	226,500
Unrecognized deferred income tax for temporary differences in the current year	(62,217)	(161,858)
Tax credit	(95,367)	(92,786)
Effects of change in tax rate	-	(16,776)
Others	38,079	(39,276)
<b>Income tax expense</b>	<u>395,127</u>	<u>395,412</u>
Effective tax rate (income tax expense/ profit before income tax)	<u>19.99%</u>	<u>19.76%</u>

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Realization of deferred tax assets is dependent on the Company's ability to generate future taxable profits in excess of the profits arising from the reversal of taxable temporary differences, and economic and industry outlooks. Management periodically reviews on these factors.

Details of deductible (taxable) temporary differences unrecognized as deferred tax assets (liabilities) as at December 31, 2018 and 2017, are as follows:

<i>(in millions of Korean won)</i>	<b>December 31, 2018</b>	<b>December 31, 2017</b>
Investment in subsidiaries, associates and joint ventures	2,076	228,320
Land	488	488
Goodwill	(694,422)	(694,422)
<b>Total</b>	<u>(691,858)</u>	<u>(465,614)</u>

**29. Earnings per Share**

Basic earnings per share is calculated by dividing the profit attributable to by the weighted average number of ordinary shares outstanding during the financial year excluding treasury shares. As at the reporting date, the Company has no potential ordinary shares. Preferred shares have a right to participate in the profits of the Company. These participation rights have been considered in presenting the EPS for ordinary shares and preferred shares.

Basic earnings per share for the years ended December 31, 2018 and 2017, is computed as follows:

**Basic earnings per ordinary share**

<i>(in millions of Korean won and in number of shares)</i>	<b>2018</b>	<b>2017</b>
Profit attributable to ordinary shares <sup>1</sup>	1,422,381	1,442,828
Weighted average number of ordinary shares outstanding <sup>2</sup>	<u>68,939,926</u>	<u>68,940,266</u>
Basic earnings per ordinary share (in won)	<u>20,632</u>	<u>20,929</u>

**Basic earnings per preferred share**

<i>(in millions of Korean won and in number of shares)</i>	<b>2018</b>	<b>2017</b>
Profit attributable to preferred shares <sup>1</sup>	158,683	162,395
Weighted average number of preferred shares outstanding <sup>2</sup>	<u>7,672,433</u>	<u>7,672,456</u>
Basic earnings per preferred share (in won)	<u>20,682</u>	<u>21,166</u>

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<sup>1</sup> Profit attributable to ordinary and preferred shares are as follows:

<i>(in millions of Korean won)</i>	<b>2018</b>	<b>2017</b>
<b>Profit attributable to the equity holders of the Parent Company</b>	1,581,064	1,605,223
Ordinary shares dividends (A)	413,640	329,557
Preferred shares dividends (B)	46,418	38,498
<b>Undistributed earnings for the year</b>	1,121,006	1,237,168
Undistributed earnings available for ordinary shares (C)	1,008,741	1,113,271
Undistributed earnings available for preferred shares (D)	112,265	123,897
<b>Profit for the year attributable to ordinary shares (A+C)</b>	1,422,381	1,442,828
<b>Profit for the year attributable to preferred shares (B+D)</b>	158,683	162,395

<sup>2</sup> Weighted average numbers of shares are calculated as follows:

<b>Ordinary shares outstanding</b>	<b>Period</b>	<b>2018</b>		
		<b>Number of shares</b>	<b>Number of days</b>	<b>Number of shares x days</b>
Beginning balance	2018. 1. 1 - 2018. 12. 31	68,939,926	365	25,163,072,990
<b>Total</b>				<u>25,163,072,990</u>

Weighted average number of ordinary shares outstanding: 25,163,072,990 / 365 = 68,939,926 shares

<b>Preferred shares outstanding</b>	<b>Period</b>	<b>2018</b>		
		<b>Number of shares</b>	<b>Number of days</b>	<b>Number of shares x days</b>
Beginning balance	2018. 1. 1 - 2018. 12. 31	7,672,433	365	2,800,438,045
<b>Total</b>				<u>2,800,438,045</u>

Weighted average number of preferred shares outstanding: 2,800,438,045 / 365 = 7,672,433 shares

<b>Ordinary shares outstanding</b>	<b>Period</b>	<b>2017</b>		
		<b>Number of shares</b>	<b>Number of days</b>	<b>Number of shares x days</b>
Beginning balance	2017. 1. 1 - 2017. 12. 31	65,911,305	365	24,057,626,325
Share issuance due to a business combination	2017. 1. 1 - 2017. 12. 31	4,321,243	365	1,577,253,695
Purchase of treasury shares	2017. 1. 1 - 2017. 12. 31	(1,284,891)	365	(468,985,215)
Purchase of treasury shares	2017. 1. 17 - 2017. 12. 31	(7,730)	349	(2,697,770)
<b>Total</b>				<u>25,163,197,035</u>

Weighted average number of ordinary shares outstanding: 25,163,197,035 / 365 = 68,940,266 shares



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Preferred shares outstanding	Period	2017		
		Number of shares	Number of days	Number of shares x days
Beginning balance	2017. 1. 1 - 2017. 12. 31	7,623,402	365	2,782,541,730
Share issuance due to a business combination	2017. 1. 1 - 2017. 12. 31	59,879	365	21,855,835
Purchase of treasury shares	2017. 1. 1 - 2017. 12. 31	(10,328)	365	(3,769,720)
Purchase of treasury shares	2017. 1. 17 - 2017. 12. 31	(520)	349	(181,480)
<b>Total</b>				<u>2,800,446,365</u>

Weighted average number of preferred shares outstanding: 2,800,446,365 / 365 = 7,672,456 shares

Diluted earnings per share is calculated based on the weighted average number of ordinary shares outstanding, adjusted for the assumption that all of dilutive potential ordinary shares to be converted. The Company has one category of dilutive potential ordinary shares: convertible bonds, which were issued during the year ended December 31, 2018. Convertible bonds are considered to be converted into potential ordinary shares and the amount, subtracting income tax effect from related gain and loss such as interest expense on convertible bonds, is added to profit for the period attributable to ordinary shares and preferred shares.

*(in millions of Korean won and in number of shares)*

**2018**

**Diluted earnings per ordinary shares**

Profit for the year attributable to the ordinary shares	1,422,381
Gain and loss on convertible bonds	6,675
Profit used in calculating diluted earnings per share	1,429,056
Weighted average number of ordinary shares outstanding	68,939,926
Adjustments for calculation of diluted earnings per share	915,153
Weighted average number of ordinary shares and potential ordinary shares used as the denominator in calculating diluted earnings per share	<u>69,855,079</u>
Diluted earnings per share attributable to the ordinary shares (in won)	<u>20,457</u>

*(in millions of Korean won and in number of shares)*

**2018**

**Diluted earnings per preferred shares**

Profit for the year attributable to preferred shares	158,683
Gain and loss on convertible bonds	(1,341)
Profit used in calculating diluted earnings per share	157,342
Weighted average number of preferred shares outstanding	7,672,433
Adjustments for calculation of diluted earnings per share	-
Weighted average number of preferred shares and potential preferred shares used as the denominator in calculating diluted earnings per share	<u>7,672,433</u>
Diluted earnings per share attributable to the preferred shares (in won)	<u>20,507</u>

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**30. Dividends**

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

	<b>2018</b>	<b>2017</b>
Number of shares entitled to dividends: shares issued and outstanding (par value per share: ₩5,000)		
Ordinary shares	68,939,926	68,939,927
Preferred shares	7,672,433	7,672,433
Dividend per share ( <i>in Korean won, %</i> )		
Ordinary shares: cash	6,000 (120%)	6,000 (120%)
Preferred shares: cash	6,050 (121%)	6,050 (121%)
Cash dividends to distribute ( <i>in millions of Korean won</i> )		
Ordinary shares	413,640	413,640
Preferred shares	46,418	46,418
	<u>460,058</u>	<u>460,058</u>

Dividend payout ratios for the years ended December 31, 2018 and 2017, are as follows:

<i>(in millions of Korean won)</i>	<b>2018</b>	<b>2017</b>
Dividends (A)	460,058	460,058
Profit attributable to the ordinary equity holders of the Parent Company (B)	1,581,064	1,605,223
Dividend payout ratio (A/B)	<u>29.10%</u>	<u>28.66%</u>

Dividend yield ratios for the years ended December 31, 2018 and 2017, are as follows:

<i>(in Korean won)</i>	<b>2018</b>		<b>2017</b>	
	<b>Ordinary shares</b>	<b>Preferred Shares</b>	<b>Ordinary shares</b>	<b>Preferred Shares</b>
Dividend per share (A)	6,000	6,050	6,000	6,050
Market value at the end of year (B) <sup>1</sup>	353,250	198,125	393,625	245,375
Dividend yield ratio (A/B)	<u>1.70%</u>	<u>3.05%</u>	<u>1.52%</u>	<u>2.47%</u>

<sup>1</sup> Average price in the stock market during the week preceding the two business days before the record date of the shareholders' list for the general meeting of shareholders related to above dividends.

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**31. Related Party Transactions**

As at December 31, 2018 and 2017, LG Corp. is an entity exercising a significant influence over the Company as it owns 33.34% of the Company's ordinary shares.

Details of other related parties that have sales and other transactions with the Company or have receivables and payables balances, other than consolidated subsidiaries, associates and joint ventures (Note 10), as at December 31, 2018 and 2017, are as follows:

<b>Related party</b>	<b>Related party's subsidiary (Domestic)</b>	<b>Related party's subsidiary (Overseas)</b>	<b>Details</b>
S&I Corporation	-		Subsidiary of LG Corp.
LG CNS Co., Ltd.	Biz Tech Partners Co., Ltd and others	LG CNS America Inc. and others	Subsidiary of LG Corp.
LG Siltron Incorporated	-	-	Subsidiary of LG Corp.
LG Management Development Institute	-	-	Subsidiary of LG Corp.
LG Sports Ltd.	-	-	Subsidiary of LG Corp.
LG Holdings Japan	-	-	Subsidiary of LG Corp.
LG MMA Corporation	-	-	Joint venture of LG Corp.
LG Display Co., Ltd.	-	LG Display (China) Co., Ltd. and others	LG Enterprise Group <sup>1</sup>
LG Electronics, Inc.	LG Innotek Co., Ltd. and others	Inspur LG Digital Mobile Communications Co., Ltd. and others	LG Enterprise Group
LG International Corp.	Pantos Logistics Co., Ltd. and others	LG International (Japan) Ltd. and others	LG Enterprise Group
LG Hausys, Ltd.	-	LG Hausys Tianjin Co., Ltd. and others	LG Enterprise Group
LG Household & Health Care Ltd.	Coca-Cola Beverage Co.	-	LG Enterprise Group
LG Uplus Corp.	-	-	LG Enterprise Group
G II R Inc.	HS AD Inc.	-	LG Enterprise Group
Silicon Works Co., Ltd.	-	-	LG Enterprise Group

<sup>1</sup> Although the entity is not the related party of the Company in accordance with Korean IFRS 1024, the entity belongs to a large enterprise Company in accordance with the Monopoly Regulation and Fair Trade Act.

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Sales and purchases with related parties for the years ended December 31, 2018 and 2017, are as follows:

(in millions of Korean won)

	2018			
	Sales and others	Purchase and others		
		Purchase of raw materials /merchandises	Acquisition of property, plant and equipment and intangible assets	Others
<b>Entity with a significant influence over the Company</b>				
LG Corp.	10	-	-	69,969
<b>Subsidiaries</b>				
Ningbo LG Yongxing Chemical Co.,Ltd.	166,861	1,158	-	67
LG Chem HK Ltd.	180,905	-	-	523
LG Chem America, Inc.	827,832	-	-	2,732
LG Chem (Nanjing) Information & Electronics Materials Co.,Ltd.	1,130,249	1,760,428	-	1,169
LG Chemical (Guangzhou) Engineering Plastics Co.,Ltd.	82,934	19,156	-	-
LG Chem (Taiwan), Ltd.	104,673	-	-	7,650
LG Chem Display Materials (Beijing) Co.,Ltd.	1,690	-	-	10,531
Tianjin LG Bohai Chemical Co.,Ltd.	484	-	-	871
LG Chem (China) Investment Co.,Ltd.	-	-	-	44,975
LG Chem (Tianjin) Engineering Plastics Co.,Ltd.	37,878	17	-	246
LG Chem Europe GmbH	693,817	-	-	30,195
LG Chem Poland Sp. z o.o.	31,038	-	-	8,635
LG NanoH2O, Inc.	12,957	-	-	11,952
LG Chem Michigan Inc.	46,819	8,010	-	29,639
Nanjing LG Chem New Energy Battery Co.,Ltd.	115,864	505,478	-	4,949
LG Chem Wroclaw Energy sp. z o.o.	435,398	2,983	-	1,438
Others	162,029	1,012	1,189	19,817
<b>Associates and joint ventures</b>				
SEETEC Co.,Ltd.	39,019	133,005	4,665	84,759
TECHWIN Co.,Ltd.	-	224	3,383	286
HL Greenpower Co.,Ltd.	523,822	-	-	790
Others	837	-	-	2,586
<b>Other related parties</b>				
LG MMA Corporation	114,096	262,888	-	6,743
S&I Corporation	15,327	465,162	278,229	210,602
LG CNS Co., Ltd. and its subsidiaries	65,622	2,665	213,133	57,291
Others	6	-	-	13,338
<b>Others</b>				
LG Display Co., Ltd. and its subsidiaries	817,731	80	1,564	5
LG Electronics Inc. and its subsidiaries	964,692	219,294	526,462	48,237
LG International Corp. and its	288,561	239,175	1,699	324,413

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subsidiaries				
LG Hausys, Ltd. and its subsidiaries	202,981	3,312	1,545	7,069
Others	16,240	26,826	2,341	9,107
<b>Total</b>	<b>7,080,372</b>	<b>3,650,873</b>	<b>1,034,210</b>	<b>1,010,584</b>

(in millions of Korean won)

	<b>2017</b>			
	Sales and others	Purchase and others		
		Purchase of raw materials /merchandises	Acquisition of property, plant and equipment and intangible assets	Others
<b>Entity with a significant influence over the Company</b>				
LG Corp.	11	-	-	62,919
<b>Subsidiaries</b>				
Ningbo LG Yongxing Chemical Co.,Ltd.	108,098	4,204	-	1,367
LG Chem HK Ltd.	220,257	-	-	515
LG Chem America, Inc.	764,644	-	-	2,946
LG Chem (Nanjing) Information & Electronics Materials Co.,Ltd.	1,002,242	1,274,809	-	3,950
LG Chemical (Guangzhou) Engineering Plastics Co.,Ltd.	57,570	14,156	-	91
LG Chem (Taiwan), Ltd.	119,050	-	-	8,018
LG Chem Display Materials (Beijing) Co.,Ltd.	1,321	-	-	8,876
Tianjin LG Bohai Chemical Co.,Ltd.	482	-	-	-
LG Chem (China) Investment Co.,Ltd.	-	-	-	45,939
LG Chem (Tianjin) Engineering Plastics Co.,Ltd.	29,378	-	-	37
LG Chem Europe GmbH	539,297	-	-	27,132
LG Chem Poland Sp. z o.o.	19,863	-	-	8,289
LG NanoH2O, Inc.	8,038	-	-	8,598
LG Chem Michigan Inc.	69,194	264	-	5
Nanjing LG Chem New Energy Battery Co.,Ltd.	75,763	139,392	-	4,718
Others	90,637	15,314	2	38,931
<b>Associates and joint ventures</b>				
SEETEC Co.,Ltd.	28,790	116,707	1,199	88,239
TECHWIN Co.,Ltd.	-	166	4,225	540
HL Greenpower Co.,Ltd.	260,001	-	-	-
Others	875	-	-	2,685
<b>Other related parties</b>				
LG MMA Corporation	84,326	221,766	-	5,356
S&I Corporation	14,392	470,866	326,512	111,553
LG CNS Co., Ltd. and its subsidiaries	31,376	2,038	153,814	53,085
Others	8	-	-	11,433
<b>Others</b>				
LG Display Co., Ltd. and its subsidiaries	917,863	-	14,750	2,153
LG Electronics Inc. and its subsidiaries	945,109	187,138	267,837	28,799

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LG International Corp. and its subsidiaries	298,639	210,412	517	285,318
LG Hausys, Ltd. and its subsidiaries	214,583	7,906	3,289	7,688
Others	21,226	27,934	1,203	9,354
<b>Total</b>	<b>5,923,033</b>	<b>2,693,072</b>	<b>773,348</b>	<b>828,534</b>

Balances of receivables and payables arising from sales and purchases of goods and services as at December 31, 2018 and 2017, are as follows:

(in millions of Korean won)

	<b>December 31, 2018</b>			
	<b>Receivables<sup>1</sup></b>			
	<b>Trade receivables and others</b>	<b>Loan receivables</b>	<b>Other receivables</b>	<b>Total</b>
<b>Entity with a significant influence over the Company</b>				
LG Corp.	-	-	11,286	11,286
<b>Subsidiaries</b>				
Ningbo LG Yongxing Chemical Co.,Ltd.	4,032	-	7,707	11,739
LG Chem HK Ltd.	-	-	-	-
LG Chem America, Inc.	197,055	-	-	197,055
LG Chem (Nanjing) Information & Electronics Materials Co.,Ltd.	246,640	-	34,434	281,074
LG Chemical (Guangzhou) Engineering Plastics Co.,Ltd.	9,821	-	3,535	13,356
LG Chem (Taiwan), Ltd.	39,876	-	69	39,945
LG Chem Display Materials (Beijing) Co.,Ltd.	220	-	11	231
Tianjin LG Bohai Chemical Co.,Ltd.	-	-	252	252
LG Chem (China) Investment Co.,Ltd.	-	-	1,441	1,441
LG Chem (Tianjin) Engineering Plastics Co.,Ltd.	3,714	-	1,202	4,916
LG Chem Europe GmbH	301,855	-	-	301,855
LG Chem Poland Sp. z o.o.	13,229	-	1,657	14,886
LG NanoH2O Inc.	5,109	-	2	5,111
LG Chem Michigan Inc.	5,101	-	7,705	12,806
Nanjing LG Chem New Energy Battery Co.,Ltd.	34,556	-	355	34,911
LG Chem Wroclaw Energy sp. z o.o.	256,464	-	7,425	263,889
Others	50,866	559	10,761	62,186
<b>Associates and joint ventures</b>				
SEETEC Co.,Ltd.	4,520	-	300	4,820
TECHWIN Co.,Ltd.	-	-	-	-
HL Greenpower Co.,Ltd.	89,122	-	-	89,122
Others	-	-	837	837
<b>Other related parties</b>				
LG MMA Corporation	12,402	-	593	12,995
S&I Corporation	2,859	-	27,649	30,508
LG CNS Co., Ltd. and its subsidiaries	13,155	-	-	13,155
Others	-	-	4,357	4,357

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<b>Others</b>				
LG Display Co., Ltd. and its subsidiaries	100,921	-	1,978	102,899
LG Electronics Inc. and its subsidiaries	205,325	-	61,263	266,588
LG International Corp. and its subsidiaries	43,122	-	711	43,833
LG Hausys, Ltd. and its subsidiaries	13,939	-	47	13,986
Others	60	-	721	781
<b>Total</b>	<b>1,653,963</b>	<b>559</b>	<b>186,298</b>	<b>1,840,820</b>

(in millions of Korean won)

	<b>December 31, 2018</b>			
	<b>Payables<sup>1</sup></b>			
	<b>Trade payables</b>	<b>Borrowings</b>	<b>Other payables</b>	<b>Total</b>
<b>Entity with a significant influence over the Company</b>				
LG Corp.	-	-	5,102	5,102
<b>Subsidiaries</b>				
Ningbo LG Yongxing Chemical Co.,Ltd.	108	-	8	116
LG Chem HK Ltd.	-	-	24	24
LG Chem America, Inc.	-	-	469	469
LG Chem (Nanjing) Information & Electronics Materials Co.,Ltd.	489,799	-	51,318	541,117
LG Chemical (Guangzhou) Engineering Plastics Co.,Ltd.	1,047	-	14	1,061
LG Chem (Taiwan), Ltd.	-	-	13,441	13,441
LG Chem Display Materials (Beijing) Co.,Ltd.	-	-	960	960
Tianjin LG Bohai Chemical Co.,Ltd.	-	-	-	-
LG Chem (China) Investment Co.,Ltd.	-	-	3,596	3,596
LG Chem (Tianjin) Engineering Plastics Co.,Ltd.	5	-	5	10
LG Chem Europe GmbH	-	-	7,259	7,259
LG Chem Poland Sp. z o.o.	178	-	1,581	1,759
LG NanoH2O Inc.	-	-	5,564	5,564
LG Chem Michigan Inc.	1,930	-	1,940	3,870
Nanjing LG Chem New Energy Battery Co.,Ltd.	123,297	-	167	123,464
LG Chem Wroclaw Energy sp. z o.o.	1,649	-	1,848	3,497
Others	106	-	2,224	2,330
<b>Associates and joint ventures</b>				
SEETEC Co.,Ltd.	17,384	-	10,727	28,111
TECHWIN Co.,Ltd.	-	-	871	871
HL Greenpower Co.,Ltd.	-	-	225	225
Others	-	-	250	250
<b>Other related parties</b>				
LG MMA Corporation	19,588	-	-	19,588
S&I Corporation	1,439	-	309,757	311,196
LG CNS Co., Ltd. and its	-	-	109,482	109,482

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subsidiaries				
Others	-	-	652	652
<b>Others</b>				
LG Display Co., Ltd. and its subsidiaries	14	-	-	14
LG Electronics Inc. and its subsidiaries	69,575	-	40,320	109,895
LG International Corp. and its subsidiaries	9,151	-	41,534	50,685
LG Hausys, Ltd. and its subsidiaries	439	-	2,228	2,667
Others	1,600	-	3,856	5,456
<b>Total</b>	<b>737,309</b>	<b>-</b>	<b>615,422</b>	<b>1,352,731</b>

(in millions of Korean won)

	<b>December 31, 2017</b>			
	<b>Receivables<sup>1</sup></b>			
	<b>Trade receivables and others</b>	<b>Loan receivables</b>	<b>Other receivables</b>	<b>Total</b>
<b>Entity with a significant influence over the Company</b>				
LG Corp.	-	-	9,183	9,183
<b>Subsidiaries</b>				
Ningbo LG Yongxing Chemical Co.,Ltd.	13,096	-	7,626	20,722
LG Chem HK Ltd.	17,346	-	-	17,346
LG Chem America, Inc.	165,994	-	-	165,994
LG Chem (Nanjing) Information & Electronics Materials Co.,Ltd.	229,010	-	42,364	271,374
LG Chemical (Guangzhou) Engineering Plastics Co.,Ltd.	15,187	-	3,169	18,356
LG Chem (Taiwan), Ltd.	42,080	-	62	42,142
LG Chem Display Materials (Beijing) Co.,Ltd.	-	-	6	6
Tianjin LG Bohai Chemical Co.,Ltd.	-	-	235	235
LG Chem (China) Investment Co.,Ltd.	-	-	-	-
LG Chem (Tianjin) Engineering Plastics Co.,Ltd.	6,501	-	1,396	7,897
LG Chem Europe GmbH	205,429	-	55	205,484
LG Chem Poland Sp. z o.o.	9,263	-	1,390	10,653
LG NanoH2O, Inc.	254	-	1	255
LG Chem Michigan Inc.	10,870	-	5,984	16,854
Nanjing LG Chem New Energy Battery Co.,Ltd.	30,669	-	225	30,894
Others	38,962	2,679	6,936	48,577
<b>Associates and joint ventures</b>				
SEETEC Co.,Ltd.	1,752	-	279	2,031
TECHWIN Co.,Ltd.	-	-	-	-
HL Greenpower Co.,Ltd.	60,726	-	-	60,726
Others	16	-	-	16
<b>Other related parties</b>				
LG MMA Corporation	8,663	-	482	9,145
S&I Corporation	2,893	-	27,648	30,541



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LG CNS Co., Ltd. and its subsidiaries	20,209	-	-	20,209
Others	-	-	4,358	4,358
<b>Others</b>				
LG Display Co., Ltd. and its subsidiaries	130,995	-	4,227	135,222
LG Electronics Inc. and its subsidiaries	282,900	-	43,331	326,231
LG International Corp. and its subsidiaries	48,332	-	700	49,032
LG Hausys, Ltd. and its subsidiaries	39,748	-	92	39,840
Others	318	-	398	716
<b>Total</b>	<b>1,381,213</b>	<b>2679</b>	<b>160,147</b>	<b>1,544,039</b>

(in millions of Korean won)

	<b>December 31, 2017</b>			
	<b>Payables<sup>1</sup></b>			
	<b>Trade payables</b>	<b>Borrowings</b>	<b>Other payables</b>	<b>Total</b>
<b>  Entity with a significant influence over the Company</b>				
LG Corp.	-	-	7,897	7,897
<b>Subsidiaries</b>				
Ningbo LG Yongxing Chemical Co.,Ltd.	-	-	-	-
LG Chem HK Ltd.	-	-	-	-
LG Chem America, Inc.	26	-	217	243
LG Chem (Nanjing) Information & Electronics Materials Co.,Ltd.	-	-	362,437	362,437
LG Chemical (Guangzhou) Engineering Plastics Co.,Ltd.	1,074	-	-	1,074
LG Chem (Taiwan), Ltd.	-	-	188	188
LG Chem Display Materials (Beijing) Co.,Ltd.	-	-	444	444
Tianjin LG Bohai Chemical Co.,Ltd.	-	-	-	-
LG Chem (China) Investment Co.,Ltd.	-	-	4,622	4,622
LG Chem (Tianjin) Engineering Plastics Co.,Ltd.	-	-	-	-
LG Chem Europe GmbH	-	-	5,278	5,278
LG Chem Poland Sp. z o.o.	-	-	794	794
LG NanoH2O, Inc.	-	-	2,467	2,467
LG Chem Michigan Inc.	111	-	49	160
Nanjing LG Chem New Energy Battery Co.,Ltd.	14,473	-	21	14,494
Others	1,042	-	2,258	3,300
<b>Associates and joint ventures</b>				
SEETEC Co.,Ltd.	10,698	-	10,759	21,457
TECHWIN Co.,Ltd.	-	-	2,195	2,195
HL Greenpower Co.,Ltd.	-	-	-	-
Others	-	-	-	-

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<b>Other related parties</b>				
LG MMA Corporation	18,837	-	-	18,837
S&I Corporation	-	-	358,865	358,865
LG CNS Co., Ltd. and its subsidiaries	-	-	98,648	98,648
Others	-	-	541	541
<b>Others</b>				
LG Display Co., Ltd. and its subsidiaries	-	-	8,660	8,660
LG Electronics Inc. and its subsidiaries	97,033	-	12,915	109,948
LG International Corp. and its subsidiaries	12,183	-	39,707	51,890
LG Hausys, Ltd. and its subsidiaries	3,409	-	1,797	5,206
Others	2,085	-	5,779	7,864
<b>Total</b>	<b>160,971</b>	<b>-</b>	<b>926,538</b>	<b>1,087,509</b>

<sup>1</sup>Trade and other receivables derecognized from the financial statements in accordance with the transfer agreements with financial institutions are not included.

Fund transactions with related parties for the years ended December 31, 2018 and 2017, are as follows:

(in millions of Korean won)

	2018		2017	
	Equity contributions in cash	Loan (repayment)	Equity contributions in cash	Loan (repayment)
<b>Subsidiaries</b>				
LG Chem (Nanjing) Information & Electronics Materials Co.,Ltd.	232,462	-	238,162	-
Nanjing LG Chem New Energy Battery Co., Ltd	-	-	56,082	-
LG Chem (China) Investment Co.,Ltd.	54,946	-	53,441	-
LG Chem(Chongqing) Engineering Plastics Co., Ltd.	-	-	28,141	-
LG Chem Hai Phong Veitnam Co.,Ltd.	-	-	3,079	-
LG Chem Haiphong Engineering plastics co., Ltd.	15,344	-	-	-
LG Chem Wroclaw Energy Sp. z o.o.	456,894	-	128,107	-
LG Chem Australia Pty Ltd	-	-	429	-
LG Chem Mexico S.A. de C.V.	394	-	-	-
LG Chem (Guangzhou) Information & Electronics Materials Co.,Ltd.	127,752	-	-	-
LG Chem Michigan Inc.	146,419	-	-	-
LEYOU NEW MATERIALS(WUXI)CO.,Ltd	48,808	-	-	-

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LG CHEM FUND I LLC	7,886	-	-	-
LGChem Nanjing Energy Solution Co., Ltd.	112,570	-	-	-
LG Life Sciences America Inc.	-	-	-	(2,242)
<b>Associates and joint ventures</b>				
LG Fuel Cell Systems Inc.	5,036	-	24,527	(9,584)
HUAJIN NEW ENERGY MATERIALS(QUZHOU) CO.,Ltd	26,129	-	-	-
LG VINA Chemical Co.,Ltd.	1,767	-	-	-
FJ Composite Materials co., LTD	-	-	3,015	-
WUXI CL NEW Energy Technology Ltd	559	-	1,178	-
LG Holdings (HK) Ltd	-	-	(19,499)	-
<b>Total</b>	<u>1,236,966</u>	<u>-</u>	<u>516,662</u>	<u>(11,826)</u>

Dividends received from related parties for the years ended December 31, 2018 and 2017, are as follows:

<i>(in millions of Korean won)</i>	<b>2018</b>	<b>2017</b>
<b>Subsidiaries</b>		
Ningbo LG Yongxing Chemical Co.,Ltd	101,467	52,880
LG Chem (Taiwan), Ltd.	2,570	5,533
LG Chemical (Guangzhou) Engineering Plastics Co.,Ltd.	-	335
LG Chem Display Materials (Beijing) Co.,Ltd.	1,164	1,304
<b>Associates and joint ventures</b>		
SEETEC Co.,Ltd.	10,000	10,000
LG VINA Chemical Co.,Ltd.	810	846
<b>Total</b>	<u>116,011</u>	<u>70,898</u>

Dividends paid to related party for the years ended December 31, 2018 and 2017, are as follows:

<i>(in millions of Korean won)</i>	<b>2018</b>	<b>2017</b>
<b>Entity with a significant influence over the Company</b>		
LG Corp.	<u>141,205</u>	<u>111,097</u>
<b>Total</b>	<u>141,205</u>	<u>111,097</u>

Compensation for key management of the Company for the years ended December 31, 2018 and 2017, consists of:

<i>(in millions of Korean won)</i>	<b>2018</b>	<b>2017</b>
Short-term employee benefits	57,698	69,251
Post-employment benefits	<u>7,781</u>	<u>5,722</u>
<b>Total</b>	<u>65,479</u>	<u>74,973</u>

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Key management includes directors and audit committee members having duties and responsibilities over planning, operations and controlling of the Company's business activities.

There are no provision recognized for receivables of related parties as at December 31, 2018 and no impairment loss on receivables for related parties are recognized for the years ended December 31, 2018 and 2017.

Details of the guarantees manufactured by the Company for related parties at the reporting date are disclosed in Note 18.

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**32. Cash generated from operations**

Reconciliation between profit before income tax and cash generated from operations for the years ended December 31, 2018 and 2017, is as follows:

<i>(in millions of Korean won)</i>	<b>2018</b>	<b>2017</b>
<b>Profit before income tax</b>	1,976,191	2,000,635
<b>Adjustments for:</b>		
Depreciation	940,492	979,936
Amortization	87,093	76,265
Post-employment benefits	141,951	131,550
Finance income	(180,703)	(123,905)
Finance costs	101,659	97,647
Foreign exchange differences	(898)	(64,653)
Loss (gain) on valuation of inventories	11,161	(204)
Gain on disposal of property, plant and equipment	(6,521)	(11,256)
Loss on disposal of property, plant and equipment	12,572	12,565
Gain on disposal of intangible assets	(2)	-
Loss on disposal of intangible assets	180	2,208
Impairment loss on property, plant and equipment	38,322	140,240
Impairment loss on intangible assets	1,710	3,504
Reversal of impairment loss on property, plant and equipment	(452)	(12,641)
Impairment loss on investments in joint ventures	58,406	19,383
Gain on disposal of investments in joint ventures	(89)	-
Additions to provisions	211,923	167,756
Other expenses (income)	2,462	(21,528)
Increase in inventories	(348,071)	(173,775)
Increase in trade receivables	(247,449)	(736,651)
Decrease (increase) in other receivables	(123,657)	14,621
Increase in other current assets	(7,494)	(61,409)
Increase in derivatives	-	(2,114)
Increase in trade payables	549,710	265,777
Increase (decrease) in other payables	(477,847)	416,764
Increase in other current liabilities	55,988	203,207
Decrease in net defined benefit liabilities	(171,775)	(46,182)
Decrease in provisions	(148,772)	(126,200)
Other cash flows from operations	30,268	2,261
<b>Cash generated from operations</b>	<b>2,506,358</b>	<b>3,153,801</b>

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Changes in liabilities arising from financial activities for the year ended December 31, 2018, are as follows:

*(in millions of Korean won)*

	At January 1, 2018	Cash flows from financing activities	2018			At December 31, 2018
			Reclassification of current portion	Amortization	Exchange differences	
Short-term borrowings	5,137	(4,260)	4,131	-	-	5,008
Long-term borrowings	27,367	-	(4,131)	-	-	23,236
Debentures	977,731	1,477,479	-	10,478	(2,218)	2,463,470
Conversion rights	-	33,023	-	-	(2,639)	30,384
<b>Total</b>	<b>1,010,235</b>	<b>1,506,242</b>	<b>-</b>	<b>10,478</b>	<b>(4,857)</b>	<b>2,522,098</b>

The significant non-cash transactions for the years ended December 31, 2018 and 2017, are as follows:

*(in millions of Korean won)*

	2018	2017
Transfer of construction-in-progress	2,057,634	1,178,904
Transfer of machinery-in-transit	150,003	74,475
Reclassification of long-term borrowings into current maturities	55,115	135,059
Acquisition of an entity by means of the issuance of equity instruments	-	1,138,593

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**33. Appropriation of Retained Earnings**

The appropriation of retained earnings for the year ended December 31, 2018, is expected to be appropriated at the shareholders' meeting on March 15, 2019. The appropriation date for the year ended December 31, 2017, was March 16, 2018.

The appropriation of retained earnings for the years ended December 31, 2018 and 2017, is as follows:

<i>(in millions of Korean won)</i>	<b>2018</b>	<b>2017</b>
Unappropriated retained earnings carried over from prior year	-	-
Profit for the year	1,581,064	1,605,223
Remeasurements of net defined benefit liabilities	<u>(53,909)</u>	<u>(3,003)</u>
<b>Retained earnings available for appropriation</b>	<b>1,527,155</b>	<b>1,602,220</b>
<b>Transfer from other reserves</b>		
Reserve for technology development	<u>66,667</u>	<u>166,667</u>
<b>Appropriation of retained earnings</b>		
Legal reserve	-	10,953
Dividends	460,058	460,058
Reserve for technology development	<u>1,133,764</u>	<u>1,297,876</u>
	<u>1,593,822</u>	<u>1,768,887</u>
<b>Unappropriated retained earnings to be carried forward</b>	<b><u>-</u></b>	<b><u>-</u></b>

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**34. Business Combination**

In order to enhance future-oriented business portfolio and leap into a global player of red bio industry by enlarging investment in long-term and stable new drugs development, the Company merged LG Life Sciences, Ltd. on January 1, 2017.

Goodwill of ₩686,229 million arising from the business combination is attributable to sales increase expected from combining the operations of the Company and Life Sciences business. Goodwill recognized through the business combination is not deductible for income tax purposes.

The following table summarizes the consideration paid for business combination, the fair value of assets acquired and liabilities assumed at the acquisition date:

<i>(in millions of Korean won)</i>	<b>Amount</b>
Consideration	
Equity securities (ordinary 4,321,243 shares, preferred 59,879 shares) <sup>1</sup>	1,138,593
Total consideration	<u>1,138,593</u>
Recognized amounts of identifiable assets acquired and liabilities assumed	
Cash and cash equivalents	36,319
Trade and other (non-current) receivables	118,809
Inventories	117,880
Property, plant and equipment	492,846
Intangible assets	273,447
Investments	3,977
Other assets	7,431
Trade payables	(37,411)
Borrowings	(729,745)
Provisions	(6,053)
Net defined benefit liabilities	(11,829)
Other liabilities	(150,518)
Treasury shares (ordinary 1,284,891 shares, preferred 10,328 shares) <sup>1</sup>	337,211
Fair value of identifiable net assets	<u>452,364</u>
Goodwill	<u>686,229</u>
<b>Total</b>	<u><b>1,138,593</b></u>

<sup>1</sup>The fair value of ordinary shares, preferred shares and treasury shares acquired were based on the market price at the acquisition date.

With regard to the above business combination, stock issuance cost of ₩73 million was deducted from equity.

The fair value and gross contractual amount for trade and other (non-current) receivables at the acquisition date amount to ₩120,794 million, of which ₩1,985 million was expected to be uncollectible.

The revenue of ₩529,364 million and profit of ₩46,444 million for the year ended December 31, 2017 arose after the acquisition date are reflected in the separate statements of profit or loss.



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**35. Assets Held for Sale**

The Company decided to dispose of 2CCL business and others, with the approval of management in January 2017. The related assets were reclassified as assets held for sale. The disposal is expected to be completed in 2019.

Details of assets of disposal group classified as assets held for sale as at December 31, 2018 and 2017, are as follows:

<i>(in millions of Korean won)</i>	<b>December 31, 2018</b>	<b>December 31, 2017</b>
<b>Assets of disposal group</b>		
Property, plant and equipment	1,929	4,236
Intangible assets	358	358
<b>Total</b>	<u>2,287</u>	<u>4,594</u>

Assets of the disposal group were measured at fair value immediately before the initial classification as assets held for sale and the related other non-operating expenses for the years ended December 31, 2018 and 2017, is as follows:

<i>(in millions of Korean won)</i>	<b>2018</b>	<b>2017</b>
Impairment loss on property, plant and equipment	-	9,061
Impairment loss on intangible assets	-	4
<b>Total</b>	<u>-</u>	<u>9,065</u>

**36. Assets and Liabilities related to Contracts with Customers**

Assets and liabilities related to contracts with customers as at December 31, 2018 are as follows:

<i>(in millions of Korean won)</i>	<b>December 31, 2018</b>	<b>December 31, 2017</b>
<b>Contract assets</b>		
Total contract assets	-	-
<b>Contract liabilities</b>		
Advances in relation to revenue from the Company's main business activities	23,691	38,397
Expected services to be transferred	34,823	15,535
Expected customer incentives	5,019	5,319
Unearned revenue	16,781	14,779
Expected refunds	2,252	3,971
<b>Total contract liabilities</b>	<u>82,566</u>	<u>78,001</u>

**LG Chem, Ltd.**  
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Revenue recognized in relation to contract liabilities

The following table shows how much of the revenue recognized in the current reporting period relates to carried-forward contract liabilities and how much relates to performance obligations that were satisfied in a prior year.

<i>(in millions of Korean won)</i>	<b>2018</b>
Revenue recognized that was included in the contract liability balance at the beginning of the year	6,223
Unearned revenue	122
Expected services to be transferred	6,101
Revenue recognized from performance obligations satisfied in previous periods	-

**37. Events after the Reporting Period**

On January 15, 2019, the Company requested customers to stop operating Energy Storage Systems (ESS) provided by the Company. The Company is obliged to pay compensation to the customers due to their loss of discontinued ESS operation and the Company is in the process of estimation for the accurate compensation amounts.

**38. Approval of Issuance of the Financial Statements**

The separate financial statements 2018 were approved for issue by the Board of Directors on January 29, 2019 and are subject to change with approval of shareholders at their Annual General Meeting.

## **Report on Independent Accountants' Review of Internal Control over Financial Reporting**

To the Chief Executive Officer  
LG Chem, Ltd.

We have reviewed the accompanying management's report on the effectiveness of the Internal Control over Financial Reporting (ICFR) of LG Chem, Ltd. (the "Company") as at December 31, 2018. The Company's management is responsible for designing and operating ICFR and for its assessment of the effectiveness of ICFR. Our responsibility is to review the management's report on the effectiveness of the ICFR and issue a report based on our review. The management's report on the effectiveness of the ICFR of the Company states that "Based on assessment results, Chief Executive Officer and ICFR Officer believe that the Company's ICFR, as at December 31, 2018 is designed and operating, in all material respects, in conformity with the Best Practice Guideline."

Our review was conducted in accordance with the ICFR review standards established by the Korean Institute of Certified Public Accountants. Those standards require that we plan and perform, in all material respects, the review of management's report on the effectiveness of the ICFR to obtain a lower level of assurance than an audit. A review is to obtain an understanding of a company's ICFR and consists principally of inquiries of management and, when deemed necessary, a limited inspection of underlying documents, which is substantially less in scope than an audit.

A company's ICFR is a system to monitor and operate those policies and procedures designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with International Financial Reporting Standards as adopted by the Republic of Korea. Because of its inherent limitations, ICFR may not prevent or detect a material misstatement of the financial statements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Based on our review, nothing has come to our attention that causes us to believe that management's report on the effectiveness of the ICFR, referred to above, is not presented fairly, in all material respects, in accordance with Best Practice Guideline.

Our review is based on the Company's ICFR as at December 31, 2018, and we did not review management's assessment of its ICFR subsequent to December 31, 2018. This report has been prepared pursuant to the Acts on External Audit for Stock Companies, etc. in Korea and may not be appropriate for other purposes or for other users.

Samil PricewaterhouseCoopers

February 28, 2019

## **Report on the Effectiveness of the Internal Control over Financial Reporting**

To the Shareholders, Board of Directors and Audit Committee of  
LG Chem, Ltd.

We, as the Chief Executive Officer (“CEO”) and the Internal Control over Financial Reporting (“ICFR”) Officer of LG Chem, Ltd. (“the Company”), assessed the effectiveness of the design and operation of the Company’s Internal Control over Financial Reporting for the year ended December 31, 2018.

The Company’s management, including ourselves, is responsible for designing and operating ICFR. We assessed the design and operating effectiveness of the ICFR in the prevention and detection of an error or fraud which may cause material misstatements in the preparation and disclosure of reliable financial statements. We followed the ‘Best Practice Guideline’ which is established by the Operating Committee of Internal Control over Financial Reporting in Korea (the “ICFR Committee”) to evaluate the effectiveness of the ICFR design and operation.

Based on the assessment results, we believe that the Company’s ICFR, as at December 31, 2018, is designed and operating effectively, in all material respects, in conformity with the Best Practice Guideline.

We certify that this report does not contain any untrue statement of a fact, or omit to state a fact necessary to be presented herein. We also certify that this report does not contain or present any statement which cause material misunderstandings, and we have reviewed and verified this report with sufficient due care.

January 29, 2019

Jin-Soo Park, Chief Executive Officer

Ho-Young Jeong, Internal Control over Financial Reporting Officer