

# **LG Chem, Ltd. and Subsidiaries**

**Consolidated Interim Financial Statements**

**June 30, 2020 and 2019**

# LG Chem, Ltd. and Subsidiaries

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June 30, 2020 and 2019

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## **Report on Review of Interim Financial Statements**

(English Translation of a Report Originally Issued in Korean)

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

### ***Reviewed Financial Statements***

We have reviewed the accompanying consolidated interim financial statements of LG Chem, Ltd. and its subsidiaries (collectively referred to as the "Group"). These financial statements consist of the consolidated interim statement of financial position of the Group as at June 30, 2020, and the related consolidated interim statements of profit or loss and comprehensive income for the three-month and six-month periods ended June 30, 2020 and 2019, and consolidated interim statements of changes in equity and cash flows for the six-month periods ended June 30, 2020 and 2019, and a summary of significant accounting policies and other explanatory notes, expressed in Korean won.

### ***Management's Responsibility for the Financial Statements***

Management is responsible for the preparation and fair presentation of these consolidated interim financial statements in accordance with International Financial Reporting Standards as adopted by the Republic of Korea (Korean IFRS) 1034 *Interim Financial Reporting*, and for such internal control as management determines is necessary to enable the preparation of consolidated interim financial statements that are free from material misstatement, whether due to fraud or error.

### ***Auditor's Responsibility***

Our responsibility is to issue a report on these consolidated interim financial statements based on our review.

We conducted our review in accordance with quarterly or semi-annual review standards established by the Securities and Futures Commission of the Republic of Korea. A review of interim financial information consists of making inquiries, primarily of persons responsible for financial and accounting matters, and applying analytical and other review procedures. A review is substantially less in scope than an audit conducted in accordance with Korean Standards on Auditing and consequently does not enable us to obtain assurance that we would become aware of all significant matters that might be identified in an audit. Accordingly, we do not express an audit opinion.

**Conclusion**

Based on our review, nothing has come to our attention that causes us to believe the accompanying consolidated interim financial statements are not presented fairly, in all material respects, in accordance with Korean IFRS 1034 *Interim Financial Reporting*.

**Emphasis of Matter**

Without modifying our opinion, we draw attention to Note 4 to the consolidated interim financial statements which describes management's plans and actions taken to deal with the business impact of Coronavirus Disease-19 ("COVID-19") on the Group's productivity and ability to fulfill orders from customers and related uncertainty.

**Other Matters**

We have audited the consolidated statement of financial position of the Group as at December 31, 2019, and the related consolidated statements of profit or loss, comprehensive income, changes in equity and cash flows for the year then ended, in accordance with Korean Standards on Auditing. We expressed an unqualified opinion on those financial statements, not presented herein, in our audit report dated March 9, 2020. The consolidated statement of financial position as at December 31, 2019, presented herein for comparative purposes, is consistent, in all material respects, with the above audited statement of financial position as at December 31, 2019.

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

August 14, 2020  
Seoul, Korea

This report is effective as of August 14, 2020, the review report date. Certain subsequent events or circumstances, which may occur between the review report date and the time of reading this report, could have a material impact on the accompanying consolidated interim financial statements and notes thereto. Accordingly, the readers of the review report should understand that there is a possibility that the above review report may have to be revised to reflect the impact of such subsequent events or circumstances, if any.

**LG Chem, Ltd. and Subsidiaries**  
**Consolidated Interim Statements of Financial Position**  
**June 30, 2020 and December 31, 2019**

(in millions of Korean won)

	Notes	June 30, 2020 (Unaudited)	December 31, 2019
<b>Assets</b>			
<b>Current assets</b>			
Cash and cash equivalents	3, 5, 6	3,363,343	1,888,631
Trade receivables	3, 5, 7, 31	4,908,018	3,738,224
Other receivables	3, 5, 7, 31	355,222	266,551
Other current financial assets	3, 5, 8	2,966	10,879
Prepaid income taxes		15,762	118,349
Other current assets	13	795,661	793,796
Inventories	9	4,752,907	5,033,721
Assets held for sale	34	781,632	19,573
Total current assets		<u>14,975,511</u>	<u>11,869,724</u>
<b>Non-current assets</b>			
Trade receivables	3, 5, 7	32,419	-
Other receivables	3, 5, 7	252,513	172,933
Other non-current financial assets	3, 5, 8	88,799	159,955
Investments in associates and joint ventures	1, 10, 33	273,764	307,577
Deferred tax assets	28	726,615	516,606
Property, plant and equipment	11	19,677,458	18,593,642
Intangible assets	12	2,339,107	2,206,229
Investment properties	36	53,805	53,328
Other non-current assets	13	156,304	144,432
Total non-current assets		<u>23,600,784</u>	<u>22,154,702</u>
<b>Total assets</b>		<u><b>38,576,295</b></u>	<u><b>34,024,426</b></u>
<b>Liabilities</b>			
<b>Current liabilities</b>			
Trade payables	3, 5, 31	2,260,774	2,379,711
Other payables	3, 5, 31	4,203,141	4,142,953
Borrowings	3, 5, 14	2,860,214	1,356,097
Other current financial liabilities	3, 5, 8	67,335	-
Provisions	15	440,189	472,129
Income tax payables	28	266,331	84,713
Other current liabilities	17	752,518	505,926
Liabilities held for sale	34	126,354	-
Total current liabilities		<u>10,976,856</u>	<u>8,941,529</u>
<b>Non-current liabilities</b>			
Other payables	3, 5	13,909	10,951
Borrowings	3, 5, 14	9,001,026	7,058,171
Other non-current financial liabilities	3, 5, 8	-	930
Provisions	15	297,681	264,599
Net defined benefit liabilities	16	276,030	179,160
Deferred tax liabilities	28	51,726	51,812
Other non-current liabilities	17	116,651	133,485
Total non-current liabilities		<u>9,757,023</u>	<u>7,699,108</u>
<b>Total liabilities</b>		<u><b>20,733,879</b></u>	<u><b>16,640,637</b></u>

**LG Chem, Ltd. and Subsidiaries**  
**Consolidated Interim Statements of Financial Position**  
**June 30, 2020 and December 31, 2019**

*(in millions of Korean won)*

	Notes	June 30, 2020 (Unaudited)	December 31, 2019
<b>Equity</b>			
Share capital	1, 19	391,406	391,406
Capital surplus		2,274,619	2,274,620
Other components of equity	21	(374,243)	(374,243)
Accumulated other comprehensive income		30,937	(85,496)
Retained earnings	20	15,044,542	14,798,690
<b>Equity attributable to owners of the Parent Company</b>		<u>17,367,261</u>	<u>17,004,977</u>
<b>Non-controlling interest</b>		475,155	378,812
<b>Total equity</b>		<u>17,842,416</u>	<u>17,383,789</u>
<b>Total liabilities and equity</b>		<u>38,576,295</u>	<u>34,024,426</u>

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

**LG Chem, Ltd. and Subsidiaries**  
**Consolidated Interim Statements of Profit or Loss**  
**Three-Month and Six-Month Periods Ended June 30, 2020 and 2019**

	Notes	Period Ended June 30			
		2020		2019	
		(Unaudited)		(Unaudited)	
		Three months	Six months	Three months	Six months
<i>(in millions of Korean won, except per share amounts)</i>					
<b>Revenue</b>	31, 33	6,935,191	13,664,360	6,778,413	13,043,590
<b>Cost of sales</b>	23, 31	(5,421,815)	(11,041,551)	(5,673,707)	(10,803,541)
<b>Gross profit</b>		1,513,376	2,622,809	1,104,706	2,240,049
Selling and administrative expenses	22, 23, 31	(941,734)	(1,845,310)	(857,753)	(1,730,040)
<b>Operating profit</b>	33	571,642	777,499	246,953	510,009
Finance income	5, 25	89,038	205,920	82,519	148,627
Finance costs	5, 25	(135,987)	(546,588)	(136,956)	(206,567)
Share of net profit of associates and joint ventures accounted for using the equity method	10	988	2,210	3,710	10,270
Other non-operating income	5, 26	88,681	713,813	137,020	212,009
Other non-operating expenses	5, 27	(144,317)	(525,240)	(146,129)	(226,410)
<b>Profit before income tax</b>	32	470,045	627,614	187,117	447,938
<b>Income tax expense</b>	28	(79,219)	(186,992)	(106,927)	(172,003)
<b>Profit from continuing operations</b>		390,826	440,622	80,190	275,935
Profit from discontinued operations	34	28,244	14,795	3,633	19,826
<b>Profit for the period</b>		419,070	455,417	83,823	295,761
<b>Profit is attributable to:</b>					
Owners of the Parent Company					
Profit from continuing operations		354,024	388,549	64,455	242,749
Profit from discontinued operations		28,244	14,795	3,633	19,826
		382,268	403,344	68,088	262,575
Non-controlling interests					
Profit from continuing operations		36,802	52,073	15,735	33,186
		36,802	52,073	15,735	33,186
<b>Earnings per share for profit from continuing operations</b>					
<b>attributable to the equity holders</b>					
<b>of the Parent Company (in won)</b>					
	29				
Basic earnings per ordinary share		4,620	5,069	840	3,166
Basic earnings per preferred share		4,632	5,094	853	3,191
Diluted earnings per ordinary share		5,161	5,600	772	3,066
Diluted earnings per preferred share		5,173	5,625	785	3,091
<b>Earnings per share for profit from discontinued operations</b>					
<b>attributable to the equity holders</b>					
<b>of the Parent Company (in won)</b>					
	29				
Basic earnings per ordinary share		368	193	47	259
Basic earnings per preferred share		368	193	47	259
Diluted earnings per ordinary share		363	190	47	254
Diluted earnings per preferred share		363	190	47	254

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

**LG Chem, Ltd. and Subsidiaries**  
**Consolidated Interim Statements of Comprehensive Income**  
**Three-Month and Six-Month Periods Ended June 30, 2020 and 2019**

	Notes	Period Ended June 30			
		2020		2019	
		(Unaudited)		(Unaudited)	
		Three months	Six months	Three months	Six months
<b>Profit for the period</b>		419,070	455,417	83,823	295,761
<b>Other comprehensive income (loss)</b>					
<i>Items that will not be reclassified to profit or loss</i>					
Remeasurements of net defined benefit liability	16	(2,607)	(3,931)	(960)	(5,270)
Gain (loss) on valuation of financial assets at fair value through other comprehensive income		7,136	13,412	(8,189)	(1,234)
Shares of remeasurements of net defined benefit liabilities of associates		-	159	(14)	(132)
Income tax relating to these items		(1,246)	(2,609)	2,514	1,784
<i>Items that may be subsequently reclassified to profit or loss</i>					
Exchange differences on translation of foreign operations		(54,288)	98,824	31,653	132,963
Cash flow hedge		10,438	(18,506)	(3,069)	22,569
Shares of other comprehensive income (loss) of joint ventures and associates		15,822	32,464	(625)	1,299
Income tax relating to these items		(2,771)	2,232	(130)	(5,516)
<b>Other comprehensive income (loss) for the period, net of tax</b>		<u>(27,516)</u>	<u>122,045</u>	<u>21,180</u>	<u>146,463</u>
<b>Total comprehensive income for the period</b>		<u>391,554</u>	<u>577,462</u>	<u>105,003</u>	<u>442,224</u>
<b>Total comprehensive income for the period is attributable to:</b>					
Owners of the Parent Company		362,822	517,085	90,166	400,053
Non-controlling interest		28,732	60,377	14,837	42,171

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

**LG Chem, Ltd. and Subsidiaries**  
**Consolidated Interim Statements of Changes in Equity**  
**Six-Month Periods Ended June 30, 2020 and 2019**

(in millions of Korean won)

	Notes	Attributable to owners of the Parent Company						Non-controlling interests	Total equity
		Share capital	Capital surplus	Other components of equity	Accumulated other comprehensive income	Retained earnings	Total		
<b>Balance at January 1, 2019</b>		391,406	2,274,623	(374,243)	(202,994)	14,994,252	17,083,044	239,084	17,322,128
<b>Comprehensive income</b>									
Profit for the period		-	-	-	-	262,575	262,575	33,186	295,761
Remeasurements of net defined benefit liability	16	-	-	-	-	(3,825)	(3,825)	-	(3,825)
Exchange differences on translation of foreign operations		-	-	-	124,669	-	124,669	8,985	133,654
Loss on valuation of financial assets at fair value through other comprehensive income		-	-	-	(895)	-	(895)	-	(895)
Cash flow hedge		-	-	-	16,362	-	16,362	-	16,362
Others		-	-	-	1,299	(132)	1,167	-	1,167
<b>Total comprehensive income for the period</b>		-	-	-	141,435	258,618	400,053	42,171	442,224
<b>Transactions with owners:</b>									
Dividends	30	-	-	-	-	(460,058)	(460,058)	(23,852)	(483,910)
Others		-	-	-	-	(1,190)	(1,190)	(397)	(1,587)
<b>Total transactions with owners</b>		-	-	-	-	(461,248)	(461,248)	(24,249)	(485,497)
<b>Balance at June 30, 2019 (Unaudited)</b>		391,406	2,274,623	(374,243)	(61,559)	14,791,622	17,021,849	257,006	17,278,855
<b>Balance at January 1, 2020</b>		391,406	2,274,620	(374,243)	(85,496)	14,798,690	17,004,977	378,812	17,383,789
<b>Comprehensive income</b>									
Profit for the period		-	-	-	-	403,344	403,344	52,073	455,417
Remeasurements of net defined benefit liability	16	-	-	-	-	(2,851)	(2,851)	-	(2,851)
Exchange differences on translation of foreign operations		-	-	-	87,664	-	87,664	8,304	95,968
Gain on valuation of financial assets at fair value through other comprehensive income		-	-	-	9,723	-	9,723	-	9,723
Cash flow hedge		-	-	-	(13,417)	-	(13,417)	-	(13,417)
Others		-	-	-	32,463	159	32,622	-	32,622
<b>Total comprehensive income for the period</b>		-	-	-	116,433	400,652	517,085	60,377	577,462
<b>Transactions with owners:</b>									
Dividends	30	-	-	-	-	(153,608)	(153,608)	(24,040)	(177,648)
Increase in paid-in capital of a subsidiary		-	-	-	-	-	-	60,403	60,403
Others		-	(1)	-	-	(1,192)	(1,193)	(397)	(1,590)
<b>Total transactions with owners</b>		-	(1)	-	-	(154,800)	(154,801)	35,966	(118,835)
<b>Balance at June 30, 2020 (Unaudited)</b>		391,406	2,274,619	(374,243)	30,937	15,044,542	17,367,261	475,155	17,842,416

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

**LG Chem, Ltd. and Subsidiaries**  
**Consolidated Interim Statements of Cash Flows**  
**Six-Month Periods Ended June 30, 2020 and 2019**

(in millions of Korean won)

	Notes	2020 (Unaudited)	2019 (Unaudited)
<b>Cash flows from operating activities</b>			
Cash generated from operations	32	1,837,576	1,231,380
Interest received		19,949	27,793
Interest paid		(122,863)	(83,686)
Dividends received		10,545	10,847
Income taxes paid		(126,271)	(295,898)
<b>Net cash inflow from operating activities</b>		<b>1,618,936</b>	<b>890,436</b>
<b>Cash flows from investing activities</b>			
Decrease in other receivables		83,190	136,858
Decrease in other non-current receivables		25,427	32,481
Decrease in other current financial assets		379,702	-
Proceeds from disposal of investments in joint ventures		83,462	1,336
Proceeds from disposal of financial instruments		3,638	65,694
Proceeds from disposal of property, plant and equipment		929	2,306
Proceeds from disposal of intangible assets		123,762	9,672
Government grants received		184,302	-
Increase in other receivables		(54,520)	(124,890)
Increase in other non-current receivables		(89,929)	(82,918)
Acquisition of investments in associates and joint ventures		(13,611)	(27,676)
Acquisition of financial assets		(7,383)	(6,993)
Acquisition of property, plant and equipment		(3,148,050)	(3,123,116)
Acquisition of intangible assets		(42,476)	(140,740)
Business combination		-	(529)
<b>Net cash outflow from investing activities</b>		<b>(2,471,557)</b>	<b>(3,258,515)</b>
<b>Cash flows from financing activities</b>			
Proceeds from borrowings		3,852,236	3,314,060
Capital contribution from non-controlling interests		60,403	-
Repayments of borrowings		(1,432,581)	(394,006)
Dividends paid		(153,608)	(483,910)
<b>Net cash inflow from financing activities</b>		<b>2,326,450</b>	<b>2,436,144</b>
<b>Net increase in cash and cash equivalents</b>			
Cash and cash equivalents at the beginning of the period		1,473,829	68,065
Effects of exchange rate changes on cash and cash equivalents		1,888,631	2,513,702
Cash and cash equivalents included in disposal groups classified as held for sale		1,054	49,246
		(171)	-
<b>Cash and cash equivalents at the end of the period in the consolidated interim statement of financial position</b>		<b>3,363,343</b>	<b>2,631,013</b>

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

# LG Chem, Ltd. and Subsidiaries

## Notes to the Consolidated Interim Financial Statements

### June 30, 2020 and 2019 (Unaudited), and December 31, 2019

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#### 1. General Information

General information about LG Chem, Ltd. (the Parent Company) and its 47 subsidiaries (collectively referred to as “the Group”) is as follows:

##### 1.1 The Parent Company

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

As at June 30, 2020, the Parent Company has its manufacturing facilities in Yeosu, Daesan, Ochang, Cheongju, Ulsan, Naju, Iksan, Paju, Osong, Onsan and Gimcheon.

The Parent Company is authorized to issue 292 million shares of ordinary shares with par value of ₩5,000 per share. As at June 30, 2020, the Parent Company has issued and outstanding 70,592,343 ordinary shares (₩352,962 million) and 7,688,800 preferred shares (₩38,444 million). The largest shareholder of the Parent Company is LG Corp., which owns 33.34% of the Parent 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.

##### 1.2 Business Overview

The Group is engaged in Petrochemicals, Energy solutions, and Advanced materials business, and also engaged in Life Sciences business acquired through a merger with LG Life Sciences, Ltd. in January 2017. In addition, the Parent Company acquired 100% shares of FarmHannong Co., Ltd., in April 2016, which is engaged to manufacture crop protection products, seeds, fertilizers and others.

The Petrochemical business includes production of olefin petrochemicals, such as ethylene, propylene, butadiene from Naphtha, and aromatic petrochemicals such as benzene. It also includes production of synthetic resin and synthetic components from olefin, and aromatic petrochemicals. This business bears characteristics of a large-volume process industry. The Group’s major products are PE, PP, BPA, ABS, EP, PVC, plasticizers, acrylic, SAP, synthetic rubber, a special resin, and others.

The Energy solutions business manufactures and supplies batteries ranging from IT & New application batteries for mobile phones and laptop computers, to automotive batteries for electric vehicles and ESS batteries. Demand of small sized batteries for new applications such as electric tools and electric driving devices as well as traditional IT devices is increasing recently and the automotive battery business is also expected to expand rapidly due to an increasing demand of the batteries in associated with enhanced environment regulation in developed countries. Demand for ESS is expanding with an increasing importance of efficient usage of electricity and generation of renewable energy.

The Advanced material business manufactures and supplies various kinds of IT materials such as polarizer, automotive material, OLED film, semiconductor materials and display and battery materials for LCD Photoresist, OLED materials, battery materials and others and RO membranes, which will be the next growth engine for future.

The Life Sciences business manufactures and supplies pharmaceutical products, such as human growth hormone ‘Eutropin’, diabetes drug ‘Zemiglo’, bovine somatotropin ‘Boostin’, hyaluronic acid filler ‘YVOIRE’ and others, as well as fine chemical products, such as herbicide ‘PYANCHOR’ for rice farming and others.

# LG Chem, Ltd. and Subsidiaries

## Notes to the Consolidated Interim Financial Statements

### June 30, 2020 and 2019 (Unaudited), and December 31, 2019

FarmHannong Co., Ltd., subsidiary of the Parent Company, manufactures and sells crop protection products, seeds, fertilizers and others. The crop protection business provides high value products such as environmentally-friendly pesticide. The fertilizer business leads developing a next generation fertilizers such as eco-friendly organic and functional fertilizers, and potting soil. The seed business puts priority on retaining various genetic resources and developing rare breeds with high profit in order to remain competitive in a future food industry.

#### 1.3 Consolidated Subsidiaries, Associates and Joint Ventures

June 30, 2020				
	Percentage of ownership (%)	Business location	Closing month	Business activities
<b>Consolidated subsidiaries</b>				
Ningbo LG Yongxing Chemical Co., Ltd. <sup>1</sup>	75	China	December	ABS/SBL manufacturing and sales
Ningbo Zhenhai LG Yongxing Trade Co., Ltd. <sup>1</sup>	75	China	December	ABS sales
LG Chem America, Inc. <sup>2</sup>	100	USA	December	Sales and trading
LG Chemical India Pvt. Ltd. <sup>3</sup>	100	India	December	Synthetic resin manufacturing and sales
LG Polymers India Pvt. Ltd. <sup>3</sup>	100	India	December	PS manufacturing and sales
LG Chemical (Guangzhou) Engineering Plastics Co., Ltd.	100	China	December	EP manufacturing and sales
LG Chem (Nanjing) Information & Electronics Materials Co., Ltd.	100	China	December	Battery/ Polarizer manufacturing and sales
LG Chem (Taiwan), Ltd.	100	Taiwan	December	Polarizer manufacturing and sales
LG Chem Display Materials (Beijing) Co., Ltd.	100	China	December	Polarizer manufacturing and sales
Tianjin LG Bohai Chemical Co., Ltd.	75	China	December	PVC, VCM, EDC manufacturing and sales
Tianjin LG BOTIAN Chemical Co., Ltd.	58	China	December	SBS manufacturing and sales
LG Chem (China) Investment Co., Ltd.	100	China	December	China holding company
LG Chem (Tianjin) Engineering Plastics Co., Ltd.	100	China	December	EP manufacturing and sales
LG Chem Europe GmbH	100	Germany	December	Sales and trading
LG Chem Poland Sp. z o.o.	100	Poland	December	EP manufacturing and sales
LG Chem Michigan Inc. <sup>2,4</sup>	100	USA	December	Automotive battery research and manufacturing
LGC Petrochemical India Private Ltd.	100	India	December	Synthetic resin manufacturing and sales
HAENGBOKNURI CO., LTD.	100	Korea	December	Facility management and general cleaning
LG CHEM TK Kimya SANAYI VE TIC. Ltd. STI.	100	Turkey	December	Sales and trading
LG Chem Japan Co., Ltd.	100	Japan	December	Sales and trading
LG NanoH2O, LLC <sup>2</sup>	100	USA	December	Water processing membrane sales
Nanjing LG Chem New Energy Battery Co., Ltd. <sup>5</sup>	50	China	December	Automotive battery manufacturing and sales
LG Chem (Chongqing) Engineering Plastics Co., Ltd.	100	China	December	EP manufacturing and sales
LG Chem Wroclaw Energy sp. z o.o.	100	Poland	December	Automotive battery manufacturing and sales
LG Chem(HUIZHOU) Petrochemical Co., Ltd.	70	China	December	ABS manufacturing and sales
FarmHannong Co., Ltd. <sup>6</sup>	100	Korea	December	Agricultural pesticide manufacturing and sales
Farm Hannong (Heilongjiang) Chemical Co., Ltd. <sup>6</sup>	100	China	December	Agricultural pesticide manufacturing
LG Chem Life Sciences India Pvt. Ltd.	100	India	December	Pharmaceutical products sales
LG Chem Life Sciences (Beijing) Co., Ltd.	100	China	December	Pharmaceutical products sales
LG Chem Life Sciences (Thailand) Ltd.	100	Thailand	December	Pharmaceutical products sales
Farmhannong America, Inc. <sup>6</sup>	100	USA	December	Agricultural pesticide sales
LG Chem Hai Phong Vietnam Co., Ltd.	100	Vietnam	December	Polarizer manufacturing and sales
LG Chem Australia Pty Ltd.	100	Australia	December	ESS sales

# LG Chem, Ltd. and Subsidiaries

## Notes to the Consolidated Interim Financial Statements

### June 30, 2020 and 2019 (Unaudited), and December 31, 2019

LG Chem Mexico S.A. de C.V.	100	Mexico	December	Sales and trading
FarmHannong(Thailand) Ltd. <sup>6</sup>	100	Thailand	December	Research and development on seeds
LG Chem Hai Phong engineering Plastics LLC.	100	Vietnam	December	EP manufacturing and sales
LG Chem (Guangzhou) Information & Electronics Materials Co., Ltd.	100	China	December	Polarizer manufacturing and sales
LEYOU NEW ENERGY MATERIALS(WUXI) Co., LTD <sup>7</sup>	51	China	December	Battery materials manufacturing and sales
LG Chem Fund I LLC <sup>8</sup>	100	USA	December	Investments in venture companies
Ugimag Korea Co., Ltd. <sup>9</sup>	100	Korea	December	Electronic parts manufacturing and sales
Uniseal, Inc. <sup>2, 10</sup>	100	USA	December	Adhesive manufacturing and sales
Uniseal Europe Ltd. <sup>10</sup>	100	England	December	Adhesive manufacturing and sales
LG Chem Nanjing Energy Solution Co., Ltd. <sup>11</sup>	100	China	December	Battery manufacturing and sales
LG Chem Life Science Innovation Center, Inc. <sup>2</sup>	100	USA	December	Pharmaceutical products research
FARMHANNONG(MALAYSIA) SDN. BHD. <sup>6</sup>	100	Malaysia	December	Agricultural pesticide licensing
PT FARM HANNONG INDONESIA <sup>6, 12</sup>	100	Indonesia	December	Agricultural pesticide licensing
Ultium Cells LLC <sup>2, 13</sup>	50	USA	December	Automotive battery manufacturing and sales
<b>Associates</b>				
TECHWIN Co., Ltd.	20	Korea	December	Environment solution and construction of chemical plant
LG Chem BRASIL INTERMEDIACAO DE NEGOCIOS DO SETOR QUIMICO LTDA. <sup>14</sup>	100	Brazil	December	Sales and trading
LG Chem Malaysia SDN.BHD. <sup>14</sup>	100	Malaysia	December	Sales and trading
FJ Composite Material Co., Ltd.	33	Japan	May	Heat diffuser research and manufacturing
WUXI CL New Energy Technology Ltd.	30	China	December	ESS manufacturing and sales
LG Chem Life Sciences Poland Ltd. <sup>14</sup>	100	Poland	December	Pharmaceutical products sales
Combustion Synthesis Co., Ltd.	37	Japan	December	Nitride-based ceramic powder production
HUAJIN NEW ENERGY MATERIALS(QUZHOU)CO., LTD. <sup>15</sup>	49	China	December	Battery materials manufacturing and sales
VINFAST LITHIUM BATTERY PACK LLC.	35	Vietnam	December	Battery manufacturing and sales
<b>Joint ventures</b>				
LG VINA Chemical Co., Ltd.	50	Vietnam	December	DOP production and sales
HL Greenpower Co., Ltd.	49	Korea	December	Automotive battery manufacturing and sales
SEETEC Co., Ltd.	50	Korea	December	Plant utility and distribution, research assistance service

<sup>1</sup> As at June 30, 2020, Ningbo LG Yongxing Chemical Co., Ltd. owns 100% of Ningbo Zhenhai LG Yongxing Trading Co., Ltd.'s shares.

<sup>2</sup> As at June 30, 2020, LG Chem Michigan Inc. owns 100% of LG Chem America, Inc., LG NanoH2O, Inc., Uniseal, Inc. and LG Chem Life Science Innovation Center, Inc.'s shares, and owns 50% of Ultium Cells LLC's shares.

<sup>3</sup> As at June 30, 2020, LG Chemical India Pvt. Ltd. owns 100% of LG Polymers India Pvt. Ltd.'s shares.

<sup>4</sup> During the six-month period ended June 30, 2020, the Parent Company acquired additional shares of LG Chem Michigan Inc. for ₩ 43,456 million.

<sup>5</sup> Although the Parent Company does not own more than 50% of shares of Nanjing LG Chem New Energy Battery Co., Ltd., the Parent Company is considered to have control over the investee as the Parent Company can exercise the majority voting rights in its decision-making process in accordance with the shareholders' agreement.

<sup>6</sup> As at June 30, 2020, FarmHannong Co., Ltd. owns 100% of Farm Hannong (Heilongjiang) Chemical Co., Ltd., Farmhannong America, Inc., FarmHannong(Thailand) Ltd., and FARMHANNONG(MALAYSIA) SDN.BHD.'s shares, and 99.6% of PT FARM HANNONG INDONESIA's shares.

# LG Chem, Ltd. and Subsidiaries

## Notes to the Consolidated Interim Financial Statements

### June 30, 2020 and 2019 (Unaudited), and December 31, 2019

- <sup>7</sup> During the six-month period ended June 30, 2020, the Parent Company acquired additional shares of LEYOU NEW ENERGY MATERIALS(WUXI) Co., LTD. for ₩ 17,639 million.
- <sup>8</sup> During the six-month period ended June 30, 2020, the Parent Company acquired additional shares of LG CHEM FUND I LLC for ₩ 2,003 million.
- <sup>9</sup> During the six-month period ended June 30, 2020, the Parent Company acquired additional shares of Ugimag Korea Co., Ltd. for ₩ 4,500 million.
- <sup>10</sup> Uniseal, Inc. holds 100% of Uniseal Europe Ltd.
- <sup>11</sup> During the six-month period ended June 30, 2020, the Parent Company acquired additional shares of LG Chem Nanjing Energy Solution Co., Ltd. for ₩ 199,972 million.
- <sup>12</sup> PT FARM HANNONG INDONESIA was newly established during the six-month period ended June 30, 2020, and the Group acquired 99.6% shares of PT FARM HANNONG INDONESIA for ₩ 208 million.
- <sup>13</sup> Ultium Cells LLC was newly established during the six-month period ended June 30, 2020, and the Group acquired 50% shares of Ultium Cells LLC for ₩ 43,456 million. The Group possesses control over the investee as the Group can exercise the majority voting rights in its decision-making process and has the ability to use power to affect the variable returns of the investee through its involvement in the production and cost management and other activities in accordance with the shareholders' agreement.
- <sup>14</sup> Classified as an investment in associate due to its small size.
- <sup>15</sup> During the six-month period ended June 30, 2020, the Parent Company acquired additional shares of HUAJIN NEW ENERGY MATERIALS(QUZHOU)CO., LTD. for ₩ 13,611 million.

#### 1.4 Summarized Financial Information of Subsidiaries, Associates and Joint Ventures

Summarized financial information (before elimination of intercompany transactions and adjustments for differences in accounting policies) of subsidiaries, associates and joint ventures is as follows:

(in millions of Korean won)

	June 30, 2020				
	Assets	Liabilities	Equity	Revenue	Profit (loss) for the period
<b>Subsidiaries</b>					
Ningbo LG Yongxing Chemical Co., Ltd.	898,442	261,904	636,538	749,640	111,830
Ningbo Zhenhai LG Yongxing Trade Co., Ltd.	6,498	1,719	4,779	9,803	190
LG Chem America, Inc.	210,948	183,542	27,406	352,773	377
LG Chemical India Pvt. Ltd.	32,757	28	32,729	-	14
LG Polymers India Pvt. Ltd.	105,396	43,872	61,524	59,918	(21,259)
LG Chemical (Guangzhou) Engineering Plastics Co., Ltd.	91,131	23,931	67,200	80,997	5,123
LG Chem (Nanjing) Information & Electronics Materials Co., Ltd.	3,851,475	1,746,802	2,104,673	1,441,751	161,392
LG Chem (Taiwan), Ltd.	118,459	45,307	73,152	67,556	4,828
LG Chem Display Materials (Beijing) Co., Ltd.	35,078	7,932	27,146	-	-
Tianjin LG Bohai Chemical Co., Ltd.	248,596	45,317	203,279	237,809	37,629
Tianjin LG BOTIAN Chemical Co., Ltd.	46,955	27,092	19,863	57,509	4,789
LG Chem (China) Investment Co., Ltd.	884,245	576,128	308,117	29,016	2,888
LG Chem (Tianjin) Engineering Plastics Co., Ltd.	46,787	7,006	39,781	22,560	968
LG Chem Europe GmbH	279,083	232,550	46,533	345,013	165
LG Chem Poland Sp. z o.o.	64,446	23,395	41,051	51,034	3,434
LG Chem Michigan Inc.	859,822	586,783	273,039	273,129	(35,082)
LGC Petrochemical India Private Ltd.	3,827	666	3,161	1,909	174
HAENGBOKNURI CO., LTD.	4,197	1,820	2,377	5,668	498
LG CHEM TK Kimya SANAYI VE TIC. Ltd. STI.	9,761	8,327	1,434	24,413	362
LG Chem Japan Co., Ltd.	6,277	1,295	4,982	2,955	260
LG NanoH2O, LLC <sup>1</sup>	24,928	3,475	21,453	12,631	2,322

**LG Chem, Ltd. and Subsidiaries**  
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Nanjing LG Chem New Energy Battery Co., Ltd.	1,011,642	827,417	184,225	625,799	23,802
LG Chem (Chongqing) Engineering Plastics Co., Ltd.	35,135	11,210	23,925	17,577	879
LG Chem Wroclaw Energy sp. z o.o.	6,003,607	5,103,456	900,151	1,722,550	(217,033)
LG Chem(HUIZHOU) Petrochemical Co., Ltd.	343,393	242,272	101,121	284,745	23,388
FarmHannong Co., Ltd. <sup>1,2</sup>	1,076,766	677,327	399,439	399,052	28,943
LG Life Sciences India Pvt. Ltd.	2,709	2,556	153	3,384	708
LG Life Sciences (Beijing) Co., Ltd.	1,830	481	1,349	593	25
LG Life Sciences (Thailand) Ltd.	20,682	9,768	10,914	14,403	(200)
LG Chem Hai Phong Vietnam Company Ltd.	7,092	558	6,534	5,939	(356)
LG Chem Austrailia Pty Ltd.	5,449	4,119	1,330	3,645	177
LG Chem Mexico S.A. de C.V.	1,012	99	913	666	107
LG Chem Hai Phong Engineering Plastics Ltd.	23,353	10,671	12,682	5,073	(1,555)
LG Chem (Guangzhou) Information & Electronics Materials Co., Ltd.	634,176	487,165	147,011	11,584	(24,902)
LEYOU NEW ENERGY MATERIALS(WUXI) Co., LTD	373,986	39,340	334,646	-	(1,039)
LG Chem Fund I LLC	19,027	9	19,018	-	(1,941)
Ugimag Korea Co., Ltd. <sup>1</sup>	37,263	29,899	7,364	7,896	(3,653)
Uniseal, Inc. <sup>1,2</sup>	35,207	5,134	30,073	24,830	(474)
LG Chem Nanjing Energy Solution Co., Ltd.	1,324,550	843,962	480,588	319,349	17,770
LG Chem Life Science Innovation Center, Inc.	3,771	2,316	1,455	2,429	129
Ultium Cells LLC	119,008	34,244	84,764	-	9
<b>Associates</b>					
TECHWIN Co., Ltd.	184,014	97,906	86,108	-	-
LG Chem BRASIL INTERMEDIACAO DE NEGOCIOS DO SETOR Q UIMICO LTDA.	605	105	500	890	299
LG Chem Malaysia SDN.BHD.	449	2	447	331	43
FJ Composite Material Co., Ltd.	9,516	5,076	4,440	903	387
WUXI CL New Energy Technology Ltd.	3,524	4,308	(784)	118	264
LG Life Sciences Poland Ltd.	177	67	110	121	3
Combustion Synthesis Co., Ltd.	814	51	763	54	(195)
HUAJIN NEW ENERGY MATERIALS(QUZHOU)CO., LTD.	224,885	56,540	168,345	-	593
VINFAST LITHIUM BATTERY PACK LLC.	25,368	11,642	13,726	10,697	(693)
<b>Joint ventures</b>					
LG VINA Chemical Co., Ltd.	35,930	29,292	6,638	37,185	(266)
HL Greenpower Co., Ltd.	392,830	347,437	45,393	517,343	(1,556)
SEETEC Co., Ltd.	330,816	50,666	280,150	244,088	7,946

<sup>1</sup> Fair value adjustments due to business combination recorded in the consolidated financial statements are not included in the above information.

<sup>2</sup> Represent financial information of intermediate parent company consolidating its subsidiaries.

**LG Chem, Ltd. and Subsidiaries**  
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	December 31, 2019			2019	
	Assets	Liabilities	Equity	Revenue	Profit (loss) for the period
<i>(in millions of Korean won)</i>					
<b>Subsidiaries</b>					
Ningbo LG Yongxing Chemical Co., Ltd.	781,530	174,627	606,903	916,162	77,063
Ningbo Zhenhai LG Yongxing Trade Co., Ltd.	5,956	1,472	4,484	9,089	170
LG Chem HK Ltd.	-	-	-	-	6
LG Chem America, Inc.	311,718	285,645	26,073	394,774	(1,454)
LG Chemical India Pvt. Ltd.	32,758	17	32,741	-	25
LG Polymers India Pvt. Ltd.	122,078	37,794	84,284	115,553	5,457
LG Chemical (Guangzhou) Engineering Plastics Co., Ltd.	103,530	42,832	60,698	100,382	4,423
LG Chem (Nanjing) Information & Electronics Materials Co., Ltd.	3,685,798	1,785,288	1,900,510	966,066	(16,470)
LG Chem (Taiwan), Ltd.	101,804	34,195	67,609	77,615	2,280
LG Chem Display Materials (Beijing) Co., Ltd.	41,729	11,486	30,243	-	-
Tianjin LG Bohai Chemical Co., Ltd.	244,047	81,853	162,194	270,453	31,054
Tianjin LG BOTIAN Chemical Co., Ltd.	43,473	28,726	14,747	73,092	6,732
LG Chem (China) Investment Co., Ltd.	934,186	630,040	304,146	30,099	1,931
LG Chem (Tianjin) Engineering Plastics Co., Ltd.	45,380	7,448	37,932	34,329	(848)
LG Chem Europe GmbH	330,807	286,252	44,555	426,200	(762)
LG Chem Poland Sp. z o.o.	63,814	26,005	37,809	61,545	414
LG Chem Michigan Inc.	709,715	448,675	261,040	208,354	(56,350)
LGC Petrochemical India Private Ltd.	3,762	708	3,054	2,101	217
HAENGBOKNURI CO., LTD.	3,716	1,837	1,879	5,089	229
LG CHEM TK Kimya SANAYI VE TIC. Ltd. STI.	9,807	8,601	1,206	17,254	270
LG Chem Japan Co., Ltd.	5,638	1,138	4,500	3,296	314
LG NanoH2O, LLC <sup>1</sup>	23,684	5,219	18,465	14,478	2,105
NanoH2O (Jiangsu) Water Processing Technology Co. Ltd.	-	-	-	-	1,369
Nanjing LG Chem New Energy Battery Co., Ltd.	1,002,457	845,483	156,974	460,083	17,395
LG Chem (Chongqing) Engineering Plastics Co., Ltd.	33,009	10,480	22,529	17,239	(1,154)
LG Chem Wroclaw Energy sp. z o.o.	4,330,353	3,211,121	1,119,232	876,233	(111,485)
LG Chem(HUIZHOU) Petrochemical Co., Ltd.	364,406	288,234	76,172	261,512	2,914
FarmHannong Co., Ltd. <sup>1,2</sup>	1,022,865	652,462	370,403	397,844	27,404
LG Life Sciences India Pvt. Ltd.	2,774	3,322	(548)	3,088	(335)
LG Life Sciences (Beijing) Co., Ltd.	1,878	585	1,293	647	37
LG Life Sciences (Thailand) Ltd.	26,245	15,190	11,055	18,538	2,723
LG Chem Hai Phong Vietnam Company Ltd.	17,152	10,502	6,650	20,520	(1,048)
LG Chem Australia Pty Ltd.	2,595	1,471	1,124	1,207	150
LG Chem Mexico S.A. de C.V.	930	152	778	698	100
LG Chem Hai Phong Engineering Plastics Ltd.	22,794	9,053	13,741	3	(622)
LG Chem (Guangzhou) Information & Electronics Materials Co., Ltd.	570,429	402,793	167,636	-	(864)
LEYOU NEW ENERGY MATERIALS(WUXI) Co., LTD	348,722	54,207	294,515	-	(186)
LG Chem Fund I LLC	18,317	63	18,254	-	(1,691)
Ugimag Korea Co., Ltd. <sup>1</sup>	39,082	32,563	6,519	10,592	(3,230)
Uniseal, Inc. <sup>1,2</sup>	36,013	6,218	29,795	32,114	1,052
LG Chem Nanjing Energy Solution Co., Ltd.	807,952	550,770	257,182	-	(1,649)
LG Chem Life Science Innovation Center, Inc.	3,558	2,281	1,277	499	29
<b>Associates</b>					
LG Holdings (HK) Ltd.	196,270	40,724	155,546	24,470	8,168

**LG Chem, Ltd. and Subsidiaries**  
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TECHWIN Co., Ltd.	173,997	81,803	92,194	-	-
LG Chem BRASIL INTERMEDIACAO DE NEGOCIOS DO SETOR Q UIMICO LTDA.	410	108	302	886	164
LG Chem Malaysia SDN.BHD.	409	2	407	158	18
LG Fuel Cell Systems Inc.	-	-	-	-	(3,723)
FJ Composite Material Co., Ltd.	8,393	4,692	3,701	597	(13)
WUXI CL New Energy Technology Ltd.	3,701	4,617	(916)	22	(648)
LG Chem Life Sciences Poland Ltd.	178	87	91	172	30
Combustion Synthesis Co., Ltd.	971	79	892	26	(332)
HUAJIN NEW ENERGY MATERIALS(QUZHOU)CO., LTD.	203,635	66,725	136,910	-	(408)
VINFAST LITHIUM BATTERY PACK LLC.	28,283	14,413	13,870	-	-
<b>Joint ventures</b>					
LG VINA Chemical Co., Ltd.	34,259	27,559	6,700	28,702	262
HL Greenpower Co., Ltd.	401,313	353,936	47,377	467,048	2,357
SEETEC Co., Ltd..	351,935	59,732	292,203	291,917	6,984

<sup>1</sup> Fair value adjustments due to business combination recorded in the consolidated financial statements are not included in the above information.

<sup>2</sup> Represent financial information of intermediate parent company consolidating its subsidiaries.

### 1.5 Changes in Scope for Consolidation

Subsidiaries newly included in the consolidation for the six-month period ended June 30, 2020, are as follows:

Subsidiary	Reason
PT FARM HANNONG INDONESIA	Newly established
Ultium Cells LLC	Newly established

## 2. Summary of Significant Accounting Policies

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

### 2.1 Basis of Preparation

The Group 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 consolidated interim financial statements have been condensed, restructured and translated into English from the Korean language financial statements.

The Group's consolidated interim financial statements for the six-month period ended June 30, 2020, have been prepared in accordance with Korean IFRS 1034 *Interim Financial Reporting*. These consolidated interim financial statements have been prepared in accordance with Korean IFRS which is effective or early adopted as at June 30, 2020.

(a) *New and amended standard adopted by the Group*

The Group has applied the following standards for the first time for their annual reporting period commencing January 1, 2020.

# LG Chem, Ltd. and Subsidiaries

## Notes to the Consolidated Interim Financial Statements

### June 30, 2020 and 2019 (Unaudited), and December 31, 2019

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- Amendments to Korean IFRS 1001 *Presentation of Financial Statements* and Korean IFRS 1008 *Accounting policies, changes in accounting estimates and errors – Definition of Material*

The amendments clarify the explanation of the definition of material and amended Korean IFRS 1001 and Korean IFRS 1008 in accordance with the clarified definitions. Materiality is assessed by reference to omission or misstatement of material information as well as effects of immaterial information, and to the nature of the users when determining the information to be disclosed by the Group. The amendment does not have a significant impact on the consolidated interim financial statements.

- Amendments to Korean IFRS 1103 *Business Combination – Definition of a Business*

To consider the integration of the required activities and assets as a business, the amended definition of a business requires an acquisition to include an input and a substantive process that together significantly contribute to the ability to create outputs and excludes economic benefits from the lower costs. An entity can apply a concentration test, an optional test, where substantially all of the fair value of gross assets acquired is concentrated in a single asset or a group of similar assets, the assets acquired would not represent a business. The amendment does not have a significant impact on the consolidated interim financial statements.

- Amendments to Korean IFRS 1109 *Financial Instruments*, Korean IFRS 1039 *Financial Instruments: Recognition and Measurement* and Korean IFRS 1107 *Financial Instruments: Disclosure – Interest Rate Benchmark Reform*

The amendments allow to apply the exceptions when forward-looking analysis is performed in relation the application of hedge accounting while uncertainties arising from interest rate benchmark reform exist. The exceptions require the Group assumes that the interest rate benchmark on which the hedged items and the hedging instruments are based on is not altered as a result of interest rate benchmark reform, when determining whether the expected cash flows are highly probable, whether an economic relationship between the hedged item and the hedging instrument exists, and when assessing the hedging relationship is highly effective. The amendments do not have a significant impact on the consolidated interim financial statements.

*(b) New and amended standards not yet adopted by the Group*

The following new accounting standard that has been published that is not mandatory for June 30, 2020 reporting periods and has not been early adopted by the Group.

- *Amendments to Korean IFRS Lease – Practical expedient for COVID-19-Related Rent Exemption, Concessions, Suspension*

As a practical expedient, a lessee may elect not to assess whether a rent concession occurring as a direct consequence of the COVID-19 pandemic is a lease modification. A lessee that makes this election shall account for any change in lease payments resulting from the rent concession the same way it would account for the change applying this Standard if the change were not a lease modification. These amendments should be applied for annual periods beginning on or after June 1, 2020, and earlier application of permitted. The Group does not expect that these amendments have a significant impact on the consolidated interim financial statements.

# **LG Chem, Ltd. and Subsidiaries**

## **Notes to the Consolidated Interim Financial Statements**

### **June 30, 2020 and 2019 (Unaudited), and December 31, 2019**

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#### **2.2 Significant Accounting Policies**

Significant accounting policies and method of computation used in the preparation of the condensed consolidated interim financial statements are consistent with those of the consolidated financial statements for the year ended December 31, 2019, except for the changes due to the application of amendment and enactments of standards described in Note 2.1.(a) and the ones described below.

##### **2.2.1 Income Tax Expense**

Income tax expense for the interim period is recognized based on management's best estimate of the weighted average annual income tax rate expected for the full financial year. The estimated average annual tax rate is applied to the pre-tax income.

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

#### **3.1 Financial Risk Factors**

The Group's activities expose it to a variety of financial risks: market risk, credit risk and liquidity risk. The Group'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 Group. The Group uses derivative financial instruments to hedge certain risk exposures.

Risk management is carried out by the Group'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 Group'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, and credit risk, use of derivative financial instruments and non-derivative financial instruments, investment of excess liquidity.

##### **(1) Market risk**

###### **1) Foreign exchange risk**

The Group operates internationally and is exposed to foreign exchange risk arising from foreign currency exposures, 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 group companies to manage their foreign exchange risk against their functional currency. The Group 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.

The Group has certain investments in foreign operations, whose net assets are exposed to foreign currency translation risk. Currency exposure arising from the net assets of the Group's foreign operations is managed primarily through borrowings denominated in the relevant foreign currencies.

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As at June 30, 2020 and December 31, 2019, the Group's monetary assets and liabilities denominated in currencies other than its functional currency, are as follows:

<i>(in millions of Korean won)</i>	<b>June 30, 2020</b>		<b>December 31, 2019</b>	
	<b>Assets</b>	<b>Liabilities</b>	<b>Assets</b>	<b>Liabilities</b>
USD	3,390,820	3,783,974	2,681,402	3,321,586
EUR	233,846	5,043,356	275,799	3,157,509
JPY	27,261	212,587	30,081	208,998
CNY and others	710,725	3,904	693,284	8,231

As at June 30, 2020 and December 31, 2019, if the Group'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>June 30, 2020</b>		<b>December 31, 2019</b>	
	<b>10% Increase</b>	<b>10% Decrease</b>	<b>10% Increase</b>	<b>10% Decrease</b>
USD	(19,029)	19,029	(64,018)	64,018

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

2) Price risk

The Group is exposed to equity securities price risk arises from investments held by the Group and classified in the consolidated interim statement of financial position as non-current financial assets. The Group's equity investments are publicly traded and are related to the KOSDAQ and NASDAQ index.

The table below summarizes the impact of increases/decreases of the listed stock price index on the Group's equity before tax effects as at June 30, 2020 and December 31, 2019. 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 Group's equity instruments moved in line with the index.

<i>(in millions of Korean won)</i>	<b>June 30, 2020</b>		<b>December 31, 2019</b>	
	<b>10% Increase</b>	<b>10% Decrease</b>	<b>10% Increase</b>	<b>10% Decrease</b>
KOSDAQ	-	-	676	(676)
NASDAQ	1,740	(1,740)	819	(819)
HSI	-	-	7,944	(7,944)
<b>Total</b>	<b>1,740</b>	<b>(1,740)</b>	<b>9,439</b>	<b>(9,439)</b>

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 through 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.

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The Group adequately minimizes risks from interest rate fluctuations through various policies, such as sharing excess cash within the Group (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.

The table below summarizes the impact of increases/decreases of interest rate on the Group's equity and post-tax profit for the six-month period ended June 30, 2020 and 2019. The analysis is based on the assumption that the interest rate has increased/decreased by 1% (100 basis points) with all other variables held constant.

<i>(in millions of Korean won)</i>	<b>Impact on post-tax profit</b>		<b>Impact on equity</b>	
	<b>2020</b>	<b>2019</b>	<b>2020</b>	<b>2019</b>
Increase	(41,346)	(22,764)	(41,346)	(22,764)
Decrease	41,346	22,764	41,346	22,764

(2) Credit risk

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

A. Trade receivables

The Group 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 June 30, 2020 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>June 30, 2020</b>				
<i>(trade receivables)</i>				
Gross carrying amount	4,340,660	593,165	11,694	4,945,519
Expected loss rate	0.0%	0.1%	20.4%	0.1%
Loss allowance provision	2,076	616	2,390	5,082
<b>December 31, 2019</b>				
<i>(trade receivables)</i>				
Gross carrying amount	3,005,591	729,226	9,237	3,744,054
Expected loss rate	0.1%	0.1%	31.3%	0.2%
Loss allowance provision	2,111	829	2,890	5,830

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

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

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Movements in the loss allowance provision for trade receivables for the six-month period ended June 30, 2020 and for the year ended December 31, 2019, are as follows:

<i>(in millions of Korean won)</i>	<b>Trade receivables</b>	
	<b>June 30, 2020</b>	<b>December 31, 2019</b>
<b>Beginning balance</b>	5,830	7,910
Increase in loss allowance recognized in profit or loss	(677)	(903)
Receivables written off as uncollectible	-	(1,164)
Exchange differences	(71)	(13)
<b>Ending balance</b>	<b>5,082</b>	<b>5,830</b>

As at June 30, 2020, the carrying amount of trade receivables representing the maximum exposure to credit risk amounts to ₩4,945,519 million (December 31, 2019: ₩ 3,744,054 million).

*B. Other financial assets at amortized cost*

Movements in loss allowance provision for other financial assets at amortized cost for the six-month period ended June 30, 2020 and for the year ended December 31, 2019, are as follows:

<i>(in millions of Korean won)</i>	<b>Other receivables</b>	
	<b>June 30, 2020</b>	<b>December 31, 2019</b>
<b>Beginning balance</b>	2,109	2,726
Increase in loss allowance recognized as 'other expenses' in profit or loss	2	(630)
Exchange differences	-	13
<b>Ending balance</b>	<b>2,111</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.

Debt investments measured at fair value through other comprehensive income include trade receivables to be discounted. For these investments, changes in fair value are accumulated within the financial assets at fair value through other comprehensive income reserve within equity. The accumulated changes in fair value are transferred to profit or loss when the investment is impaired.

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

To manage credit risks relating to trade receivables, the Group 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 new customers. The credit risks relating to trade receivables are also mitigated by insurance contracts, collateral as well as payment guarantees.

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

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The Group has deposited its cash and cash equivalents and other long-term deposits in several financial institutions, such as Woori Bank and others. The Group has also entered into derivative contract with several financial institutions. The Group 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

Finance team of the Group monitors rolling forecasts of the Group'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 Group does not breach borrowing limits or covenants (where applicable) on any of its borrowing facilities. The Group'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.

The table below analyzes the Group's non-derivative financial liabilities into relevant maturity groupings based on the remaining period at the reporting period 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>June 30, 2020</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 lease liabilities)	3,011,220	1,935,768	5,180,885	2,437,643
Lease liabilities	56,145	36,459	51,915	70,478
Trade and other payables <sup>1</sup>	6,463,915	13,705	33	171
<b>Total</b>	<b>9,531,280</b>	<b>1,985,932</b>	<b>5,232,833</b>	<b>2,508,292</b>

(in millions of Korean won)

	<b>December 31, 2019</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)	1,463,659	1,445,986	4,060,071	1,976,074
Lease liabilities	64,481	41,132	79,703	114,050
Trade and other payables	6,522,664	10,787	43	121
<b>Total</b>	<b>8,050,804</b>	<b>1,497,905</b>	<b>4,139,817</b>	<b>2,090,245</b>

<sup>1</sup> Included ₩ 1,307,270 millions of financial liabilities due to a financial institution relating to reverse factoring arrangement. The Parent Company has entered into reverse factoring arrangement (interest rate CD 91 days + 0.75~1.80%) with a financial institution whereby suppliers receive payments from the financial institution on the due date of each invoice and the Parent Company pays to the financial institution at the end of extended credit period as agreed in the reverse factoring arrangement.

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As at June 30, 2020, the Group has entered into swap contracts for which cash flow hedge accounting is applied, to avoid market price fluctuation of raw materials.

(in millions of Korean won)

	June 30, 2020				
	Purpose of the contracts	Hedged items	Financial institution	Maturity	Fair value
Merchandise (raw materials) swap <sup>1</sup>	Cash flow hedge	Non-ferrous metal	Citi bank	~2021. 12	2,865

Details of derivative assets and liabilities as at June 30, 2020 and December 31, 2019, are as follows:

(in millions of Korean won)

	June 30, 2020		December 31, 2019	
	Assets	Liabilities	Assets	Liabilities
Merchandise (raw materials) swap <sup>1</sup>	4,200	1,335	21,371	-
<b>Total</b>	<b>4,200</b>	<b>1,335</b>	<b>21,371</b>	<b>-</b>

<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).

### 3.2 Capital Risk Management

The Group's objectives for managing capital are to safeguard the Group's ability to continue as a going concern, so the Group can continue 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 Group 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 consolidated statement of financial position plus net debt.

The gearing ratio and debt-to-equity ratio as at June 30, 2020 and December 31, 2019, were as follows:

(in millions of Korean won, except for ratios)

	June 30, 2020	December 31, 2019
Total borrowings (Note 14) (A)	11,861,240	8,414,268
Less: cash and cash equivalents (B)	(3,363,343)	(1,888,631)
Net debt (C=A+B)	8,497,897	6,525,637
Total liabilities (D)	20,733,879	16,640,637
Total equity (E)	17,842,416	17,383,789
Total capital (F=C+E)	26,340,313	23,909,426
Gearing ratio (C/F)	32.3%	27.3%
Debt-to-equity ratio (D/E)	116.2%	95.7%

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**3.3 Fair Value**

(1) Carrying amount and fair value of financial instruments by category as at June 30, 2020 and December 31, 2019, are as follows:

(in millions of Korean won)

	June 30, 2020		December 31, 2019	
	Carrying amount	Fair value	Carrying amount	Fair value
<b>Financial assets (current)</b>				
Cash and cash equivalents	3,363,343	1	1,888,631	1
Deposits held by financial institutions	4,082	1	32,515	1
Trade receivables	4,908,018	1	3,738,224	1
Other receivables (excluding deposits held by financial institutions)	351,140	1	234,036	1
Current derivative financial assets	2,966	2,966	10,879	10,879
<b>Financial assets (non-current)</b>				
Deposits held by financial institutions	167,053	1	107,434	1
Trade receivables	32,419	1	-	-
Other receivables (excluding deposits held by financial institutions)	85,460	1	65,499	1
Other non-current financial assets (carried at fair value)				
Marketable financial assets	16,605	16,605	83,174	83,174
Non-marketable financial assets <sup>2</sup>	70,960	70,960	66,289	66,289
Non-current derivative financial assets	1,234	1,234	10,492	10,492
<b>Financial liabilities (current)</b>				
Trade and other payables	6,463,915	1	6,522,664	1
Current borrowings (excluding convertible bonds and lease liabilities)	2,132,566	1	1,300,989	1
Current borrowings (convertible bonds)	677,984	640,920	-	-
Current lease liabilities	49,664	3	55,108	3
Current derivative financial liabilities	1,335	1,335	-	-
Current financial liabilities (conversion rights)	66,000	66,000	-	-
<b>Financial liabilities (non-current)</b>				
Non-current borrowings (excluding lease liabilities)	8,890,335	9,017,693	6,836,034	7,042,233
Non-current lease liabilities	110,691	3	222,137	3
Other non-current payables	13,909	1	10,951	1
Other non-current financial liabilities (conversion rights)	-	-	930	930

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

<sup>2</sup> Acquisition costs of these financial assets approximate their fair values.

<sup>3</sup> Fair values for these financial assets and liabilities are not disclosed above in accordance with related Korean IFRS.

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

Fair values of financial liabilities(non-current) are based on cash outflows discounted by using Korean won currency note yield in the same credit grade with the Parent Company (AA+), and the applied discount rates as at June 30, 2020 and December 31, 2019, are as follows:

<i>(in percentage)</i>	<b>June 30, 2020</b>	<b>December 31, 2019</b>
Discount rate	1.11% ~ 2.05%	1.63% ~ 2.24%

(3) Fair value hierarchy

Items that are measured at fair value 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 that an entity can access at the measurement date (Level 1).
- All inputs other than quoted prices included in level 1 that are observable (either directly that is, prices, or indirectly that is, derived from prices) for the asset or liability (Level 2).
- Unobservable inputs for the asset or liability (Level 3).

Fair value hierarchy classifications of the financial instruments that are measured at fair value or their fair value are disclosed as at June 30, 2020 and December 31, 2019, are as follows:

<i>(in millions of Korean won)</i>	<b>June 30, 2020</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)	16,605	-	-	16,605
Other non-current financial assets (non-marketable financial assets)	-	-	70,960	70,960
Current derivative financial assets	-	2,966	-	2,966
Non-current derivative financial assets	-	1,234	-	1,234
Current derivative financial liabilities	-	1,335	-	1,335
Current financial liabilities (conversion rights)	-	-	66,000	66,000
<b>Financial assets/liabilities not measured at fair value</b>				
Current borrowings (convertible bonds)	-	-	640,920	640,920
Non-current borrowings (excluding lease liabilities)	-	9,017,693	-	9,017,693

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	December 31, 2019			
	Level 1	Level 2	Level 3	Total
<b>Financial assets/liabilities measured at fair value</b>				
Other non-current financial assets (marketable financial assets)	83,174	-	-	83,174
Other non-current financial assets (non-marketable financial assets)	-	-	66,289	66,289
Current derivative financial assets	-	10,879	-	10,879
Non-current derivative financial assets	-	10,492	-	10,492
Non-current financial liabilities (conversion rights)	-	-	930	930
<b>Financial assets/liabilities not measured at fair value</b>				
Non-current borrowings (excluding finance lease liabilities)	-	6,390,480	651,753	7,042,233

(4) Valuation Technique and the Inputs

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

(in millions of Korean won)

	June 30, 2020				
	Fair value	Level	Valuation Technique	Inputs	Coverage of Level 3 inputs
<b>Financial liabilities – Convertible Bond</b>					
Convertible Bond	640,920	3	Binominal option pricing model	Annual rates of credit volatility	-0.5%p ~ +0.5%p
Equity Conversion Option	66,000	3	Binominal option pricing model	Annual rates of credit volatility Underlying asset (equity) volatility	-0.5%p ~ +0.5%p -5% ~ +5%

(in millions of Korean won)

	December 31, 2019				
	Fair value	Level	Valuation Technique	Inputs	Coverage of Level 3 inputs
<b>Financial liabilities – Convertible Bond</b>					
Convertible Bond	651,753	3	Binominal option pricing model	Annual rates of credit volatility	-0.5%p ~ +0.5%p
Equity Conversion Option	930	3	Binominal option pricing model	Annual rates of credit volatility Underlying asset (equity) volatility	-0.5%p ~ +0.5%p -5% ~ +5%

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(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>June 30, 2020</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	2,312	(2,331)
<b>Financial liabilities</b>		
<b>– Equity Conversion Option</b>		
Annual rates of credit volatility	737	(733)
Underlying asset (equity) volatility	3,840	(3,996)
 <i>(in millions of Korean won)</i>		
	<b>December 31, 2019</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	4,130	(4,177)
<b>Financial liabilities</b>		
<b>– Equity Conversion Option</b>		
Annual rates of credit volatility	112	(107)
Underlying asset (equity) volatility	497	(580)

**4. Critical Accounting Estimates and Assumptions**

The preparation of financial statements requires the Group to make estimates and assumptions concerning the future. Management also needs to exercise judgement in applying the Group's accounting policies. Estimates and assumptions are continually evaluated and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances. The resulting accounting estimates may differ from the related actual results.

Significant accounting estimates and assumptions applied in the preparation of these condensed consolidated interim financial statements are the same as those applied to the consolidated financial statements for the year ended December 31, 2019, except for the estimates used to determine income tax expense.

During 2020, the spread of Coronavirus Disease 19 ("COVID-19") has a material impact on domestic and foreign economy. Accordingly, it may have an impact on the financial position and financial performance of the Group, and such impact is expected to continue on the consolidated financial statements in 2020.

Significant accounting estimates and assumptions applied in the preparation of the consolidated interim financial statements can be adjusted depending on the changes in the uncertainty from COVID-19. Also, the ultimate effect of COVID-19 to the Group's business, financial position and financial performance cannot be determined at this time.

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**5. Financial Instruments by Category**

Categorizations of financial instruments as at June 30, 2020 and December 31, 2019, are as follows:

*(in millions of Korean won)*

Financial assets	June 30, 2020				Total
	Financial assets at amortized cost	Financial assets at fair value through profit or loss	Financial assets at fair value through other comprehensive income	Other financial assets <sup>1</sup>	
Cash and cash equivalents	3,363,343	-	-	-	3,363,343
Trade receivables	3,822,942	-	1,085,076	-	4,908,018
Non-current trade receivables	32,419	-	-	-	32,419
Other receivables	259,472	-	95,750	-	355,222
Other non-current receivables	252,513	-	-	-	252,513
Other current financial assets	-	-	-	2,966	2,966
Other non-current financial assets	-	27,386	60,179	1,234	88,799
<b>Total</b>	<b>7,730,689</b>	<b>27,386</b>	<b>1,241,005</b>	<b>4,200</b>	<b>9,003,280</b>

*(in millions of Korean won)*

Financial liabilities	June 30, 2020			Total
	Financial liabilities at fair value through profit or loss	Financial liabilities at amortized cost	Other financial liabilities <sup>2</sup>	
Trade payables	-	2,260,774	-	2,260,774
Other payables	-	4,203,141	-	4,203,141
Borrowings (current)	-	2,810,550	49,664	2,860,214
Other current payables (dividends payable)	-	23,478	-	23,478
Other current financial liabilities	66,000	-	1,335	67,335
Other non-current payables	-	13,909	-	13,909
Borrowings (non-current)	-	8,890,335	110,691	9,001,026
<b>Total</b>	<b>66,000</b>	<b>18,202,187</b>	<b>161,690</b>	<b>18,429,877</b>

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(in millions of Korean won)

	December 31, 2019				Total
	Financial assets at amortized cost	Financial assets at fair value through profit or loss	Financial assets at fair value through other comprehensive income	Other financial assets <sup>1</sup>	
<b>Financial assets</b>					
Cash and cash equivalents	1,888,631	-	-	-	1,888,631
Trade receivables	3,114,376	-	623,848	-	3,738,224
Other receivables	259,204	-	7,347	-	266,551
Other non-current receivables	172,933	-	-	-	172,933
Other current financial assets	-	-	-	10,879	10,879
Other non-current financial assets	-	24,613	124,850	10,492	159,955
<b>Total</b>	<b>5,435,144</b>	<b>24,613</b>	<b>756,045</b>	<b>21,371</b>	<b>6,237,173</b>

(in millions of Korean won)

	December 31, 2019			Total
	Financial liabilities at fair value through profit or loss	Financial liabilities at amortized cost	Other financial liabilities <sup>2</sup>	
<b>Financial liabilities</b>				
Trade payables	-	2,379,711	-	2,379,711
Other payables	-	4,142,953	-	4,142,953
Borrowings (current)	-	1,300,989	55,108	1,356,097
Other non-current financial liabilities	930	-	-	930
Other non-current payables	-	10,951	-	10,951
Borrowings (non-current)	-	6,836,034	222,137	7,058,171
<b>Total</b>	<b>930</b>	<b>14,670,638</b>	<b>277,245</b>	<b>14,948,813</b>

<sup>1</sup> Other financial assets include derivative assets that are not subject to the categorizations.

<sup>2</sup> Other financial liabilities include lease liabilities and derivative liabilities that are not subject to the categorizations.

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Net gains or losses on each category of financial instruments for the three-month and six-month period ended June 30, 2020 and 2019, are as follows:

<i>(in millions of Korean won)</i>	<b>2020</b>		<b>2019</b>	
	<b>Three months</b>	<b>Six months</b>	<b>Three months</b>	<b>Six months</b>
<b>Dividend income</b>				
Financial assets at fair value through other comprehensive income	12	12	24	49
<b>Interest income</b>				
Financial assets at amortized cost	7,664	20,855	14,719	28,344
<b>Interest expense</b>				
Financial liabilities at amortized cost	(61,160)	(128,576)	(54,805)	(93,313)
Other financial liabilities	(3,418)	(4,354)	(641)	(1,293)
Financial assets at amortized cost <sup>1</sup>	(194)	(879)	(1,170)	(2,600)
Financial assets at fair value through other comprehensive income <sup>1</sup>	(1,196)	(2,328)	(2,644)	(5,509)
<b>Gain (loss) on valuation</b>				
Financial assets at fair value through profit or loss	-	-	48	78
Financial assets at fair value through other comprehensive income	7,136	13,412	(7,822)	(830)
Derivative instruments	(43,911)	(79,626)	9,445	34,816
<b>Exchange differences</b>				
Financial assets at amortized cost	(128,692)	126,228	55,019	98,701
Financial liabilities at amortized cost	195,350	(333,145)	(67,156)	(80,239)
Other financial liabilities	(4,983)	(5,555)	(232)	(422)

<sup>1</sup> Fees paid to financial institutions for factoring.

**6. Cash and Cash Equivalents**

Details of cash and cash equivalents as at June 30, 2020 and December 31, 2019, are as follows:

<i>(in millions of Korean won)</i>	<b>June 30, 2020</b>	<b>December 31, 2019</b>
Bank deposits and cash on hand	817,822	902,764
Deposits held by financial institutions and others	2,545,521	985,867
<b>Total</b>	<b>3,363,343</b>	<b>1,888,631</b>

As at June 30, 2020, cash and cash equivalents include ₩ 3,775 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 June 30, 2020 and December 31, 2019, are as follows:

(in millions of Korean won)

	<b>June 30, 2020</b>		
	<b>Gross amount</b>	<b>Provision for impairment</b>	<b>Carrying amount</b>
Trade receivables	4,913,100	(5,082)	4,908,018
Non-current trade receivables	32,419	-	32,419
Other current receivables	357,333	(2,111)	355,222
Other non-current receivables	252,513	-	252,513
<b>Total</b>	<b>5,555,365</b>	<b>(7,193)</b>	<b>5,548,172</b>

(in millions of Korean won)

	<b>December 31, 2019</b>		
	<b>Gross amount</b>	<b>Provision for impairment</b>	<b>Carrying amount</b>
Trade receivables	3,744,054	(5,830)	3,738,224
Other current receivables	268,660	(2,109)	266,551
Other non-current receivables	172,933	-	172,933
<b>Total</b>	<b>4,185,647</b>	<b>(7,939)</b>	<b>4,177,708</b>

Details of other receivables as at June 30, 2020 and December 31, 2019, are as follows:

(in millions of Korean won)

	<b>June 30, 2020</b>	<b>December 31, 2019</b>
<b>Current</b>		
Non-trade receivables	306,973	195,182
Deposits held by financial institutions	4,082	32,515
Accrued income	2,376	2,317
Guarantee deposits provided	41,791	36,537
	<u>355,222</u>	<u>266,551</u>
<b>Non-current</b>		
Non-trade receivables	20,262	-
Deposits held by financial institutions <sup>1</sup>	167,053	107,434
Loans	919	677
Guarantee deposits provided	64,279	64,822
	<u>252,513</u>	<u>172,933</u>
<b>Total</b>	<b>607,735</b>	<b>439,484</b>

<sup>1</sup> As at June 30, 2020, ₩166,100 million (2019: ₩106,600 million) is restricted from being withdrawn in relation to large, small and medium-sized companies cooperation agreement and others. In addition, ₩927 million is restricted from withdrawal in connection with maintaining checking accounts (2019: ₩808 million).

**LG Chem, Ltd. and Subsidiaries**  
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**June 30, 2020 and 2019 (Unaudited), and December 31, 2019**

The aging analysis of trade and other receivables as at June 30, 2020 and December 31, 2019, is as follows:

(in millions of Korean won)

	June 30, 2020		December 31, 2019	
	Trade receivables	Other receivables	Trade receivables	Other receivables
<b>Receivables not past due</b>	4,340,660	587,303	3,005,591	378,107
<b>Past due but not impaired</b>				
Up to 3 months	505,261	7,388	554,620	43,891
Between 3-6 months	54,183	7,264	153,457	7,107
Over 6 months	33,721	1,544	21,149	5,578
	593,165	16,196	729,226	56,576
<b>Impaired receivables</b>	11,694	6,347	9,237	6,910
<b>Total</b>	<b>4,945,519</b>	<b>609,846</b>	<b>3,744,054</b>	<b>441,593</b>

Movements on the provision for impairment of trade and other receivables for the six-month period ended June 30, 2020 and for the year ended December 31, 2019, are as follows:

(in millions of Korean won)

	June 30, 2020			
	Trade receivables		Other receivables	
	Current	Non-current	Current	Non-current
<b>Beginning balance</b>	5,830	-	2,109	-
Additions (reversal)	(677)	-	2	-
Write-off	-	-	-	-
Exchange differences	(71)	-	-	-
<b>Ending balance</b>	<b>5,082</b>	<b>-</b>	<b>2,111</b>	<b>-</b>

(in millions of Korean won)

	December 31, 2019			
	Trade receivables		Other receivables	
	Current	Non-current	Current	Non-current
<b>Beginning balance</b>	7,910	-	2,726	-
Reversal	(903)	-	(630)	-
Write-off	(1,164)	-	-	-
Exchange differences	(13)	-	13	-
<b>Ending balance</b>	<b>5,830</b>	<b>-</b>	<b>2,109</b>	<b>-</b>

As at June 30, 2020 and December 31, 2019, the carrying amounts of trade and other receivables are approximation of their fair values.

The Group transferred trade and other receivables to financial institutions for ₩221,771 million at June 30, 2020, 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.

**LG Chem, Ltd. and Subsidiaries**  
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**8. Other Financial Assets**

Details of other financial assets as at June 30, 2020 and December 31, 2019, are as follows:

<i>(in millions of Korean won)</i>	<b>June 30, 2020</b>	<b>December 31, 2019</b>
<b>Other financial assets</b>		
Derivative assets (forward contract) (current)	2,966	10,879
Financial assets at fair value through other comprehensive income (excluding forward contract) (non-current)	60,179	124,850
Derivative assets (forward contract) (non-current)	1,234	10,492
Financial assets at fair value through profit or loss (excluding forward contract) (non-current)	27,386	24,613
	<u>91,765</u>	<u>170,834</u>
<b>Other financial liabilities</b>		
Derivative liabilities (forward contract) (current)	1,335	-
Financial liabilities at fair value through profit or loss (conversion rights) (current)	66,000	-
Financial liabilities at fair value through profit or loss (conversion rights) (non-current)	-	930
	<u>67,335</u>	<u>930</u>

Changes in equity securities and debts instruments included in other financial assets for the six-month period ended June 30, 2020 and for the year ended December 31, 2019, are as follows:

<i>(in millions of Korean won)</i>	<b>June 30, 2020</b>	<b>December 31, 2019</b>
<b>Beginning balance</b>	149,463	93,350
Acquisitions / Transfer	7,383	23,572
Disposals	(83,462)	(2,873)
Gain on valuation (before income tax effects) through other comprehensive income	13,412	35,315
Others	769	99
<b>Ending balance</b>	<u>87,565</u>	<u>149,463</u>

During the six-month period ended June 30, 2020 and the year ended December 31, 2019, the Group did not recognize impairment for other financial assets.

**LG Chem, Ltd. and Subsidiaries**  
**Notes to the Consolidated Interim Financial Statements**  
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**9. Inventories**

Details of inventories as at June 30, 2020 and December 31, 2019, are as follows:

*(in millions of Korean won)*

	<b>June 30, 2020</b>		
	<b>Gross amount</b>	<b>Valuation allowance</b>	<b>Carrying amount</b>
Merchandise	165,527	(9,235)	156,292
Finished / Semi-finished products	2,678,289	(105,487)	2,572,802
Work-in-process	17,661	-	17,661
Raw materials	1,288,931	(16,198)	1,272,733
Supplies	180,160	-	180,160
Materials-in-transit	553,259	-	553,259
<b>Total</b>	<b>4,883,827</b>	<b>(130,920)</b>	<b>4,752,907</b>

*(in millions of Korean won)*

	<b>December 31, 2019</b>		
	<b>Gross amount</b>	<b>Valuation allowance</b>	<b>Carrying amount</b>
Merchandise	179,572	(4,880)	174,692
Finished / Semi-finished products	2,821,981	(134,101)	2,687,880
Work-in-process	11,561	-	11,561
Raw materials	1,213,481	(18,669)	1,194,812
Supplies	177,535	-	177,535
Materials-in-transit	787,241	-	787,241
<b>Total</b>	<b>5,191,371</b>	<b>(157,650)</b>	<b>5,033,721</b>

During the six-month period ended June 30, 2020, the cost of inventories recognized as expense and included in 'cost of sales' amounted to ₩8,160,491 million (2019: ₩8,102,904 million).

**LG Chem, Ltd. and Subsidiaries**  
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**10. Investments in Associates and Joint Ventures**

Changes in investments in associates and joint ventures for the six-month period ended June 30, 2020 and for the year ended December 31, 2019, are as follows:

(in millions of  
Korean won)

	June 30, 2020							Ending balance
	Beginning balance	Acquisitions / transfer	Dividends	Share of profit (loss) of associates and joint ventures	Share of other comprehensive income of associates and joint ventures	Impairment / disposals	Others	
LG VINA Chemical Co., Ltd.	4,403	-	-	530	102	-	-	5,035
HL Greenpower Co., Ltd.	23,366	-	-	(1,135)	-	-	7	22,238
LG Holdings (HK) Ltd. <sup>1</sup>	40,973	-	-	436	(369)	(41,040)	-	-
TECHWIN Co., Ltd.	19,376	-	(314)	(1,278)	-	-	-	17,784
SEETEC Co., Ltd	142,554	-	(10,000)	3,900	-	-	151	136,605
LG Chem BRASIL INTERMEDIACAO DE NEGOCIOS DO SETOR QUIMICO LTDA.	579	-	-	-	-	-	-	579
LG Chem Malaysia SDN.BHD	150	-	-	-	-	-	-	150
FJ Composite Materials Co., LTD.	2,171	-	-	(43)	(4)	-	-	2,124
WUXI CL New Energy Technology Ltd <sup>2</sup>	-	-	-	-	-	-	-	-
LG Life Sciences Poland Ltd.	17	-	-	-	-	-	-	17
Combustion Synthesis Co., Ltd.	2,042	-	-	(133)	28	-	111	2,048
HUAJIN NEW ENERGY MATERIALS(QUZHOU) CO., LTD <sup>3</sup>	67,058	13,611	-	165	1,501	-	-	82,335
VINFAST LITHIUM BATTERY PACK LIMITED LIABILITY COMPANY	4,888	-	-	(232)	193	-	-	4,849
	<u>307,577</u>	<u>13,611</u>	<u>(10,314)</u>	<u>2,210</u>	<u>1,451</u>	<u>(41,040)</u>	<u>269</u>	<u>273,764</u>

**LG Chem, Ltd. and Subsidiaries**  
**Notes to the Consolidated Interim Financial Statements**  
**June 30, 2020 and 2019 (Unaudited), and December 31, 2019**

(in millions of  
Korean won)

	December 31, 2019							Ending balance
	Beginning balance	Acquisitions / transfer	Dividends	Share of profit (loss) of associates and joint ventures	Share of other comprehensive income of associates and joint ventures	Impairment / disposals	Others	
LG VINA Chemical Co., Ltd.	4,479	-	-	(348)	272	-	-	4,403
HL Greenpower Co., Ltd.	19,565	-	-	3,919	-	-	(118)	23,366
LG Holdings (HK) Ltd.	54,735	-	-	3,993	(1,967)	-	(15,788)	40,973
TECHWIN Co., Ltd.	9,828	-	-	9,563	(15)	-	-	19,376
SEETEC Co., Ltd	145,649	-	(10,000)	6,919	-	-	(14)	142,554
LG Chem BRASIL INTERMEDIACAO DE NEGOCIOS DO SETOR QUIMICO LTDA.	579	-	-	-	-	-	-	579
LG Chem Malaysia SDN.BHD	150	-	-	-	-	-	-	150
FJ Composite Materials Co., LTD.	2,315	-	-	(240)	96	-	-	2,171
WUXI CL New Energy Technology Ltd.	1,288	-	-	(1,336)	48	-	-	-
LG Life Sciences Poland Ltd.	17	-	-	-	-	-	-	17
Combustion Synthesis Co., Ltd.	1,397	645	-	(289)	220	-	69	2,042
HUAJIN NEW ENERGY MATERIALS(QUZHOU) CO., LTD.	26,120	41,202	-	222	(486)	-	-	67,058
VINFAST LITHIUM BATTERY PACK LIMITED LIABILITY COMPANY	-	5,323	-	(192)	(243)	-	-	4,888
	<u>266,122</u>	<u>47,170</u>	<u>(10,000)</u>	<u>22,211</u>	<u>(2,075)</u>	<u>-</u>	<u>(15,851)</u>	<u>307,577</u>

<sup>1</sup> During the six-month period ended June 30, 2020, the Parent Company disposed of the shares of LG Holdings (HK) Ltd.

<sup>2</sup> As at June 30, 2020, the Group discontinued recognizing its share of further losses as its share of losses of an associate exceeds the carrying amount of its interest in the associate. Unrecognized accumulated losses amounted to ₩ 220 million.

<sup>3</sup> During the six-month period ended June 30, 2020, the Parent Company acquired additional shares of HUAJIN NEW ENERGY MATERIALS(QUZHOU)CO., LTD. for ₩ 13,611 million.

**LG Chem, Ltd. and Subsidiaries**  
**Notes to the Consolidated Interim Financial Statements**  
**June 30, 2020 and 2019 (Unaudited), and December 31, 2019**

**11. Property, Plant and Equipment**

Changes in property, plant and equipment for the six-month period ended June 30, 2020 and for the year ended December 31, 2019, are as follows:

<i>(in millions of Korean won)</i>	June 30, 2020											
	Land	Buildings	Structures	Machinery	Vehicles	Tools	Equipment	Others	Right-of- use assets	Construction -in-progress	Machinery -in-transit	Total
<b>Beginning balance</b>	1,759,528	3,890,961	957,739	6,348,867	6,261	601,958	163,470	175,122	319,620	4,210,088	160,028	18,593,642
Cost	1,796,480	4,769,924	1,583,401	17,044,880	33,056	1,457,840	467,293	378,823	380,814	4,300,788	160,028	32,373,327
Accumulated depreciation	-	(839,904)	(609,282)	(10,486,289)	(26,648)	(843,955)	(301,041)	(197,978)	(61,119)	-	-	(13,366,216)
Accumulated impairment	(36,952)	(39,059)	(16,380)	(209,724)	(147)	(11,927)	(2,782)	(5,723)	(75)	(90,700)	-	(413,469)
Acquisitions/ Transfer	12,799	1,042,381	64,718	1,373,828	2,121	130,012	42,128	16,242	44,372	2,734,609	153,534	5,616,744
Disposals/ Transfer	(529)	(3,700)	(148)	(13,271)	(1)	(3,840)	(417)	(1,979)	(6,613)	(2,938,596)	(38,685)	(3,007,779)
Exchange differences	129	20,805	4,358	75,358	61	4,479	1,710	-	5,161	(33,500)	-	78,561
Depreciation	-	(70,821)	(29,923)	(713,674)	(1,091)	(92,705)	(25,069)	(41,086)	(35,125)	-	-	(1,009,494)
Impairment	-	(1,867)	(6,671)	(29,713)	-	(9,885)	(55)	(195)	(11)	(1,764)	(259)	(50,420)
Transfer to assets held for sale	-	(68,228)	(4,811)	(313,445)	(10)	(10,107)	(8,217)	-	(120,947)	(18,031)	-	(543,796)
<b>Ending balance</b>	<b>1,771,927</b>	<b>4,809,531</b>	<b>985,262</b>	<b>6,727,950</b>	<b>7,341</b>	<b>619,912</b>	<b>173,550</b>	<b>148,104</b>	<b>206,457</b>	<b>3,952,806</b>	<b>274,618</b>	<b>19,677,458</b>
Cost	1,808,879	5,732,540	1,648,124	17,733,904	34,863	1,543,055	490,858	390,554	295,114	4,034,589	274,618	33,987,098
Accumulated depreciation	-	(882,734)	(639,626)	(10,769,330)	(27,378)	(901,458)	(314,462)	(236,532)	(88,571)	-	-	(13,860,091)
Accumulated impairment	(36,952)	(40,275)	(23,236)	(236,624)	(144)	(21,685)	(2,846)	(5,918)	(86)	(81,783)	-	(449,549)

**LG Chem, Ltd. and Subsidiaries**  
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(in millions of Korean won)	December 31, 2019											
	Land	Buildings	Structures	Machinery	Vehicles	Tools	Equipment	Others	Right-of- use assets	Construction -in-progress	Machinery -in-transit	Total
<b>Beginning balance</b>	1,620,153	3,187,757	827,775	4,691,884	12,865	471,130	149,599	115,901	-	2,588,018	174,116	13,839,198
Cost	1,657,105	3,959,198	1,407,903	14,412,619	41,803	1,233,217	420,342	315,049	-	2,641,276	174,116	26,262,628
Accumulated depreciation	-	(735,173)	(566,151)	(9,564,688)	(28,783)	(750,202)	(268,298)	(196,996)	-	-	-	(12,110,291)
Accumulated impairment	(36,952)	(36,268)	(13,977)	(156,047)	(155)	(11,885)	(2,445)	(2,152)	-	(53,258)	-	(313,139)
Changes in accounting policies	-	-	(17,697)	(9,668)	-	-	-	-	175,599	-	-	148,234
<b>Restated beginning balance</b>	<u>1,620,153</u>	<u>3,187,757</u>	<u>810,078</u>	<u>4,682,216</u>	<u>12,865</u>	<u>471,130</u>	<u>149,599</u>	<u>115,901</u>	<u>175,599</u>	<u>2,588,018</u>	<u>174,116</u>	<u>13,987,432</u>
Acquisitions/ Transfer	150,097	841,640	207,263	3,053,495	6,021	311,322	62,487	144,766	180,963	6,767,527	195,797	11,921,378
Disposals/ Transfer	(10,846)	(40,096)	(3,436)	(92,420)	(10,139)	(15,174)	(2,776)	(173)	(3,890)	(5,117,686)	(208,708)	(5,505,344)
Exchange differences	124	18,966	1,665	20,526	30	2,012	613	-	2,380	11,305	-	57,621
Depreciation	-	(114,179)	(55,546)	(1,221,114)	(2,518)	(166,457)	(46,032)	(81,801)	(35,357)	-	-	(1,723,004)
Impairment	-	(3,139)	(2,297)	(74,968)	-	(828)	(429)	(3,571)	(75)	(39,076)	(1,177)	(125,560)
Reversal of impairment	-	12	12	181	2	-	8	-	-	-	-	215
Transfer to assets held for sale	-	-	-	(19,049)	-	(47)	-	-	-	-	-	(19,096)
<b>Ending balance</b>	<u>1,759,528</u>	<u>3,890,961</u>	<u>957,739</u>	<u>6,348,867</u>	<u>6,261</u>	<u>601,958</u>	<u>163,470</u>	<u>175,122</u>	<u>319,620</u>	<u>4,210,088</u>	<u>160,028</u>	<u>18,593,642</u>
Cost	1,796,480	4,769,924	1,583,401	17,044,880	33,056	1,457,840	467,293	378,823	380,814	4,300,788	160,028	32,373,327
Accumulated depreciation	-	(839,904)	(609,282)	(10,486,289)	(26,648)	(843,955)	(301,041)	(197,978)	(61,119)	-	-	(13,366,216)
Accumulated impairment	(36,952)	(39,059)	(16,380)	(209,724)	(147)	(11,927)	(2,782)	(5,723)	(75)	(90,700)	-	(413,469)

During the six-month period ended June 30, 2020, the Group capitalized ₩18,422 million of borrowing costs (2019: ₩11,868 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 1.53% (2019: 2.35%).

Line items including depreciation in the consolidated interim statements of profit or loss for the three-month and six-month period ended June 30, 2020 and 2019, are as follows:

(in millions of Korean won)	2020		2019	
	Three months	Six months	Three months	Six months
Cost of sales	444,599	871,867	367,649	692,978
Selling and administrative expenses	47,690	92,513	39,381	72,194
Others	522	1,134	1,198	2,438
Discontinued operations	23,213	43,980	17,689	34,549
<b>Total</b>	<u>516,024</u>	<u>1,009,494</u>	<u>425,917</u>	<u>802,159</u>

**LG Chem, Ltd. and Subsidiaries**  
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*Lease*

(i) Amounts recognized in the consolidated statement of financial position

The consolidated interim statement of financial position shows the following amounts relating to leases:

<i>(in millions of Korean won)</i>	<b>June 30, 2020</b>	<b>December 31, 2019</b>
Right-of-use assets <sup>1</sup>		
Real-estate	156,893	272,958
Machinery	21,436	23,041
Vehicles	23,669	22,425
Tools	3,568	162
Equipment	891	1,034
	<u>206,457</u>	<u>319,620</u>

<sup>1</sup> Included in the line item 'Property, plant and equipment' in the consolidated statements of financial position.

Additions to the right-of-use assets during the six-month period ended June 30, 2020, were ₩ 44,372 million.

<i>(in millions of Korean won)</i>	<b>June 30, 2020</b>	<b>December 31, 2019</b>
Lease liabilities <sup>1</sup>		
Current	49,664	55,108
Non-current	110,691	222,137
	<u>160,355</u>	<u>277,245</u>

<sup>1</sup> Included in the line item 'borrowings' in the consolidated statements of financial position.

**LG Chem, Ltd. and Subsidiaries**  
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(ii) Amounts recognized in the consolidated statement of profit or loss

The consolidated statement of profit or loss shows the following amounts relating to leases:

<i>(in millions of Korean won)</i>	<b>2020</b>	<b>2019</b>
Depreciation of right-of-use assets		
Real-estate	25,120	7,245
Machinery	2,437	1,592
Vehicles	7,113	3,053
Tools	205	7
Equipment	250	449
	<u>35,125</u>	<u>12,346</u>
Interest expense relating to lease liabilities (included in finance cost)	4,354	1,294
Expense relating to short-term leases (included in cost of goods sold and administrative expenses)	19,374	22,489
Expense relating to leases of low-value assets that are not short-term leases (included in cost of goods sold and administrative expenses)	8,621	5,307
Expense relating to variable lease payments not included in lease liabilities (included in cost of goods sold and administrative expenses)	-	15

The total cash outflow for leases during the six-month period ended June 30, 2020, was ₩ 63,198 million.

**LG Chem, Ltd. and Subsidiaries**  
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**12. Intangible Assets**

Changes in intangible assets for the six-month period ended June 30, 2020 and for the year ended December 31, 2019, are as follows:

(in millions of Korean won)

	June 30, 2020					
	Development costs	Industrial property rights	Goodwill	Memberships	Others	Total
<b>Beginning balance</b>	269,596	569,129	1,010,534	47,329	309,641	2,206,229
Separate acquisitions/ Transfer	141,616	35,162	-	867	33,070	210,715
Additions – internal development	3,018	-	-	-	-	3,018
Disposals/Transfer	(168)	(2,382)	-	(695)	(5)	(3,250)
Exchange differences	301	708	6,583	12	1,985	9,589
Amortization	(36,240)	(22,658)	-	-	(20,131)	(79,029)
Impairment	(19)	(49)	-	-	(7)	(75)
Transfer to assets held for sale (Note 34)	(2,956)	(5,124)	-	-	(10)	(8,090)
<b>Ending balance</b>	<b>375,148</b>	<b>574,786</b>	<b>1,017,117</b>	<b>47,513</b>	<b>324,543</b>	<b>2,339,107</b>

(in millions of Korean won)

	December 31, 2019					
	Development costs	Industrial property rights	Goodwill	Memberships	Others	Total
<b>Beginning balance</b>	220,860	405,282	1,017,855	50,885	311,356	2,006,238
Separate acquisitions/ Transfer <sup>1</sup>	134,414	215,545	-	66	63,803	413,828
Additions – internal development	17,170	-	-	-	-	17,170
Disposals/Transfer	(18,372)	(4,456)	-	(3,635)	(12,439)	(38,902)
Exchange differences	260	60	4,294	13	1,888	6,515
Amortization	(52,593)	(43,713)	-	-	(40,564)	(136,870)
Impairment	(32,143)	(3,589)	(11,615)	-	(14,403)	(61,750)
<b>Ending balance</b>	<b>269,596</b>	<b>569,129</b>	<b>1,010,534</b>	<b>47,329</b>	<b>309,641</b>	<b>2,206,229</b>

<sup>1</sup> Intangible assets acquired from Dupont related to S-OLED are included.

Line items including amortization of intangible assets for the three-month and six-month period ended June 30, 2020 and 2019, are as follows:

(in millions of Korean won)

	2020		2019	
	Three months	Six months	Three months	Six months
Cost of sales	10,419	18,856	6,486	12,792
Selling and administrative expenses	31,662	59,771	26,090	48,507
Discontinued operations	207	402	191	379
<b>Total</b>	<b>42,288</b>	<b>79,029</b>	<b>32,767</b>	<b>61,678</b>

The Group recognized total research and development costs of ₩ 537,587 million (2019: ₩ 534,087 million) as expenses.

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Changes in greenhouse gas emission permits for the six-month period ended June 30, 2020 and for the year ended December 31, 2019, are as follows:

<i>(in thousands of tons and millions of Korean won)</i>	<b>June 30, 2020</b>			
	<b>2019</b>		<b>2020</b>	
	<b>Quantity</b>	<b>Amount</b>	<b>Quantity</b>	<b>Amount</b>
<b>Beginning balance</b>	7,656	4,375	7,546	-
Allocation with nil consideration	4	-	4	-
Purchase/Sale	35	1,083	-	-
Borrowings/ Carry forwards between years	-	-	-	-
Surrendered to the government	-	-	-	-
<b>Ending balance</b>	<b>7,695</b>	<b>5,458</b>	<b>7,550</b>	<b>-</b>

<i>(in thousands of tons and millions of Korean won)</i>	<b>December 31, 2019</b>					
	<b>2018</b>		<b>2019</b>		<b>2020</b>	
	<b>Quantity</b>	<b>Amount</b>	<b>Quantity</b>	<b>Amount</b>	<b>Quantity</b>	<b>Amount</b>
<b>Beginning balance</b>	7,903	7,359	7,546	-	-	-
Allocation with nil consideration	245	-	-	-	7,546	-
Purchase/Sale	100	2,790	130	4,375	-	-
Borrowings/ Carry forwards between years	20	-	(20)	-	-	-
Surrendered to the government	(8,268)	(10,149)	-	-	-	-
<b>Ending balance</b>	<b>-</b>	<b>-</b>	<b>7,656</b>	<b>4,375</b>	<b>7,546</b>	<b>-</b>

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

Details of other current and non-current assets as at June 30, 2020 and December 31, 2019, are as follows:

<i>(in millions of Korean won)</i>	<b>June 30, 2020</b>	<b>December 31, 2019</b>
<b>Current</b>		
Prepayments to suppliers and prepaid expenses	147,912	106,380
Prepaid value added tax	511,420	545,668
Others	136,329	141,748
<b>Total</b>	<b>795,661</b>	<b>793,796</b>
<b>Non-current</b>		
Long-term prepayments and long-term prepaid expenses	156,205	144,336
Others	99	96
<b>Total</b>	<b>156,304</b>	<b>144,432</b>

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**14. Borrowings**

Borrowings as at June 30, 2020 and December 31, 2019, consist of:

<i>(in millions of Korean won)</i>	<b>June 30, 2020</b>	<b>December 31, 2019</b>
<b>Current</b>		
Short-term borrowings	1,372,645	771,102
Current portion of long-term borrowings of bank loans	520,086	309,944
Current-portion of debentures	917,819	219,943
Finance lease liabilities	49,664	55,108
	<u>2,860,214</u>	<u>1,356,097</u>
<b>Non-current</b>		
Long-term borrowings	3,398,018	1,536,821
Debentures	5,492,317	5,299,213
Lease liabilities	110,691	222,137
	<u>9,001,026</u>	<u>7,058,171</u>
<b>Total</b>	<u>11,861,240</u>	<u>8,414,268</u>

Details of short-term borrowings as at June 30, 2020 and December 31, 2019, are as follows:

<i>(in millions of Korean won)</i>	<b>Bank</b>	<b>Latest maturity date</b>	<b>Interest rate(%) as at June 30, 2020</b>	<b>June 30, 2020</b>	<b>December 31, 2019</b>
Bank loans	Nonghyup Bank, others	May 21, 2021	2.60 and others	1,372,645	771,102
<b>Total</b>				<u>1,372,645</u>	<u>771,102</u>

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Details of long-term borrowings as at June 30, 2020 and December 31, 2019, are as follows:

(in millions of Korean won)	June 30, 2020				
	Bank	Annual interest rate (%)	Amount in Korean won	Current	Non-current
<b>Borrowings in Korean won</b>	KDB <sup>1</sup>	(1Y)+1.45~1.99	7,080	458	6,622
	Kookmin Bank	24M MOR+1.89	2,000	-	2,000
<b>Borrowings in foreign currencies</b>	HSBC	USD: 3M LIBOR + 0.95~1.40 CNY: PBOC ×0.95	161,676	50,826	110,850
	SMBC	3M LIBOR + 0.65~1.05	245,912	42,872	203,040
	Agricultural Bank of China	USD: 3M LIBOR + 0.80 CNY: PBOC ×0.90	29,254	6,011	23,243
	Construction Bank of China	PBOC ×0.90	91,993	27,661	64,332
	Communications Bank of China	PBOC ×1.00	7,194	4,310	2,884
	CITI	USD: 3M LIBOR + 0.95 EUR: EURIBOR + 0.65	248,675	4,804	243,871
	ING	6M EURIBOR + 0.70 ~0.83	162,432	-	162,432
	UOB	6M LIBOR + 1.20	115,421	115,421	-
	Standard Chartered Bank	USD: 3M LIBOR + 1.20 CNY: PBOC ×0.95	110,953	85,504	25,449
	Mizuho Banking Corporation	3M LIBOR + 0.98	28,792	28,792	-
	CNOOC Finance	PBOC ×0.90	23,752	13,573	10,179
	EBRD	6M EURIBOR + 0.62	338,400	-	338,400
	Hangseng	3M LIBOR + 1.00	28,825	28,825	-
	Bank of China	3M LIBOR + 0.95	12,522	12,522	-
	MUFG	USD: 3M LIBOR + 1.00 EUR: 3M EURIBOR + 0.60~0.80	177,377	6,003	171,374
	Industrial and Commercial Bank of China	PBOC ×1.00	49,208	8,204	41,004
	CIMB	3M LIBOR + 1.50	57,050	57,050	-
	KEB Hana Bank	3M EURIBOR + 0.62	270,720	-	270,720
	KDB	3M LIBOR + 0.93	425,558	25,553	400,005
	The Export-Import Bank of Korea	3M LIBOR + 0.93	297,792	-	297,792
NongHyup Bank	3M LIBOR + 0.93	148,896	-	148,896	
Deutsche Bank	PBOC ×0.84	91,534	1,697	89,837	
EIB	3M EURIBOR + 0.47	649,728	-	649,728	
DBS	6M EURIBOR + 0.60	135,360	-	135,360	
<b>Total</b>			<b>3,918,104</b>	<b>520,086</b>	<b>3,398,018</b>

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<sup>1</sup> Manufacturing facilities are pledged as collateral for the above long-term borrowings (Note 18).

(in millions of Korean won)		December 31, 2019				
		Bank	Annual interest rate (%)	Amount in Korean won	Current	Non-current
<b>Borrowings in Korean won</b>	KDB <sup>1</sup>		(1Y)+1.45~1.99	7,607	986	6,621
	Kookmin Bank		24M MOR+1.89	1,188	-	1,188
<b>Borrowings in foreign currencies</b>	HSBC		USD: 3M LIBOR +0.95~1.40 CNY: PBOC x0.95	87,958	14,974	72,984
	SMBC		3M LIBOR + 0.65~1.05	71,822	9,171	62,651
	Agricultural Bank of China		USD: 3M LIBOR + 0.80 CNY: PBOC x0.90	33,594	10,059	23,535
	Construction Bank of China		PBOC x0.90	37,146	7,146	30,000
	Communications Bank of China		PBOC x1.00	38,576	5,800	32,776
	CITI		USD: 3M LIBOR + 0.95 EUR: EURIBOR + 0.65	279,935	43,574	236,361
	Bank of America		3M LIBOR + 0.90	17,367	-	17,367
	ING		6M EURIBOR + 0.70~0.83	155,795	-	155,795
	UOB		6M LIBOR + 1.20	111,664	111,664	-
	Standard Chartered Bank		USD: 3M LIBOR + 1.20 CNY: PBOC x0.95	107,534	12,431	95,103
	Mizuho Banking Corporation		3M LIBOR + 0.98	31,180	6,929	24,251
	CNOOC Finance		PBOC x0.90	33,148	23,204	9,944
	EBRD		6M EURIBOR + 0.62	129,829	-	129,829
	Hangseng		3M LIBOR + 1.00	29,483	29,483	-
	Bank of China		3M LIBOR + 0.95	18,298	12,487	5,811
	MUFG		USD: 3LIBOR + 1.00 EUR:3M EURIBOR + 0.60~0.80	173,165	5,778	167,387
	Industrial and Commercial Bank of China		PBOC x1.00	43,579	5,801	37,778
CIMB		3LIBOR + 1.50	57,809	5,781	52,028	
KEB Hana Bank		3M EURIBOR + 0.62	259,658	-	259,658	
KDB		3M LIBOR + 0.93	30,182	3,018	27,164	
Deutsche Bank		PBOC x0.84	90,248	1,658	88,590	
<b>Total</b>			<b>1,846,765</b>	<b>309,944</b>	<b>1,536,821</b>	

<sup>1</sup> Manufacturing facilities are pledged as collateral for the above long-term borrowings (Note 18).

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Details of debentures as at June 30, 2020 and December 31, 2019, are as follows:

		June 30, 2020				
		Annual interest rate (%)	Latest maturity date	Amount in Korean won	Current	Non-current
<i>(in millions of Korean won)</i>						
	Financial institution					
50-2 <sup>nd</sup> Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	2.28	2022.5.19	400,000	-	400,000
50-3 <sup>rd</sup> Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	2.53	2024.5.19	280,000	-	280,000
51-1 <sup>st</sup> Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	2.56	2021.2.20	190,000	190,000	-
51-2 <sup>nd</sup> Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	2.88	2023.2.20	240,000	-	240,000
51-3 <sup>rd</sup> Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	3.07	2025.2.20	270,000	-	270,000
51-4 <sup>th</sup> Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	3.29	2028.2.20	300,000	-	300,000
52-1 <sup>st</sup> Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	2.02	2022.3.13	160,000	-	160,000
52-2 <sup>nd</sup> Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	2.11	2024.3.13	240,000	-	240,000
52-3 <sup>rd</sup> Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	2.21	2026.3.13	200,000	-	200,000
52-4 <sup>th</sup> Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	2.40	2029.3.13	400,000	-	400,000
53-1 <sup>st</sup> Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	1.57	2023.2.19	350,000	-	350,000
53-2 <sup>nd</sup> Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	1.65	2025.2.19	250,000	-	250,000
53-3 <sup>rd</sup> Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	1.72	2027.2.19	50,000	-	50,000
53-4 <sup>th</sup> Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	1.91	2030.2.19	250,000	-	250,000
1-1 <sup>st</sup> USD Overseas Convertible bonds <sup>1</sup>	Credit Suisse	-	2021.4.16	264,154	264,154	-
1-2 <sup>nd</sup> EUR Overseas Convertible bonds <sup>2</sup>	Credit Suisse	-	2021.4.16	425,580	425,580	-
USD foreign currency debenture with maturity in 2024	CITI and others	3.25	2024.10.15	600,350	-	600,350
USD foreign currency debenture with maturity in 2029	CITI and others	3.63	2029.4.15	600,350	-	600,350
EUR foreign currency debenture with maturity in 2023	CITI and others	0.50	2023.4.15	675,095	-	675,095
Debentures in Korean won (non-guaranteed)	NH Investment & Securities Co., Ltd. and others	2.26	2022.2.16	100,000	-	100,000
	NH Investment & Securities Co., Ltd. and others	2.71	2021.3.2	50,000	50,000	-
	NH Investment & Securities Co., Ltd. and others	3.00	2023.3.2	40,000	-	40,000
	NH Investment & Securities Co., Ltd. and others	1.95	2023.2.14	80,000	-	80,000
	NH Investment & Securities Co., Ltd. and others	2.22	2025.2.14	30,000	-	30,000
Less: discount on debentures				(35,393)	(11,915)	(23,478)
<b>Total</b>				<b>6,410,136</b>	<b>917,819</b>	<b>5,492,317</b>

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		December 31, 2019				
	Financial institution	Annual interest rate (%)	Latest maturity date	Amount in Korean won	Current	Non-current
<b>50-1<sup>st</sup> Debenture (non-guaranteed/public)</b>	NH Investment & Securities Co., Ltd. and others	1.95	2020.5.19	120,000	120,000	-
<b>50-2<sup>nd</sup> Debenture (non-guaranteed/public)</b>	NH Investment & Securities Co., Ltd. and others	2.28	2022.5.19	400,000	-	400,000
<b>50-3<sup>rd</sup> Debenture (non-guaranteed/public)</b>	NH Investment & Securities Co., Ltd. and others	2.53	2024.5.19	280,000	-	280,000
<b>51-1<sup>st</sup> Debenture (non-guaranteed/public)</b>	NH Investment & Securities Co., Ltd. and others	2.56	2021.2.20	190,000	-	190,000
<b>51-2<sup>nd</sup> Debenture (non-guaranteed/public)</b>	NH Investment & Securities Co., Ltd. and others	2.88	2023.2.20	240,000	-	240,000
<b>51-3<sup>rd</sup> Debenture (non-guaranteed/public)</b>	NH Investment & Securities Co., Ltd. and others	3.07	2025.2.20	270,000	-	270,000
<b>51-4<sup>th</sup> Debenture (non-guaranteed/public)</b>	NH Investment & Securities Co., Ltd. and others	3.29	2028.2.20	300,000	-	300,000
<b>52-1<sup>st</sup> Debenture (non-guaranteed/public)</b>	NH Investment & Securities Co., Ltd. and others	2.02	2022.3.13	160,000	-	160,000
<b>52-2<sup>nd</sup> Debenture (non-guaranteed/public)</b>	NH Investment & Securities Co., Ltd. and others	2.11	2024.3.13	240,000	-	240,000
<b>52-3<sup>rd</sup> Debenture (non-guaranteed/public)</b>	NH Investment & Securities Co., Ltd. and others	2.21	2026.3.13	200,000	-	200,000
<b>52-4<sup>th</sup> Debenture (non-guaranteed/public)</b>	NH Investment & Securities Co., Ltd. and others	2.40	2029.3.13	400,000	-	400,000
<b>1-1<sup>st</sup> USD Overseas Convertible bonds<sup>1</sup></b>	Credit Suisse	-	2021.4.16	254,716	-	254,716
<b>1-2<sup>nd</sup> EUR Overseas Convertible bonds<sup>2</sup></b>	Credit Suisse	-	2021.4.16	408,950	-	408,950
<b>USD foreign currency debenture with maturity in 2024</b>	CITI and others	3.25	2024.10.15	578,900	-	578,900
<b>USD foreign currency debenture with maturity in 2029</b>	CITI and others	3.63	2029.4.15	578,900	-	578,900
<b>EUR foreign currency debenture with maturity in 2023</b>	CITI and others	0.50	2023.4.15	648,715	-	648,715
<b>Debentures in Korean won (non-guaranteed)</b>	NH Investment & Securities Co., Ltd. and others	1.93	2020.2.16	100,000	100,000	-
	NH Investment & Securities Co., Ltd. and others	2.26	2022.2.16	100,000	-	100,000
	NH Investment & Securities Co., Ltd. and others	2.71	2021.3.2	50,000	-	50,000
	NH Investment & Securities Co., Ltd. and others	3.00	2023.3.2	40,000	-	40,000
Less: discount on debentures				(41,025)	(57)	(40,968)
<b>Total</b>				<u>5,519,156</u>	<u>219,943</u>	<u>5,299,213</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</b>	460,000
<b>(Korean won/shares)</b>	
<b>Conversion period</b>	From May 27, 2018 to April 6, 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</b>	533,600
<b>(Korean won/shares)</b>	
<b>Conversion period</b>	From May 27, 2018 to April 6, 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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Details of lease liabilities as at June 30, 2020 and December 31, 2019, are as follows:

(in millions of Korean won)

Leaser	June 30, 2020				
	Annual interest rate (%)	Latest maturity date	Total amount	Current	Non-current
Hyundai Oil Bank and others	1.98 ~ 4.13	2068.12.31	160,355	49,664	110,691

(in millions of Korean won)

Leaser	December 31, 2019				
	Annual interest rate (%)	Latest maturity date	Total amount	Current	Non-current
Hyundai Oil Bank and others	1.98 ~ 4.13	2068.12.31	277,245	55,108	222,137

**15. Provisions**

Changes in provisions for other liabilities and charges for the six-month period ended June 30, 2020 and for the year ended December 31, 2019, as follows:

(in millions of Korean won)

	June 30, 2020				
	Warranty <sup>1</sup>	Greenhouse gas emission <sup>2</sup>	Legal Claims <sup>3</sup>	Restoration <sup>4</sup>	Total
<b>Beginning balance</b>	596,251	25,157	370	114,950	736,728
Additions	147,705	7,509	7,964	17,337	180,515
Used	(168,605)	-	-	(10,768)	(179,373)
<b>Ending balance</b>	575,351	32,666	8,334	121,519	737,870
Less: current portion	(361,587)	(32,666)	-	(45,936)	(440,189)
<b>Total</b>	213,764	-	8,334	75,583	297,681

(in millions of Korean won)

	December 31, 2019				
	Warranty <sup>1</sup>	Greenhouse gas emission <sup>2</sup>	Legal claims <sup>3</sup>	Restoration <sup>4</sup>	Total
<b>Beginning balance</b>	198,575	11,700	402	126,976	337,653
Additions	652,528	23,606	13	8,884	685,031
Used	(254,852)	(10,149)	(45)	(20,910)	(285,956)
<b>Ending balance</b>	596,251	25,157	370	114,950	736,728
Less: current portion	(417,561)	(25,157)	-	(29,411)	(472,129)
<b>Total</b>	178,690	-	370	85,539	264,599

<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. In addition, provisions related to downtime loss compensation for ESS fire accidents are included.

<sup>2</sup> Greenhouse gas emission provisions have been accrued for estimated expenditures to be obligated for any excess emission. The estimated emission as at June 30, 2020 amounts to 4,296 thousand tons (2019: 3,998 thousand tons).

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

<sup>4</sup> As at June 30, 2020, restoration provisions have been accrued for the estimated expenses to restore land pollutions and others.

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**16. Net Defined Benefit Liabilities**

Details of net defined benefit liabilities recognized in the consolidated interim statements of financial position as at June 30, 2020 and December 31, 2019, are as follows:

<i>(in millions of Korean won)</i>	<b>June 30, 2020</b>	<b>December 31, 2019</b>
Present value of defined benefit obligations <sup>1</sup>	1,400,741	1,343,553
Fair value of plan assets	<u>(1,124,711)</u>	<u>(1,164,393)</u>
<b>Liabilities in the consolidated interim statement of financial position</b>	<b><u>276,030</u></b>	<b><u>179,160</u></b>

<sup>1</sup> The present value of retirement benefit obligations is net of existing contributions to the National Pension Plan of ₩738 million as at June 30, 2020 (2019: ₩768 million).

The amounts recognized in the consolidated interim statements of profit or loss for the three-month and six-month period ended June 30, 2020 and 2019, are as follows:

<i>(in millions of Korean won)</i>	<b>2020</b>		<b>2019</b>	
	<b>Three months</b>	<b>Six months</b>	<b>Three months</b>	<b>Six months</b>
Current service cost <sup>1</sup>	46,299	92,277	40,106	80,484
Interest cost	<u>1,035</u>	<u>2,092</u>	<u>1,502</u>	<u>3,030</u>
<b>Total, included in employee benefit expenses</b>	<b><u>47,334</u></b>	<b><u>94,369</u></b>	<b><u>41,608</u></b>	<b><u>83,514</u></b>

<sup>1</sup> The above amounts excluded ₩1,091 million (2019: ₩894 million) of expenses capitalized to construction in progress and development costs.

Post-employment benefits recognized for defined contribution plan for the six-month period ended June 30, 2020, amounted to ₩3,767 million (2019: ₩4,093 million).

Post-employment benefits recognized in the consolidated interim statements of profit or loss for the three-month and six-month period ended June 30, 2020 and 2019, are as follows:

<i>(in millions of Korean won)</i>	<b>2020</b>		<b>2019</b>	
	<b>Three months</b>	<b>Six months</b>	<b>Three months</b>	<b>Six months</b>
Cost of sales	28,659	57,127	26,219	53,175
Selling and administrative expenses	18,471	37,130	14,481	28,646
Discontinued operations	<u>1,493</u>	<u>3,880</u>	<u>2,783</u>	<u>5,786</u>
<b>Total</b>	<b><u>48,623</u></b>	<b><u>98,137</u></b>	<b><u>43,483</u></b>	<b><u>87,607</u></b>

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Movements in the present value of defined benefit obligations for the six-month period ended June 30, 2020 and for the year ended December 31, 2019, are as follows:

<i>(in millions of Korean won)</i>	<b>June 30, 2020</b>	<b>December 31, 2019</b>
<b>Beginning balance</b>	1,343,553	1,167,524
Transfer in	2,990	20,820
Transfer out	(1,429)	(5,909)
Current service cost	93,369	162,931
Past service cost	-	-
Interest expense	15,494	30,649
Remeasurements:		
Actuarial loss from change in demographic assumptions	-	5,316
Actuarial loss from change in financial assumptions	-	74,372
Actuarial gain from experience adjustments	-	(21,594)
Others	-	916
Exchange differences	(588)	(949)
Payments from plans	(52,648)	(90,523)
<b>Ending balance</b>	<u>1,400,741</u>	<u>1,343,553</u>

Movements in the fair value of plan assets for the six-month period ended June 30, 2020 and for the year ended December 31, 2019, are as follows:

<i>(in millions of Korean won)</i>	<b>June 30, 2020</b>	<b>December 31, 2019</b>
<b>Beginning balance</b>	1,164,393	939,980
Transfer out	(616)	(184)
Interest income	13,402	24,586
Remeasurements:		
Return on plan assets (excluding amounts included in interest income)	(3,931)	(6,796)
Contributions:		
Employers	194	283,196
Payments from plans	(48,179)	(75,299)
Administrative costs	(552)	(1,090)
<b>Ending balance</b>	<u>1,124,711</u>	<u>1,164,393</u>

The actual return on plan assets for the six-month period ended June 30, 2020, was ₩9,470 million (December 31, 2019: ₩17,790 million).

The significant actuarial assumptions as at June 30, 2020 and December 31, 2019, are as follows:

	<b>June 30, 2020</b>	<b>December 31, 2019</b>
Discount rate	2.4% ~ 2.5%	2.4% ~ 2.5%
Salary growth rate	4.0% ~ 5.0%	4.0% ~ 5.0%

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The sensitivity analysis for changes in key actuarial assumptions as at June 30, 2020, is as follows:

<i>(in millions of Korean won)</i>	<b>Increase by 0.5%</b>	<b>Decrease by 0.5%</b>
<b>Discount rate:</b>		
Increase (decrease) in defined benefit obligations	(82,430)	90,768
<b>Salary growth rate:</b>		
Increase (decrease) in defined benefit obligations	88,117	(80,997)

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 June 30, 2020 and December 31, 2019, consist of:

<i>(in millions of Korean won)</i>	<b>June 30, 2020</b>		<b>December 31, 2019</b>	
	<b>Amount</b>	<b>Composition (%)</b>	<b>Amount</b>	<b>Composition (%)</b>
Insurance contracts with guaranteed yield	1,105,575	98.3	1,138,725	97.8
Equity linked bonds	18,409	1.6	24,891	2.1
Time deposits	727	0.1	777	0.1
	<u>1,124,711</u>	<u>100.0</u>	<u>1,164,393</u>	<u>100</u>

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

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

Details of other current and non-current liabilities as at June 30, 2020 and December 31, 2019, are as follows:

<i>(in millions of Korean won)</i>	<b>June 30, 2020</b>	<b>December 31, 2019</b>
<b>Current</b>		
Advances from customers	115,762	150,673
Dividends payable	23,478	-
Withholdings	262,582	108,140
Unearned revenues	42,067	48,907
Accrued expenses	308,629	198,206
<b>Total</b>	<u>752,518</u>	<u>505,926</u>
<b>Non-current</b>		
Long-term accrued expenses	61,879	59,514
Long-term unearned revenues	15,273	15,272
Long-term advanced received	39,499	58,699
<b>Total</b>	<u>116,651</u>	<u>133,485</u>

**18. Commitments and Contingencies**

(1) As at June 30, 2020, the Parent Company and certain subsidiaries have been guaranteed from Seoul Guarantee Insurance Company for the execution of contracts and others.

(2) As at June 30, 2020, the Parent Company and certain subsidiaries have various specific line of credit agreements with several financial institutions, as follows:

*(unit: Korean won in millions, foreign currencies in millions)*

Classification	The Parent Group		Certain Overseas Subsidiaries					
	KRW	USD	KRW	USD	CNY	EUR	INR	THB
Limit of bank overdraft	29,100	-	-	300	1,100	29	-	10
Limit of the letter of credit	22,000	346	-	277	4,800	-	367	-
Limit of discount of notes from export	-	612	-	-	-	-	-	-
Limit of guaranteed payments in other foreign currency	-	132	-	-	-	-	-	-
Limit of loan arrangements	-	-	97,680	2,958	5,706	2,445	3,427	-

The Group also entered into comprehensive credit line agreements with other financial institutions relating to trade finance and import/export amounting to ₩ 20,000 million (including bank overdraft of 5,000 million) and US\$ 55 million.

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- (3) As at June 30, 2020, the Parent Company and certain subsidiaries have B2B purchase arrangements with several financial institutions with limit of ₩ 450,000 million and ₩ 32,000 million, respectively, as well as enterprise general fund arrangement with limit of ₩ 350,000 million.
- (4) As at June 30, 2020, the Parent Company has reverse factoring agreements, and utilized the facility for ₩ 505,141 million with credit limit of ₩ 600,000 million provided by Shinhan Card and utilized the facility for ₩ 792,193 million provided by Woori Card, respectively.
- (5) As at June 30, 2020, in relation to price fixing of mobile batteries, the consumers in Canada and Israel have filed two class actions against the Parent Company and certain overseas subsidiaries. However, the ultimate outcome of these cases cannot be determined at the reporting date.
- (6) As at June 30, 2020, in connection with styrene monomer gas leakage accident, several law suits against LG Polymer India Pvt. Ltd., a subsidiary, have been filed with National Green Tribunal of India(NGT) and Andhra Pradesh High Court(APHC). The ultimate outcome of these cases cannot be determined at the reporting date. NGT has ordered LG Polymer India Pvt. Ltd. to deposit INR 500 million in connection with this accident and the manufacturing facility is currently closed with limited access in accordance with APHC's order.
- (7) In addition, as at June 30, 2020, the Parent Company and certain subsidiaries have been named as a plaintiff in 17 and 18 legal actions, respectively, involving ₩ 21,622 million and ₩ 8,840 million in claims, respectively. They have been named as a defendant in 155 and 40 legal actions, respectively, with ₩ 4,886 million and ₩ 21,202 million in claims, respectively. The ultimate outcome of these cases cannot be determined at the reporting date.
- (8) As at June 30, 2020, the Parent Company is under investigation by the related authorities in relation to the manipulation of the emission of fine dust-causing substance in the Yeosu Industrial Complex, and the final outcome of these investigations cannot be determined at the reporting date. As at June 30, 2020, the Parent Company shut down the relevant production facilities.
- (9) The Parent Company has entered into manufacture and production technical contracts with ExxonMobil and others.
- (10) The Parent Company has entered into a license agreement with LG Corp. to use trademarks on the products that the Group manufactures and sells, and on the services the Group provides in relation to its business.
- (11) As at June 30, 2020, the Parent Company has entered into payment guarantee contract of USD 7 million, EUR 7 million and ₩ 5,373 million with financial institutions to guarantee the warrant of certain installed products. Also, certain subsidiaries have entered into payment guarantee contract of CNY 72 million with financial institutions in relation to custom of imported raw materials.

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(12) As at June 30, 2020 and December 31, 2019, assets pledged as collateral for the borrowings are as follows:

<i>(in millions of Korean won)</i>	June 30, 2020			Secured party
	Secured amount	Borrowings / Loan	Limit	
Factory	20,880	Current and non-current borrowings	15,680	KDB
	<u>20,880</u>		<u>15,680</u>	

<i>(in millions of Korean won)</i>	December 31, 2019			Secured party
	Secured amount	Borrowings / Loan	Limit	
Factory	20,880	Non-current borrowings	16,208	KDB
	<u>20,880</u>		<u>16,208</u>	

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

<i>(in millions of Korean won)</i>	June 30, 2020	December 31, 2019
Property, plant and equipment	1,860,732	2,069,630

(14) In June 2019, the Group had entered into an agreement with SMGA(Shanghai maple guorun), a subsidiary company of Geely Auto Group, to establish a joint venture of electric-car battery with 50:50 shares. The committed amount of investment is ₩ 112,900 million.

**19. Share Capital**

Changes in share capital and share premium for the six-month period ended June 30, 2020 and for the year ended December 31, 2019, are as follows:

<i>(in millions of Korean won and in shares)</i>	Ordinary shares		Preferred shares		Share premium
	Number of shares	Share capital	Number of shares	Share capital	
January 1, 2019	70,592,343	352,962	7,688,800	38,444	2,014,038
December 31, 2019	70,592,343	352,962	7,688,800	38,444	2,014,036
June 30, 2020	<u>70,592,343</u>	<u>352,962</u>	<u>7,688,800</u>	<u>38,444</u>	<u>2,014,036</u>

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Changes in treasury shares for the six-month period ended June 30, 2020 and for the year ended December 31, 2019, are as follows:

<i>(in millions of Korean won and in shares)</i>	<b>Number of shares</b>		<b>Carrying amount</b>	<b>Gain on disposal of treasury shares</b>
	<b>Ordinary shares</b>	<b>Preferred shares</b>		
January 1, 2019	1,652,417	16,367	354,945	13,855
December 31, 2019	1,652,417	16,367	354,945	13,855
June 30, 2020	1,652,417	16,367	354,945	13,855

**20. Retained Earnings**

Retained earnings as at June 30, 2020 and December 31, 2019, consist of:

<i>(in millions of Korean won)</i>	<b>June 30, 2020</b>	<b>December 31, 2019</b>
Legal reserve <sup>1</sup>	355,013	352,286
Discretionary reserve <sup>2</sup>	13,779,000	13,608,917
Retained earnings before appropriation	910,529	837,487
<b>Total</b>	<b>15,044,542</b>	<b>14,798,690</b>

<sup>1</sup> The Commercial Code of the Republic of Korea requires the Parent 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 Group 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 June 30, 2020 and December 31, 2019, are as follows:

<i>(in millions of Korean won)</i>	<b>June 30, 2020</b>	<b>December 31, 2019</b>
Treasury shares (Note 19)	(354,945)	(354,945)
Capital transactions within the Group <sup>1</sup>	(19,298)	(19,298)
<b>Total</b>	<b>(374,243)</b>	<b>(374,243)</b>

<sup>1</sup> Includes gain or loss on disposal of investments and investment differences due to changes in equity, net of deferred tax.

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**22. Selling and Administrative Expenses**

Selling and administrative expenses for the three-month and six-month period ended June 30, 2020 and 2019, are as follows:

*(in millions of Korean won)*

	2020		2019	
	Three months	Six months	Three months	Six months
Wages and salaries	240,093	461,668	224,325	454,239
Post-employment benefits (Note 16)	18,471	37,130	14,481	28,646
Employee benefits	49,486	94,590	47,653	88,265
Travel expense	6,475	17,208	20,501	36,594
Water & utilities	12,511	28,300	11,199	24,780
Packaging expense	2,301	3,682	1,758	3,614
Rental expenses	21,584	39,844	23,495	46,441
Commission expenses	168,820	358,118	117,440	226,225
Depreciation	48,019	93,157	36,844	69,409
Advertising expense	5,899	10,259	11,060	17,344
Freight expenses	144,632	304,747	143,565	280,196
Training expense	3,282	5,849	6,633	11,032
Amortization (Note 12)	31,662	59,771	26,090	48,507
Sample expense	7,111	11,375	4,291	8,065
Development costs	59,664	113,398	57,659	103,369
Others	121,724	206,214	110,758	283,313
<b>Total</b>	<b>941,734</b>	<b>1,845,310</b>	<b>857,753</b>	<b>1,730,040</b>

**23. Breakdown of Expenses by Nature**

Cost of sales, and selling and administrative expenses by nature for the three-month and six-month period ended June 30, 2020 and 2019, consist of:

*(in millions of Korean won)*

	2020		2019	
	Three months	Six months	Three months	Six months
Changes in inventories of merchandise, finished goods, semi-finished goods and work in process	369,266	17,045	(103,850)	(241,608)
Raw materials and consumables used	3,379,340	7,627,859	4,050,828	7,824,219
Purchase of merchandise	311,293	515,587	238,259	520,293
Employee benefit expenses (Note 24)	699,833	1,378,263	628,063	1,269,622
Advertising expenses	6,023	10,608	11,335	17,890
Freight expenses	153,496	322,794	150,304	296,212
Commission expenses	268,803	549,750	202,502	377,146
Depreciation and amortization	534,702	1,043,652	439,606	826,471
Rentals and fees	13,715	30,081	19,689	40,267
Other expenses	627,078	1,391,222	894,724	1,603,069
<b>Total</b>	<b>6,363,549</b>	<b>12,886,861</b>	<b>6,531,460</b>	<b>12,533,581</b>

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**24. Employee Benefit Expenses**

Details of employee benefit expenses for the three-month and six-month period ended June 30, 2020 and 2019, are as follows:

(in millions of Korean won)

	2020		2019	
	Three months	Six months	Three months	Six months
Salaries	591,429	1,159,650	535,419	1,075,013
Post-employment benefits – Defined benefit plan (Note 16)	45,708	90,490	38,482	77,728
Post-employment benefits – Defined contribution plan (Note 16)	1,422	3,767	2,218	4,093
Others	61,274	124,356	51,944	112,788
<b>Total</b>	<b>699,833</b>	<b>1,378,263</b>	<b>628,063</b>	<b>1,269,622</b>

**25. Finance Income and Costs**

Details of finance income and costs for the three-month and six-month period ended June 30, 2020 and 2019, are as follows:

(in millions of Korean won)

	2020		2019	
	Three months	Six months	Three months	Six months
<b>Finance income</b>				
Interest income <sup>1</sup>	7,664	20,855	14,719	28,344
Dividend income	12	12	23	49
Exchange differences	81,362	185,053	49,763	91,096
Gain on valuation of derivative instruments	-	-	12,962	13,012
<b>Total</b>	<b>89,038</b>	<b>205,920</b>	<b>77,469</b>	<b>132,501</b>
<b>Finance costs</b>				
Interest expense <sup>2</sup>	57,178	117,714	52,724	90,847
Exchange differences	24,460	367,754	72,837	100,453
Loss on valuation of derivative instruments	54,349	61,120	-	273
<b>Total</b>	<b>135,987</b>	<b>546,588</b>	<b>125,561</b>	<b>191,573</b>

<sup>1</sup> Details of interest income for the three-month and six-month period ended June 30, 2020 and 2019, are as follows:

(in millions of Korean won)

	2020		2019	
	Three months	Six months	Three months	Six months
Deposits held by financial institutions	6,076	13,511	11,902	21,973
Other loans and receivables	1,588	7,344	2,817	6,371
<b>Total</b>	<b>7,664</b>	<b>20,855</b>	<b>14,719</b>	<b>28,344</b>

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<sup>2</sup> Details of interest expense for the three-month and six-month period ended June 30, 2020 and 2019, are as follows:

(in millions of Korean won)

	2020		2019	
	Three months	Six months	Three months	Six months
Interest on bank overdraft and borrowings	13,443	36,832	23,563	45,052
Interest on lease liabilities	3,419	4,354	641	1,293
Interest on debentures	38,745	76,683	30,498	49,337
Other interest expenses	10,361	18,267	4,559	7,033
Capitalized interest for qualifying assets	(8,790)	(18,422)	(6,537)	(11,868)
<b>Total</b>	<b>57,178</b>	<b>117,714</b>	<b>52,724</b>	<b>90,847</b>

**26. Other Non-Operating Income**

Details of other non-operating income for the three-month and six-month period ended June 30, 2020 and 2019, are as follows:

(in millions of Korean won)

	2020		2019	
	Three months	Six months	Three months	Six months
Exchange differences	91,041	377,876	129,539	197,166
Gain on disposal of property, plant and equipment	720	1,385	1,914	4,133
Gain on disposal of intangible assets	34	147	-	160
Gain on disposal of associates and joint ventures (Note 10)	(18,096)	310,538	-	-
Others	14,982	23,867	5,567	10,550
<b>Total</b>	<b>88,681</b>	<b>713,813</b>	<b>137,020</b>	<b>212,009</b>

**27. Other Non-Operating Expenses**

Details of other non-operating expenses for the three-month and six-month period ended June 30, 2020 and 2019, are as follows:

(in millions of Korean won)

	2020		2019	
	Three months	Six months	Three months	Six months
Exchange differences	86,268	407,647	112,493	170,902
Loss on disposal of property, plant and equipment	13,281	19,162	12,633	23,509
Loss on disposal of intangible assets	-	113	28	125
Impairment loss on property, plant and equipment (Note 11)	15,910	48,364	13,692	19,824
Impairment loss on intangible assets (Note 12)	41	41	-	-
Donations	2,480	5,175	2,674	2,992
Others	26,338	44,738	4,609	9,058
<b>Total</b>	<b>144,318</b>	<b>525,240</b>	<b>146,129</b>	<b>226,410</b>

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**28. Tax Expense and Deferred Tax**

Income tax expense is recognized based on the best estimate of weighted average annual income tax rate expected for the full financial year. The estimated average annual income tax rate used for the year ending December 31, 2020, is 22.2% (the estimated tax rate for the year ended December 31, 2019: 24.3%).

**29. Earnings per Share**

Basic earnings per share is calculated by dividing the profit attributable to equity holders of the Parent Company by the weighted average number of shares in issue excluding shares purchased by the Parent Company and held as treasury shares. As at the reporting date, the Parent Company has no potential ordinary shares. Preferred shares have a right to participate in the profits of the Parent Company. These participation rights have been considered in presenting the earnings per share information for the both of ordinary shares and preferred shares.

Basic earnings per share for profit from continuing operations and earnings per share attributable to the equity holders of the Parent Company for the three-month and six-month period ended June 30, 2020 and 2019, are computed as follows:

**Basic earnings per ordinary share from continuing operations**

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

	2020		2019	
	Three months	Six months	Three months	Six months
Profit from continuing operations attributable to ordinary shares <sup>1</sup>	318,483	349,465	57,914	218,267
Weighted average number of ordinary shares outstanding <sup>2</sup>	68,939,926	68,939,926	68,939,926	68,939,926
Basic earnings per ordinary share from continuing operations <i>(in won)</i>	4,620	5,069	840	3,166

**Basic earnings per ordinary share**

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

	2020		2019	
	Three months	Six months	Three months	Six months
Profit attributable to ordinary shares <sup>1</sup>	343,899	362,778	61,183	236,106
Weighted average number of ordinary shares outstanding <sup>2</sup>	68,939,926	68,939,926	68,939,926	68,939,926
Basic earnings per ordinary shares <i>(in won)</i>	4,988	5,262	887	3,425

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**Basic earnings per preferred share from continuing operations**

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

	2020		2019	
	Three months	Six months	Three months	Six months
Profit from continuing operations attributable to preferred share <sup>1</sup>	35,540	39,084	6,541	24,482
Weighted average number of preferred shares outstanding <sup>2</sup>	7,672,433	7,672,433	7,672,433	7,672,433
Basic earnings per preferred share from continuing operations <i>(in won)</i>	4,632	5,094	853	3,191

**Basic earnings per preferred share**

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

	2020		2019	
	Three months	Six months	Three months	Six months
Profit attributable to preferred shares <sup>1</sup>	38,369	40,566	6,905	26,469
Weighted average number of preferred shares outstanding <sup>2</sup>	7,672,433	7,672,433	7,672,433	7,672,433
Basic earnings per preferred shares <i>(in won)</i>	5,000	5,287	900	3,450

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

*(in millions of Korean won)*

	2020		2019	
	Three months	Six months	Three months	Six months
<b>Profit from continuing operations attributable to the equity holders of the Parent Company</b>	354,023	388,549	64,455	242,749
Ordinary shares dividends (A)	34,470	68,940	57,914	206,820
Preferred shares dividends (B)	3,932	7,864	6,541	23,209
<b>Undistributed earnings from continuing operation for the period</b>	315,621	311,745	-	12,720
Undistributed earnings available for ordinary shares (C)	284,013	280,525	-	11,447
Undistributed earnings available for preferred shares (D)	31,608	31,220	-	1,273
<b>Profit from continuing operations for the year attributable to ordinary shares (A+C)</b>	318,483	349,465	57,914	218,267
<b>Profit from continuing operations for the year attributable to preferred shares (B+D)</b>	35,540	39,084	6,541	24,482

**LG Chem, Ltd. and Subsidiaries**  
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(in millions of Korean won)

	2020		2019	
	Three months	Six months	Three months	Six months
<b>Profit attributable to the equity holders of the Parent Company</b>				
Ordinary shares dividends (A)	382,268	403,344	68,088	262,575
Preferred shares dividends (B)	34,470	68,940	61,183	206,820
Preferred shares dividends (B)	3,932	7,864	6,905	23,209
<b>Undistributed earnings for the period</b>	343,866	326,540	-	32,546
Undistributed earnings available for ordinary shares (C)	309,429	293,838	-	29,286
Undistributed earnings available for preferred shares (D)	34,437	32,702	-	3,260
<b>Profit for the period attributable to ordinary shares (A+C)</b>	343,899	362,778	61,183	236,106
<b>Profit for the period attributable to preferred shares (B+D)</b>	38,369	40,566	6,905	26,469

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

Ordinary shares outstanding	2020		
	Period	Number of shares	Number of days
Beginning balance	2020. 1. 1 - 2020. 6. 30	68,939,926	182
<b>Total</b>			<b>12,547,066,532</b>

Weighted average number of ordinary shares outstanding:  $12,547,066,532 / 182 = 68,939,926$  shares

Preferred shares outstanding	2020		
	Period	Number of shares	Number of days
Beginning balance	2020. 1. 1 - 2020. 6. 30	7,672,433	182
<b>Total</b>			<b>1,396,382,806</b>

Weighted average number of preferred shares outstanding:  $1,396,382,806 / 182 = 7,672,433$  shares

Ordinary shares outstanding	2019		
	Period	Number of shares	Number of days
Beginning balance	2019. 1. 1 - 2019. 6. 30	68,939,926	181
<b>Total</b>			<b>12,478,126,606</b>

Weighted average number of ordinary shares outstanding:  $12,478,126,606 / 181 = 68,939,926$  shares

Preferred shares outstanding	2019		
	Period	Number of shares	Number of days
Beginning balance	2019. 1. 1 - 2019. 6. 30	7,672,433	181
<b>Total</b>			<b>1,388,710,373</b>

Weighted average number of preferred shares outstanding:  $1,388,710,373 / 181 = 7,672,433$  shares

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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 Parent Company has one category of dilutive potential ordinary shares: convertible bonds. 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)

	2020		2019	
	Three months	Six months	Three months	Six months
<b>Diluted earnings per ordinary shares from continuing operations</b>				
Profit from continuing operation for the period attributable to ordinary shares	318,483	349,465	57,914	218,267
Gain and loss on convertible bonds (after tax effects)	43,975	43,802	(3,830)	(2,963)
Profit from continuing operation used in calculating diluted earnings per share from continuing operation	362,458	393,267	54,084	215,304
Weighted average number of ordinary shares outstanding	68,939,926	68,939,926	68,939,926	68,939,926
Adjustments for calculation of diluted earnings per share:				
Assumed conversion of convertible bonds	1,284,734	1,284,734	1,284,734	1,284,734
Weighted average number of ordinary shares and potential ordinary shares used as the denominator in calculating diluted earnings per share from continuing operation	70,224,660	70,224,660	70,224,660	70,224,660
Diluted earnings per share from continuing operation attributable to the ordinary shares (in won)	5,161	5,600	772	3,066

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

	2020		2019	
	Three months	Six months	Three months	Six months
<b>Diluted earnings per ordinary shares</b>				
Profit for the period attributable to the ordinary shares	343,899	362,778	61,183	236,106
Gain and loss on convertible bonds (after tax effects)	44,021	43,827	(3,824)	(2,929)
Profit used in calculating diluted earnings per share	387,920	406,605	57,359	233,177
Weighted average number of ordinary shares outstanding	68,939,926	68,939,926	68,939,926	68,939,926
Adjustments for calculation of diluted earnings per share:				
Assumed conversion of convertible bonds	1,284,734	1,284,734	1,284,734	1,284,734
Weighted average number of ordinary shares and potential ordinary shares used as the denominator in calculating diluted earnings per share	70,224,660	70,224,660	70,224,660	70,224,660
Diluted earnings per share attributable to the ordinary shares (in won)	5,524	5,790	819	3,320

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

	2020		2019	
	Three months	Six months	Three months	Six months
<b>Diluted earnings per preferred share from continuing operations</b>				
Profit from continuing operation for the period attributable to preferred shares	35,540	39,084	6,541	24,482
Gain and loss on convertible bonds (after tax effects)	4,156	4,074	(536)	(767)
Profit from continuing operation used in calculating diluted earnings per share from continuing operation	39,696	43,158	6,005	23,715
Weighted average number of preferred shares outstanding	7,672,433	7,672,433	7,672,433	7,672,433
Adjustments for calculation of diluted earnings per share:				
Assumed conversion of convertible bonds	-	-	-	-
Weighted average number of preferred shares and potential preferred shares used as the denominator in calculating diluted earnings per share from continuing operation	7,672,433	7,672,433	7,672,433	7,672,433
Diluted earnings per share from continuing operation attributable to preferred shares (in won)	5,173	5,625	785	3,091

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

	2020		2019	
	Three months	Six months	Three months	Six months
<b>Diluted earnings per preferred shares</b>				
Profit for the year attributable to preferred shares	38,369	40,566	6,905	26,469
Gain and loss on convertible bonds (after tax effects)	4,109	4,050	(542)	(801)
Profit used in calculating diluted earnings per share	42,478	44,616	6,363	25,668
Weighted average number of preferred shares outstanding	7,672,433	7,672,433	7,672,433	7,672,433
Adjustments for calculation of diluted earnings per share:				
Assumed conversion of convertible bonds	-	-	-	-
Weighted average number of preferred shares and potential preferred shares used as the denominator in calculating diluted earnings per share	7,672,433	7,672,433	7,672,433	7,672,433
Diluted earnings per share attributable to the preferred shares (in won)	5,536	5,815	832	3,345

Basic and diluted earnings per share attributable to ordinary and preferred shares from discounted operations for the three-month and six-month period ended June 30, 2020 and 2019, are as follows:

(in Korean won)

	2020		2019	
	Three months	Six months	Three months	Six months
Basic earnings per ordinary share from discounted operations	368	193	47	259
Basic earnings per preferred share from discounted operations	368	193	47	259
Diluted earnings per ordinary share from discounted operations	363	190	47	254
Diluted earnings per preferred share from discounted operations	363	190	47	254

**30. Dividends**

The ₩ 153,608 million (2019: ₩ 460,058 million) of dividends for the year ended December 31, 2019, was paid to the shareholders of the Parent Company in April 2020.

# LG Chem, Ltd. and Subsidiaries

## Notes to the Consolidated Interim Financial Statements

### June 30, 2020 and 2019 (Unaudited), and December 31, 2019

#### 31. Related Party Transactions

As at June 30, 2020 and December 31, 2019, LG Corp. is an entity exercising a significant influence over the Group, which owns 33.34% of the Parent Company's ordinary shares.

Details of associates and other related parties that have sales and other transactions with the Group or have receivables and payables balances as at June 30, 2020 and December 31, 2019, are as follows, and the details of investments in subsidiaries, associates and joint ventures are described in Note 1.3:

Related party	Related party's subsidiary (Domestic)	Related party's subsidiary (Overseas)	Details
S&I corp.	S&I CM	S&I CM NANJING Co., Ltd. and others	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 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 <sup>1</sup>
LG International Corp.	Pantos Logistics Co., Ltd. and others	LG International (Japan) Ltd. and others	LG Enterprise group <sup>1</sup>
LG Hausys, Ltd.	-	LG Hausys Tianjin Co., Ltd. and others	LG Enterprise group <sup>1</sup>
LG Household & Health Care Ltd.	Coca-Cola Beverage Co. and others	-	LG Enterprise group <sup>1</sup>
LG Uplus Corp.	LG HelloVision Corp.	-	LG Enterprise group <sup>1</sup>
G II R Inc.	HS AD Inc.	-	LG Enterprise group <sup>1</sup>
Silicon Works Co., Ltd.	-	-	LG Enterprise group <sup>1</sup>
SERVEONE <sup>2</sup>	-	Serveone(Nanjing).Co., Ltd. and others	LG Enterprise group <sup>1</sup>

<sup>1</sup> Although these entities are not the related parties of the Group in accordance with Korean IFRS 1024, these entities belong to a large enterprise group in accordance with the Monopoly Regulation and Fair Trade Act.

<sup>2</sup> During 2019, SERVEONE has been excluded from other related parties as S&I corp. has sold its shares of SERVEONE.

**LG Chem, Ltd. and Subsidiaries**  
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Sales and purchases with related parties for the six-month period ended June 30, 2020 and 2019, are as follows:

	2020					
	Purchase and others					
	Sales and others	Purchase of raw materials /merchandises	Acquisition of property, plant and equipment and intangible assets	Acquisition of right-of- use assets	Interest expense	Others
<b>Entity with a significant influence over the Group</b>						
LG Corp.	-	-	-	-	126	29,308
<b>Associates and joint ventures</b>						
SEETEC Co., Ltd.	14,703	62,090	9	618	16	41,563
TECWIN Co., Ltd.	-	237	906	-	-	66
HL Greenpower Co., Ltd.	457,259	-	-	-	-	2,797
Others	36	869	-	-	-	1,239
<b>Other related parties</b>						
LG MMA Corporation <sup>1</sup>	52,378	65,328	-	-	-	1,803
S&I Corporation and its subsidiaries	119	11,457	327,469	-	-	28,633
LG CNS Co., Ltd. and its subsidiaries	3,136	1,589	148,183	-	10	49,122
Others	-	-	-	584	1	7,726
<b>Others</b>						
LG Display Co., Ltd. and its subsidiaries	406,676	70	868	821	-	201
LG Electronics Inc. and its subsidiaries	475,095	352,888	234,544	-	-	21,692
LG International Corp. and its subsidiaries	28,763	168,987	33,827	187	-	283,468
LG Hausys, Ltd. and its subsidiaries	81,826	1,106	1,985	-	-	3,857
Others	4,129	11,011	131	1,605	17	2,846
<b>Total</b>	<b>1,524,120</b>	<b>675,633</b>	<b>747,922</b>	<b>3,815</b>	<b>170</b>	<b>474,321</b>

**LG Chem, Ltd. and Subsidiaries**  
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(in millions of Korean won)

	2019					
	Sales and others	Purchase and others				
		Purchase of raw materials /merchandises	Acquisition of property, plant and equipment and intangible assets	Acquisition of right-of-use assets	Interest expense	Others
<b>Entity with a significant influence over the Group</b>						
LG Corp.	2,655	-	-	-	-	35,113
<b>Associates and joint ventures</b>						
SEETEC Co., Ltd.	18,870	98,764	330	2,775	11	42,123
TECWIN Co., Ltd.	3	26	2,334	-	-	74
HL Greenpower Co., Ltd.	407,473	-	-	-	-	449
Others	17	-	-	-	-	1,546
<b>Other related parties</b>						
LG MMA Corporation <sup>1</sup>	56,486	102,602	-	-	-	3,093
S&I Corporation and its subsidiaries <sup>2</sup>	7,068	325,136	426,406	-	-	86,808
LG CNS Co., Ltd. and its subsidiaries	8,593	510	93,619	-	-	41,104
Others	-	-	-	558	3	10,083
<b>Others</b>						
LG Display Co., Ltd. and its subsidiaries	589,146	66	81,460	37	-	699
LG Electronics Inc. and its subsidiaries	519,326	272,481	233,140	-	-	23,296
LG International Corp. and its subsidiaries	101,820	241,049	7,858	27	-	273,246
LG Hausys, Ltd. and its subsidiaries	97,873	4,498	761	113	-	3,503
Others	7,367	12,374	210	280	1	4,824
<b>Total</b>	<b>1,816,697</b>	<b>1,057,506</b>	<b>846,118</b>	<b>3,790</b>	<b>15</b>	<b>525,961</b>

<sup>1</sup> Net sales and purchase amounts after offsetting for Raffinate transactions with LG MMA.

<sup>2</sup> SERVEONE has been excluded from the related parties at December 31, 2019 since S&I corporation sold its shares of SERVEONE in 2019. Transactions with SERVEONE until the sale of shares have been included in the above information.

**LG Chem, Ltd. and Subsidiaries**  
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Balances of receivables and payables arising from sales and purchases of goods and services as at June 30, 2020 and December 31, 2019, are as follows:

(in millions of Korean won)

	<b>June 30, 2020</b>			
	<b>Receivables</b>			<b>Total</b>
	<b>Trade receivables and others</b>	<b>Loan receivables</b>	<b>Other receivables</b>	
<b>Entity with a significant influence over the Group</b>				
LG Corp.	-	-	12,385	12,385
<b>Associates and joint ventures</b>				
SEETEC Co., Ltd.	3,871	-	206	4,077
TECWIN Co., Ltd.	-	-	-	-
HL Greenpower Co., Ltd.	203,953	-	-	203,953
Others	-	-	28	28
<b>Other related parties</b>				
LG MMA Corporation	5,166	-	586	5,752
S&I Corporation and its subsidiaries	-	-	24,553	24,553
LG CNS Co., Ltd. and its subsidiaries	2,250	-	-	2,250
Others	641	-	4,350	4,991
<b>Others</b>				
LG Display Co., Ltd. and its subsidiaries	155,658	-	384	156,042
LG Electronics Inc. and its subsidiaries	162,906	-	95,028	257,934
LG International Corp. and its subsidiaries	3,702	-	-	3,702
LG Hausys, Ltd. and its subsidiaries	30,575	-	16	30,591
Others	75	-	1,219	1,294
<b>Total</b>	<b>568,797</b>	<b>-</b>	<b>138,755</b>	<b>707,552</b>

(in millions of Korean won)

	<b>June 30, 2020</b>				
	<b>Payables</b>			<b>Total</b>	
	<b>Trade payables</b>	<b>Borrowings</b>	<b>Lease liabilities</b>		<b>Other payables</b>
<b>Entity with a significant influence over the Group</b>					
LG Corp.	-	-	7,431	84	7,515
<b>Associates and joint ventures</b>					
SEETEC Co., Ltd.	12,070	-	1,010	9,895	22,975
TECWIN Co., Ltd.	97	-	-	664	761
HL Greenpower Co., Ltd.	-	-	-	1,039	1,039
Others	-	-	-	185	185
<b>Other related parties</b>					
LG MMA Corporation	10,465	-	-	-	10,465
S&I Corporation and its subsidiaries	1	-	-	253,518	253,519
LG CNS Co., Ltd. and its subsidiaries	8	-	603	86,720	87,331
Others	-	-	390	812	1,202
<b>Others</b>					
LG Display Co., Ltd. and its subsidiaries	48	-	821	125	994
LG Electronics Inc. and its subsidiaries	190,849	-	-	187,381	378,230
LG International Corp. and its subsidiaries	26,104	-	23	86,023	112,150
LG Hausys, Ltd. and its subsidiaries	1	-	23	3,671	3,695
Others	1,501	-	1,416	3,732	6,649
<b>Total</b>	<b>241,144</b>	<b>-</b>	<b>11,717</b>	<b>633,849</b>	<b>886,710</b>

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	December 31, 2019			
	Receivables			Total
	Trade receivables and others	Loan receivables	Other receivables	
<b>Entity with a significant influence over the Group</b>				
LG Corp.	-	-	12,391	12,391
<b>Associates and joint ventures</b>				
SEETEC Co., Ltd.	4,140	-	636	4,776
TECWIN Co., Ltd.	-	-	-	-
HL Greenpower Co., Ltd.	54,907	-	-	54,907
Others	-	-	10	10
<b>Other related parties</b>				
LG MMA Corporation	8,425	-	844	9,269
S&I Corporation and its subsidiaries	8	-	24,574	24,582
LG CNS Co., Ltd. and its subsidiaries	7,650	-	-	7,650
Others	607	-	4,356	4,963
<b>Others</b>				
LG Display Co., Ltd. and its subsidiaries	128,562	-	74	128,636
LG Electronics Inc. and its subsidiaries	231,821	-	21,095	252,916
LG International Corp. and its subsidiaries	13,861	-	-	13,861
LG Hausys, Ltd. and its subsidiaries	19,995	-	262	20,257
Others	39	-	1,096	1,135
<b>Total</b>	<b>470,015</b>	<b>-</b>	<b>65,338</b>	<b>535,353</b>

(in millions of Korean won)

	December 31, 2019				
	Payables				Total
	Trade payables	Borrowings	Lease liabilities	Other payables	
<b>Entity with a significant influence over the Group</b>					
LG Corp.	-	-	14,863	1,360	16,223
<b>Associates and joint ventures</b>					
SEETEC Co., Ltd.	15,781	-	1,402	11,375	28,558
TECWIN Co., Ltd.	-	-	-	1,633	1,633
HL Greenpower Co., Ltd.	-	-	-	65	65
Others	-	-	-	258	258
<b>Other related parties</b>					
LG MMA Corporation	13,413	-	-	-	13,413
S&I Corporation and its subsidiaries	19	-	-	300,928	300,947
LG CNS Co., Ltd. and its subsidiaries	860	-	1,206	163,654	165,720
Others	-	-	93	462	555
<b>Others</b>					
LG Display Co., Ltd. and its subsidiaries	7	-	9	87	103
LG Electronics Inc. and its subsidiaries	115,622	-	448	436,962	553,032
LG International Corp. and its subsidiaries	10,398	-	20	97,017	107,435
LG Hausys, Ltd. and its subsidiaries	512	-	50	5,925	6,487
Others	1,706	-	168	4,328	6,202
<b>Total</b>	<b>158,318</b>	<b>-</b>	<b>18,259</b>	<b>1,024,054</b>	<b>1,200,631</b>

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Fund transactions with related parties for the six-month period ended June 30, 2020 and 2019, are as follows:

(in millions of Korean won)

	2020			2019		
	Equity contributions in cash	Loan (Repayment)	Borrowings (Repayment)	Equity contributions in cash	Loan (Repayment)	Borrowings (Repayment)
<b>Entity with a significant influence over the Group</b>						
LG Corp. <sup>1</sup>	-	-	(7,306)	-	-	-
<b>Associates and joint ventures</b>						
SEETEC Co., Ltd. <sup>2</sup>	-	-	(381)	-	-	2,092
HUAJIN NEW ENERGY MATERIALS(QUZHOU) CO.,Ltd	13,611	-	-	27,676	-	-
<b>Other related parties</b>						
LG CNS Co., Ltd. <sup>3</sup>	-	-	(593)	-	-	-
LG Holdings Japan Co.,Ltd. <sup>4</sup>	-	-	292	-	-	373
<b>Others</b>						
LG Display America,Inc. <sup>5</sup>	-	-	811	-	-	23
Pantos Logistics (China) Co., Ltd. <sup>6</sup>	-	-	(11)	-	-	23
Pantos Logistics France <sup>7</sup>	-	-	107	-	-	-
LG Hausys, Ltd. <sup>8</sup>	-	-	(36)	-	-	88
LG HOUSEHOLD & HEALTH CARE LTD <sup>9</sup>	-	-	1,254	-	-	210
<b>Total</b>	<b>13,611</b>	<b>-</b>	<b>(5,863)</b>	<b>27,676</b>	<b>-</b>	<b>2,809</b>

<sup>1</sup> For the six-month period ended June 30, 2020, the Group repaid its lease liabilities of ₩ 7,306 million in accordance with the lease agreements entered into with LG Corp.

<sup>2</sup> For the six-month period ended June 30, 2020, the Group recognized both of right-of-use assets and lease liabilities of ₩ 618 million in accordance with the lease agreements entered into with SEETEC Co., Ltd., and repaid its lease liabilities of ₩ 999 million.

<sup>3</sup> For the six-month period ended June 30, 2020, the Group repaid its lease liabilities of ₩ 593 million in accordance with the lease agreements entered into with LG CNS Co., Ltd.

<sup>4</sup> For the six-month period ended June 30, 2020, the Group recognized both of right-of-use assets and lease liabilities of ₩ 584 million in accordance with the lease agreements entered into with LG Holdings Japan Co., Ltd., and repaid its lease liabilities of ₩ 292 million.

<sup>5</sup> For the six-month period ended June 30, 2020, the Group recognized both of right-of-use assets and lease liabilities of ₩ 821 million in accordance with the lease agreements entered into with LG Display America, Inc., and repaid its lease liabilities of ₩ 10 million.

<sup>6</sup> For the six-month period ended June 30, 2020, the Group repaid its lease liabilities of ₩ 11 million in accordance with the lease agreements entered into with Pantos Logistics (China) Co., Ltd.

<sup>7</sup> For the six-month period ended June 30, 2020, the Group recognized both of right-of-use assets and lease liabilities of ₩ 187 million in accordance with the lease agreements entered into with Pantos Logistics France, and repaid its lease liabilities of ₩ 80 million.

<sup>8</sup> For the six-month period ended June 30, 2020, the Group repaid its lease liabilities of ₩ 36 million in accordance with the lease agreements entered into with LG Hausys, Ltd.

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<sup>9</sup> For the six-month period ended June 30, 2020, the Group recognized both of right-of-use assets and lease liabilities of ₩ 1,605 million in accordance with the lease agreements entered into with LG HOUSEHOLD & HEALTH CARE Ltd., and repaid its lease liabilities of ₩ 351 million.

Dividends received from related parties for the six-month period ended June 30, 2020 and 2019, are as follows:

<i>(in millions of Korean won)</i>	<b>2020</b>	<b>2019</b>
<b>Associates and joint ventures</b>		
SEETEC Co., Ltd.	10,000	10,000
TECWIN Co., Ltd.	314	-
<b>Total</b>	<u>10,314</u>	<u>10,000</u>

Dividends paid by the Group to related parties for the six-month period ended June 30, 2020 and 2019, are as follows:

<i>(in millions of Korean won)</i>	<b>2020</b>	<b>2019</b>
<b>Entity with a significant influence over the Group</b>		
LG Corp.	47,068	141,205
<b>Total</b>	<u>47,068</u>	<u>141,205</u>

Compensation for key management of the Group for the six-month period ended June 30, 2020 and 2019, consists of:

<i>(in millions of Korean won)</i>	<b>2020</b>	<b>2019</b>
Short-term employee benefits	41,562	51,933
Post-employment benefits	3,556	3,239
<b>Total</b>	<u>45,118</u>	<u>55,172</u>

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

There are no provisions recognized against receivables from related parties as at June 30, 2020.

As at June 30, 2020, there is no payment guarantees provided by the Group for related parties.

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**32. Cash Generated from Operations**

Reconciliation between profit before income tax and cash generated from operations for the six-month period ended June 30, 2020 and 2019, are as follows:

<i>(in millions of Korean won)</i>	<b>2020</b>	<b>2019</b>
<b>Profit before income tax</b>		
Profit before income tax from continuing operations	627,614	447,938
Profit before income tax from discontinued operations	27,634	24,589
	<u>655,248</u>	<u>472,527</u>
<b>Adjustments for:</b>		
Depreciation	1,009,005	799,727
Amortization	79,029	61,678
Post-employment benefits	93,618	83,514
Finance income	(45,260)	(113,260)
Finance costs	389,990	222,415
Foreign exchange differences	2,906	(5,323)
Gain on valuation of inventories	(26,730)	(13,795)
Gain on disposal of property, plant and equipment	(1,833)	(4,493)
Gain on disposal of intangible assets	(149)	(160)
Loss on disposal of property, plant and equipment	19,407	26,260
Loss on disposal of intangible assets	116	917
Impairment loss on property, plant and equipment	50,420	18,484
Impairment loss on intangible assets	76	-
Gain on disposal of investments in joint ventures	(310,538)	-
Additions to provisions	180,515	223,651
Other income	(1,254)	1,705
Decrease (increase) in inventories	155,222	(401,403)
Increase in trade receivables	(1,222,762)	(320,915)
Decrease (increase) in other receivables	(116,119)	9,457
Increase in other current assets	(26,258)	(68,726)
Increase in trade payables	411,795	337,360
Increase (decrease) in other payables	602,374	(22,040)
Increase in other current liabilities	151,000	38,169
Decrease in provisions	(179,373)	(77,276)
Decrease in net defined benefit liabilities	(2,546)	(6,925)
Other cash flows from operations	(30,323)	(30,168)
<b>Cash generated from operations</b>	<u>1,837,576</u>	<u>1,231,380</u>

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Changes in liabilities arising from financial activities for the six-month period ended June 30, 2020, are as follows:

<i>(in millions of Korean won)</i>	2020						At June 30, 2020
	At January 1, 2020	Cash flows from financing activities	Reclassification of current portion	Amortization	Lease liabilities	Others	
Short-term borrowings	1,136,154	361,305	317,043	-	-	127,893	1,942,395
Long-term borrowings	1,758,958	2,161,539	(317,043)	-	34,921	(129,666)	3,508,709
Debentures	5,519,156	786,932	-	9,686	-	94,362	6,410,136
Conversion rights	930	-	-	-	-	65,070	66,000
Other payables for the reverse factoring arrangement	856,287	(890,121)	-	-	-	1,331,168	1,297,334
<b>Total</b>	<b>9,271,485</b>	<b>2,419,655</b>	<b>-</b>	<b>9,686</b>	<b>34,921</b>	<b>1,488,827</b>	<b>13,224,574</b>

The significant non-cash transactions for the six-month period ended June 30, 2020 and 2019, are as follows:

<i>(in millions of Korean won)</i>	2020	2019
Transfer of construction-in-progress	2,938,596	2,778,852
Transfer of machinery-in-transit	38,685	114,373
Reclassification of long-term borrowings into current portion	1,230,269	392,384
Other payables related to acquisitions of property, plant and equipment and intangible assets	1,851,933	1,460,719
Reclassification of other payables under the reverse factoring arrangement	1,343,254	-

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**33. Segment Information**

General information about the Group's reportable segments is as follows:

Segment	Products or services	Major customers
Petrochemicals	ABS, PC, PE, PP, Acrylic, Alcohol, SAP, PVC, Synthetic rubber, Special resin, BPA, Ethylene, Propylene and others	LG Electronics Inc., OCI Group Co. Ltd., Mitsubishi Corp. and others
Energy solutions	Mobile batteries, Automotive batteries, Electricity storage batteries and others	Hewlett-Packard Co., General Motors Corp., and others
Advanced materials <sup>1</sup>	OLED Polarizers, Automotive components, LCD Photoresist, OLED materials, Battery materials and others	LG Display Co., Ltd., Samsung Display Co., Ltd., BOE, AUO and others
Life sciences	Growth hormone, Vaccine, Antidiabetic, agricultural chemicals and others	HUADONG NINGBO, UNICEF, Intervet and others
Common and others <sup>1</sup>	Crop protection products, Seeds, Fertilizers, General management, sales and R&D and others	National Agriculture Cooperative Federation and others

<sup>1</sup> Part of the Advanced materials business was reclassified into the Common and others business sector. The information for comparative period has been restated to reflect these changes.

The segment information on revenue, profit and loss for the six-month period ended June 30, 2020 and 2019, are as follows:

<i>(in millions of Korean won)</i>	2020					
	Petrochemicals	Energy solutions	Advanced materials	Life sciences	Common and others <sup>3</sup>	Total
Total segment revenue	7,008,697	5,083,897	1,638,348	319,679	515,264	14,565,885
Inter-segment revenue	265,681	(32)	571,269	1,653	62,954	901,525
Revenue from external customers <sup>1</sup>	6,743,016	5,083,929	1,067,079	318,026	452,310	13,664,360
Operating profit (loss) <sup>2</sup>	677,266	103,717	67,080	37,616	(108,180)	777,499
<i>(in millions of Korean won)</i>	2019					
	Petrochemicals	Energy solutions	Advanced materials	Life sciences	Common and others <sup>3</sup>	Total
Total segment revenue	7,685,007	3,659,535	1,782,868	297,484	527,323	13,952,217
Inter-segment revenue	280,587	-	601,018	3,028	23,994	908,627
Revenue from external customers <sup>1</sup>	7,404,420	3,659,535	1,181,850	294,456	503,329	13,043,590
Operating profit (loss) <sup>2</sup>	779,457	(275,872)	(1,083)	22,714	(15,207)	510,009

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<sup>1</sup> Revenue from external customers consists of sales of goods. Interest income and dividend income are included in finance income.

<sup>2</sup> Management assesses the performance of the operating segments based on a measurement of operating profit of segment.

<sup>3</sup> Common and other segments include operating segments not qualifying as a reportable segment, supporting divisions as well as R&D divisions.

The segment information on assets and liabilities as at June 30, 2020 and December 31, 2019, are as follows:

<i>(in millions of Korean won)</i>	<b>June 30, 2020</b>					
	<b>Petro-chemicals</b>	<b>Energy solutions</b>	<b>Advanced materials</b>	<b>Life sciences</b>	<b>Common and others</b>	<b>Total</b>
Reportable segment asset <sup>1</sup>	11,018,901	14,751,180	3,595,594	1,877,850	7,332,770	38,576,295
Investments in associates and joint ventures	5,764	27,087	82,335	17	158,561	273,764
Reportable segment liability <sup>1</sup>	3,173,598	9,088,179	922,895	230,095	7,319,112	20,733,879

<i>(in millions of Korean won)</i>	<b>December 31, 2019</b>					
	<b>Petro-chemicals</b>	<b>Energy solutions</b>	<b>Advanced materials</b>	<b>Life sciences</b>	<b>Common and others</b>	<b>Total</b>
Reportable segment asset <sup>1</sup>	10,564,216	12,091,983	3,618,226	1,906,005	5,843,996	34,024,426
Investments in associates and joint ventures	5,132	28,254	67,059	17	207,115	307,577
Reportable segment liability <sup>1</sup>	3,358,939	6,587,857	687,400	232,049	5,774,392	16,640,637

<sup>1</sup> Assets and liabilities are measured in a manner consistent with those in the financial statements, and allocated on the basis of segment operation.

The external sales and non-current assets by geographical segments from continuing operations for the six-month period ended June 30, 2020 and 2019, and as at June 30, 2020 and December 31, 2019, are as follows:

<i>(in millions of Korean won)</i>	<b>Sales</b>		<b>Non-current assets<sup>1</sup></b>	
	<b>2020</b>	<b>2019</b>	<b>June 30, 2020</b>	<b>December 31, 2019</b>
Korea <sup>2</sup>	4,203,528	4,223,881	13,932,966	13,208,426
China	3,840,617	3,827,749	3,630,401	3,975,505
Asia	1,673,593	1,788,743	57,392	58,990
America	1,273,869	893,302	631,534	559,051
Europe	2,505,927	2,086,588	3,818,077	3,051,227
Others	166,826	223,327	-	-
<b>Total</b>	<b>13,664,360</b>	<b>13,043,590</b>	<b>22,070,370</b>	<b>20,853,199</b>

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<sup>1</sup> Represents aggregate amount of property, plant and equipment, intangible assets and investment properties.

<sup>2</sup> Domestic sales include the exports made through local letters of credit.

There is no single external customer contributes over 10% of the Group's revenue for the six-month period ended June 30, 2020 and 2019.

**34. Non-current Assets and Liabilities Held for sale and Discontinued Operations**

**34.1 Non-current assets and liabilities held for sale**

The Group decided to dispose of six lines of small pouch assembly facilities and others (June 2019), color photoresist business (March 2020), and LCD polarizer business (June 2020) with the approval of management. The related assets and liabilities were reclassified as non-current assets and liabilities held for sale. The disposal of the small pouch assembly facilities and color photoresist business is expected to be completed in the second half of 2020, and the disposal of LCD polarizer business is expected to be completed in the first half of 2021. Land acquired during the course of the business combination of FarmHannong Co., Ltd., is also included in the disposal group, and the disposal of the land is expected to be completed in the second half of 2020.

Details of assets and liabilities of disposal group classified as held for sale as at June 30, 2020 and December 31, 2019, are as follows:

<i>(in millions of Korean won)</i>	<b>June 30, 2020</b>	<b>December 31, 2019</b>
<b>Assets of disposal group</b>		
Inventories	199,420	-
Property, plant and equipment	562,751	19,573
Intangible assets	8,090	-
Others	11,371	-
<b>Total</b>	<b>781,632</b>	<b>19,573</b>
<b>Liabilities of disposal group</b>		
Borrowings and others	126,354	-
<b>Total</b>	<b>126,354</b>	<b>-</b>

Assets of the disposal group were measured at net fair value immediately before the initial classification as assets as held for sale and there are no other non-operating expenses (income) recognized from the measurement for the six-month period ended June 30, 2020 and 2019.

The Group recognized cumulative losses of ₩ 5,424 million directly to other comprehensive income in relation to the disposal groups classified as held for sale.

**34.2 Discontinued Operations**

The Group decided to discontinue Glass substrate business with the resolution of the Board of Directors in January 2020 and substantially discontinued the related business as of June 30, 2020. In addition, the Group decided to dispose of LCD polarizer business with the resolution of the Board of Directors in June 2020, and the disposal is expected to be completed in the first half of 2021. Accordingly, the profit and loss from the related operations are presented as discontinued operations and the comparative consolidated interim statements of profit or loss have been restated.

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Comprehensive income information from discontinued operation for the six-month period ended June 30, 2020 and 2019, are as follows:

*(in millions of Korean won)*

	<b>2020</b>		
	<b>LCD polarizer</b>	<b>Glass substrate</b>	<b>Total</b>
Revenue	773,320	20,565	793,885
Expense	(712,812)	(53,439)	(766,251)
Gain (loss) before income tax of discontinued operation	60,508	(32,874)	27,634
Income tax benefits (expense)	(19,184)	6,345	(12,839)
Gain (loss) after income tax of discontinued operations	41,324	(26,529)	14,795

*(in millions of Korean won)*

	<b>2019</b>		
	<b>LCD polarizer</b>	<b>Glass substrate</b>	<b>Total</b>
Revenue	766,298	32,741	799,039
Expense	(723,554)	(50,896)	(774,450)
Gain (loss) before income tax of discontinued operation	42,744	(18,155)	24,589
Income tax benefits (expense)	(9,699)	4,936	(4,763)
Gain (loss) after income tax of discontinued operations	33,045	(13,219)	19,826

Net cash flows from discontinued operations for the six-month period ended June 30, 2020 and 2019, are as follows:

*(in millions of Korean won)*

	<b>2020</b>		
	<b>LCD polarizer</b>	<b>Glass substrate</b>	<b>Total</b>
Net cash inflow from operating activities	24,532	1,834	26,366
Net cash inflow (outflow) from investing activities	(93,000)	1,057	(91,943)
Net cash inflow (outflow) from financing activities	68,318	(2,891)	65,427

*(in millions of Korean won)*

	<b>2019</b>		
	<b>LCD polarizer</b>	<b>Glass substrate</b>	<b>Total</b>
Net cash inflow (outflow) from operating activities	24,511	(3,161)	21,350
Net cash outflow from investing activities	(58,154)	(27,796)	(85,950)
Net cash inflow from financing activities	33,115	30,957	64,072

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

Assets and liabilities related to contracts with customers as at June 30, 2020 and December 31, 2019, are as follows:

<i>(in millions of Korean won)</i>	<b>June 30, 2020</b>	<b>December 31, 2019</b>
<b>Contract assets</b>		
A right to recover the product	4,475	5,191
Total contract assets	<u>4,475</u>	<u>5,191</u>
<b>Contract liabilities</b>		
Advances in relation to revenue from the Group's main business activities	147,842	204,337
Expected services to be transferred	500	3,500
Expected customer incentives	4,273	6,400
Unearned revenue	31,292	34,247
Expected refunds	8,189	10,893
Total contract liabilities	<u>192,096</u>	<u>259,377</u>

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>2020</b>	<b>2019</b>
Revenue recognized in the current year from the contract liability balance at the beginning of the year	128,394	56,122
Advances in relation to revenue from the Group's main business activities	118,576	51,249
Unearned revenue	6,818	1,838
Expected services to be transferred	3,000	3,035
Revenue recognized from performance obligations satisfied in previous periods	-	-

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**36. Investment Properties**

Details of investment properties as at June 30, 2020 and December 31, 2019, are as follows:

<i>(in millions of Korean won)</i>	<b>June 30, 2020</b>				<b>December 31, 2019</b>			
	<b>Cost</b>	<b>Accumulated depreciation</b>	<b>Accumulated impairment</b>	<b>Book amount</b>	<b>Cost</b>	<b>Accumulated depreciation</b>	<b>Accumulated impairment</b>	<b>Book amount</b>
Land	4,211	-	-	4,211	4,368	-	-	4,368
Buildings	62,494	(12,820)	(80)	49,594	61,242	(12,202)	(80)	48,960
	<u>66,705</u>	<u>(12,820)</u>	<u>(80)</u>	<u>53,805</u>	<u>65,610</u>	<u>(12,202)</u>	<u>(80)</u>	<u>53,328</u>

Changes in investment properties for the six-month period ended June 30, 2020 and for the year ended December 31, 2020, are as follows:

<i>(in millions of Korean won)</i>	<b>2020</b>			<b>2019</b>		
	<b>Land</b>	<b>Building</b>	<b>Total</b>	<b>Land</b>	<b>Building</b>	<b>Total</b>
Beginning balance	4,368	48,960	53,328	486	464	950
Acquisitions/Transfers	-	1,279	1,279	3,882	49,722	53,604
Disposals/Transfers	(157)	-	(157)	-	-	-
Depreciation	-	(645)	(645)	-	(1,226)	(1,226)
Ending balance	<u>4,211</u>	<u>49,594</u>	<u>53,805</u>	<u>4,368</u>	<u>48,960</u>	<u>53,328</u>

The fair value of investment properties is measured either by independent professional appraisers with certified qualification or measured based on official appraised value of land and available information from recent transactions of similar properties, and it is classified as 'level 3' of the fair value hierarchy. The fair value of investment properties as at June 30, 2020, is ₩ 54,021 million.

Rental income from investment properties under operating lease is ₩ 3,628 million, and operating expenses incurred for investment properties that generated rental income (including maintenance and repair expenses) are ₩ 619 million. Operating expenses incurred for investment properties that do not generate rental income (including maintenance and repair expenses) are ₩ 6 million.

*Operating lease*

Investment properties are leased to tenants under operating leases with monthly rent payments. Where considered necessary to reduce credit risk, the Group may obtain bank guarantees for the term of the lease.

Although the Group is exposed to changes in the residual value at the end of the current leases, the Group typically enters into new operating leases and therefore will not immediately realize any reduction in residual value at the end of these leases. Expectations about the future residual values are reflected in the fair value of investment properties.

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The future minimum lease payments expected to be received in relation to the above operating lease agreement for investment properties as at June 30, 2020 and December 31, 2019, are as follows:

<i>(in millions of Korean won)</i>	<b>June 30, 2020</b>	<b>December 31, 2019</b>
Within one year	6,961	6,848
	<u>6,961</u>	<u>6,848</u>