

LG Chem, Ltd. and Subsidiaries
Consolidated Interim Financial Statements
March 31, 2020 and 2019

LG Chem, Ltd. and Subsidiaries
Index
March 31, 2020 and 2019

	Page(s)
Report on Review of Interim Financial Statements	1 - 2
Consolidated Interim Financial Statements	
Consolidated Interim Statements of Financial Position	3 - 4
Consolidated Interim Statements of Profit or Loss	5
Consolidated Interim Statements of Comprehensive Income	6
Consolidated Interim Statements of Changes in Equity	7
Consolidated Interim Statements of Cash Flows	8
Notes to the Consolidated Interim Financial Statements	9 - 76



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 March 31, 2020, and the related consolidated interim statements of profit or loss, comprehensive income, changes in equity and cash flows for the three-month periods ended March 31, 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 uncertainty relating to the impact of Coronavirus Disease 19 (“COVID-19”) on the Group’s production capacity, its ability to perform orders from customers, and others. Our opinion is not modified with respect to this matter.

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.

May 14, 2020
Seoul, Korea

This report is effective as of May 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
March 31, 2020 and December 31, 2019

<i>(in millions of Korean won)</i>	Notes	March 31, 2020 (Unaudited)	December 31, 2019
Assets			
Current assets			
Cash and cash equivalents	3, 5, 6	2,767,390	1,888,631
Trade receivables	3, 5, 7, 31	4,662,749	3,738,224
Other receivables	3, 5, 7, 31	329,148	266,551
Other current financial assets	3, 5, 8	1,126	10,879
Prepaid income taxes		41,126	118,349
Other current assets	13	837,304	793,796
Inventories	9	5,335,154	5,033,721
Assets held for sale	34	20,429	19,573
Total current assets		13,994,426	11,869,724
Non-current assets			
Other receivables	3, 5, 7	220,854	172,933
Other non-current financial assets	3, 5, 8	80,777	159,955
Investments in associates and joint ventures	1, 10, 33	274,027	307,577
Deferred tax assets	28	646,857	516,606
Property, plant and equipment	11	19,483,246	18,593,642
Intangible assets	12	2,218,337	2,206,229
Investment properties	36	52,858	53,328
Other non-current assets	13	149,746	144,432
Total non-current assets		23,126,702	22,154,702
Total assets		37,121,128	34,024,426
Liabilities			
Current liabilities			
Trade payables	3, 5, 31	2,549,973	2,379,711
Other payables	3, 5, 31	3,716,743	4,142,953
Borrowings	3, 5, 14	2,431,233	1,356,097
Other current financial liabilities	3, 5, 8	4,669	-
Provisions	15	451,376	472,129
Income tax payables	28	168,035	84,713
Other current liabilities	17	546,928	505,926
Total current liabilities		9,868,957	8,941,529
Non-current liabilities			
Other payables	3, 5	11,487	10,951
Borrowings	3, 5, 14	9,122,501	7,058,171
Other non-current financial liabilities	3, 5, 8	12,306	930
Provisions	15	282,063	264,599
Net defined benefit liabilities	16	227,868	179,160
Deferred tax liabilities	28	53,013	51,812
Other non-current liabilities	17	126,844	133,485
Total non-current liabilities		9,836,082	7,699,108
Total liabilities		19,705,039	16,640,637

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

<i>(in millions of Korean won)</i>	Notes	March 31, 2020 (Unaudited)	December 31, 2019
Equity			
Share capital	1, 19	391,406	391,406
Capital surplus		2,274,620	2,274,620
Other components of equity	21	(374,243)	(374,243)
Accumulated other comprehensive income		48,492	(85,496)
Retained earnings	20	14,665,357	14,798,690
Equity attributable to owners of the Parent Company		<u>17,005,632</u>	<u>17,004,977</u>
Non-controlling interest		410,457	378,812
Total equity		<u>17,416,089</u>	<u>17,383,789</u>
Total liabilities and equity		<u>37,121,128</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 Periods Ended March 31, 2020 and 2019

	Notes	Period Ended March 31	
		2020 (Unaudited)	2019 (Unaudited)
<i>(in millions of Korean won, except per share amounts)</i>			
Revenue	31, 33	7,115,729	6,621,662
Cost of sales	23, 31	(5,960,696)	(5,447,475)
Gross profit		<u>1,155,033</u>	<u>1,174,187</u>
Selling and administrative expenses	22, 23, 31	(918,575)	(893,151)
Operating profit	33	<u>236,458</u>	<u>281,036</u>
Finance income	5, 25	118,820	71,221
Finance costs	5, 25	(420,545)	(74,240)
Share of net profit of associates and joint ventures accounted for using the equity method	10	1,222	6,560
Other non-operating income	5, 26	627,531	86,419
Other non-operating expenses	5, 27	<u>(387,474)</u>	<u>(84,728)</u>
Profit before income tax	32	<u>176,012</u>	<u>286,268</u>
Income tax expense	28	<u>(115,488)</u>	<u>(69,182)</u>
Profit from continuing operations		<u>60,524</u>	<u>217,086</u>
Loss from discontinued operations	34	<u>(24,177)</u>	<u>(5,148)</u>
Profit for the period		<u><u>36,347</u></u>	<u><u>211,938</u></u>
Profit is attributable to:			
Owners of the Parent Company			
Profit from continuing operations		45,253	199,635
Loss from discontinued operations		<u>(24,177)</u>	<u>(5,148)</u>
		<u>21,076</u>	<u>194,487</u>
Non-controlling interests			
Profit from continuing operations		<u>15,271</u>	<u>17,451</u>
		<u>15,271</u>	<u>17,451</u>
Earnings per share for profit from continuing operations			
attributable to the equity holders			
of the Parent Company (in won)			
	29		
Basic earnings per ordinary share		589	2,604
Basic earnings per preferred share		601	2,617
Diluted earnings per ordinary share		625	2,596
Diluted earnings per preferred share		638	2,609
Earnings per share for loss from discounted operations			
attributable to the equity holders			
of the Parent Company (in won)			
	29		
Basic losses per ordinary share		(315)	(67)
Basic losses per preferred share		(315)	(67)
Diluted losses per ordinary share		(310)	(66)
Diluted losses per preferred share		(310)	(66)

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 Periods Ended March 31, 2020 and 2019

<i>(in millions of Korean won)</i>	Note	Period Ended March 31	
		2020 (Unaudited)	2019 (Unaudited)
Profit for the period		36,347	211,938
Other comprehensive income			
<i>Items that will not be reclassified to profit or loss</i>			
Remeasurements of net defined benefit liability	16	(1,324)	(4,310)
Gain on valuation of financial assets at fair value through other comprehensive income		6,276	6,955
Shares of remeasurements of net defined benefit liabilities of associates		159	(118)
Income tax relating to these items		(1,363)	(730)
<i>Items that may be subsequently reclassified to profit or loss</i>			
Exchange differences on translation of foreign operations		153,112	101,310
Cash flow hedges		(28,944)	25,638
Shares of other comprehensive income of joint ventures and associates		16,642	1,924
Income tax relating to these items		5,003	(5,386)
Other comprehensive income for the period, net of tax		149,561	125,283
Total comprehensive income for the period		185,908	337,221
Total comprehensive income for the period is attributable to:			
Owners of the Parent Company		154,263	309,887
Non-controlling interest		31,645	27,334

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
Three-Month Periods Ended March 31, 2020 and 2019

(in millions of Korean won)

	Notes	Attributable to owners of the Parent Company					Total	Non-controlling interests	Total equity
		Share capital	Capital surplus	Other components of equity	Accumulated other comprehensive income	Retained earnings			
Balance at January 1, 2019		391,406	2,274,623	(374,243)	(202,994)	14,994,252	17,083,044	239,084	17,322,128
Comprehensive income									
Profit for the period		-	-	-	-	194,487	194,487	17,451	211,938
Remeasurements of net defined benefit liability	16	-	-	-	-	(3,128)	(3,128)	-	(3,128)
Exchange differences on translation of foreign operations		-	-	-	93,092	-	93,092	9,883	102,975
Gain on valuation of financial assets at fair value through other comprehensive income		-	-	-	5,042	-	5,042	-	5,042
Cash flow hedge		-	-	-	18,588	-	18,588	-	18,588
Others		-	-	-	1,924	(118)	1,806	-	1,806
Total comprehensive income for the period		-	-	-	118,646	191,241	309,887	27,334	337,221
Transactions with owners:									
Dividends	30	-	-	-	-	(460,058)	(460,058)	-	(460,058)
Total transactions with owners		-	-	-	-	(460,058)	(460,058)	-	(460,058)
Balance at March 31, 2019 (Unaudited)		391,406	2,274,623	(374,243)	(84,348)	14,725,435	16,932,873	266,418	17,199,291
Balance at January 1, 2020		391,406	2,274,620	(374,243)	(85,496)	14,798,690	17,004,977	378,812	17,383,789
Comprehensive income									
Profit for the period		-	-	-	-	21,076	21,076	15,271	36,347
Remeasurements of net defined benefit liability	16	-	-	-	-	(961)	(961)	-	(961)
Exchange differences on translation of foreign operations		-	-	-	133,781	-	133,781	16,374	150,155
Gain on valuation of financial assets at fair value through other comprehensive income		-	-	-	4,550	-	4,550	-	4,550
Cash flow hedge		-	-	-	(20,985)	-	(20,985)	-	(20,985)
Others		-	-	-	16,642	160	16,802	-	16,802
Total comprehensive income for the period		-	-	-	133,988	20,275	154,263	31,645	185,908
Transactions with owners:									
Dividends	30	-	-	-	-	(153,608)	(153,608)	-	(153,608)
Total transactions with owners		-	-	-	-	(153,608)	(153,608)	-	(153,608)
Balance at March 31, 2020 (Unaudited)		391,406	2,274,620	(374,243)	48,492	14,665,357	17,005,632	410,457	17,416,089

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
Three-Month Periods Ended March 31, 2020 and 2019

(in millions of Korean won)

	Note	Period Ended March 31	
		2020 (Unaudited)	2019 (Unaudited)
Cash flows from operating activities			
Cash generated from operations	32	5,958	674,119
Interest received		10,647	11,448
Interest paid		(48,624)	(38,055)
Dividends received		10,000	10,824
Income taxes paid		(75,266)	(14,128)
Net cash inflow(outflow) from operating activities		(97,285)	644,208
Cash flows from investing activities			
Decrease in other receivables		45,343	92,103
Decrease in other non-current receivables		16,444	13,564
Proceeds from disposal of investments in associates		379,702	-
Proceeds from disposal of financial instruments		79,918	1,336
Proceeds from disposal of property, plant and equipment		778	51,512
Proceeds from disposal of intangible assets		810	3,251
Government grants received		113,195	9,672
Increase in other receivables		(42,675)	(68,094)
Increase in other non-current receivables		(71,992)	(25,284)
Acquisition of investments in associates		(13,611)	-
Acquisition of financial assets		(3,735)	(829)
Acquisition of property, plant and equipment		(1,827,573)	(1,465,961)
Acquisition of intangible assets		(18,123)	(137,678)
Business combination		-	(529)
Net cash outflow from investing activities		(1,341,519)	(1,526,937)
Cash flows from financing activities			
Proceeds from borrowings		3,836,858	1,623,976
Repayments of borrowings		(1,540,616)	(173,867)
Net cash inflow from financing activities		2,296,242	1,450,109
Net increase in cash and cash equivalents			
Cash and cash equivalents at the beginning of the period		857,438	567,380
Effects of exchange rate changes on cash and cash equivalents		1,888,631	2,513,702
		21,321	17,331
Cash and cash equivalents at the end of the period in the consolidated interim statement of financial position		2,767,390	3,098,413

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

March 31, 2020 and 2019 (Unaudited), and December 31, 2019

1. General Information

General information about LG Chem, Ltd. (the Parent Company) and its 46 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 March 31, 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 March 31, 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

March 31, 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

	March 31, 2020			
	Percentage of ownership (%)	Business location	Closing month	Business activities
Consolidated subsidiaries				
Ningbo LG Yongxing Chemical Co., Ltd. ¹	75	China	December	ABS/SBL manufacturing and sales
Ningbo Zhenhai LG Yongxing Trade Co., Ltd. ¹	75	China	December	ABS sales
LG Chem America, Inc. ²	100	USA	December	Sales and trading
LG Chemical India Pvt. Ltd. ³	100	India	December	Synthetic resin manufacturing and sales
LG Polymers India Pvt. Ltd. ³	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. ²	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 ²	100	USA	December	Water processing membrane sales
Nanjing LG Chem New Energy Battery Co., Ltd. ⁴	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. ⁵	100	Korea	December	Agricultural pesticide manufacturing and sales
Farm Hannong (Heilongjiang) Chemical Co., Ltd. ⁵	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. ⁵	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

March 31, 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. ⁵	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	51	China	December	Battery materials manufacturing and sales
LG Chem Fund I LLC ⁶	100	USA	December	Investments in venture companies
Ugimag Korea Co., Ltd	100	Korea	December	Electronic parts manufacturing and sales
Uniseal, Inc. ^{2,7}	100	USA	December	Adhesive manufacturing and sales
Uniseal Europe Ltd. ⁷	80	England	December	Adhesive manufacturing and sales
LG Chem Nanjing Energy Solution Co., Ltd. ⁸	100	China	December	Battery manufacturing and sales
LG Chem Life Science Innovation Center, Inc. ²	100	USA	December	Pharmaceutical products research
FARMHANNONG(MALAYSIA) SDN. BHD. ⁵	100	Malaysia	December	Agricultural pesticide licensing
PT FARM HANNONG INDONESIA ^{5,9}	100	Indonesia	December	Agricultural pesticide licensing
Associates				
TECHWIN Co., Ltd.	20	Korea	December	Environment solution and construction of chemical plant
LG Chem BRASIL INTERMEDIACAO DE NEGOCIOS DO SETOR QUIMICO LTDA. ¹⁰	100	Brazil	December	Sales and trading
LG Chem Malaysia SDN.BHD. ¹⁰	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. ¹⁰	100	Poland	December	Pharmaceutical products sales
Combustion Synthesis Co., Ltd.	30	Japan	December	Nitride-based ceramic powder production
HUAJIN NEW ENERGY MATERIALS(QUZHOU)CO., LTD. ¹¹	49	China	December	Battery materials manufacturing and sales
VINFAST LITHIUM BATTERY PACK LLC.	35	Vietnam	December	Battery manufacturing and sales
Joint ventures				
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

¹ As at March 31, 2020, Ningbo LG Yongxing Chemical Co., Ltd. owns 100% of Ningbo Zhenhai LG Yongxing Trading Co., Ltd.'s shares.

² As at March 31, 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.

³ As at March 31, 2020, LG Chemical India Pvt. Ltd. owns 100% of LG Polymers India Pvt. Ltd.'s shares.

⁴ Although the Parent Company owns less than 50% of the voting rights 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.

⁵ As at March 31, 2020, FarmHannong Co., Ltd. owns 100% of Farm Hannong (Heilongjiang) Chemical Co., Ltd., Farmhannong America, Inc., FarmHannong(Thailand) Ltd., and FARMHANNONG(MALAYSIA) SDN.BHD.

⁶ During the three-month period ended March 31, 2020, the Parent Company acquired additional shares of LG CHEM FUND I LLC for ₩908 million.

⁷ Uniseal, Inc. holds 80% of Uniseal Europe Ltd.

⁸ During the three-month period ended March 31, 2020, the Parent Company acquired additional shares of LG Chem Nanjing Energy Solution Co., Ltd. for ₩199,972 million.

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

⁹ PT FARM HANNONG INDONESIA was newly established during the three-month period ended March 31, 2020, and the Group acquired 99.6% shares of PT FARM HANNONG INDONESIA for ₩208 million.

¹⁰ Classified as an investment in associate due to its small size.

¹¹ During the three-month period ended March 31, 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)

	March 31, 2020				
	Assets	Liabilities	Equity	Revenue	Profit (loss) for the period
Subsidiaries					
Ningbo LG Yongxing Chemical Co., Ltd.	840,956	165,343	675,613	351,086	43,910
Ningbo Zhenhai LG Yongxing Trade Co., Ltd.	6,482	1,707	4,775	5,455	109
LG Chem America, Inc.	270,346	242,283	28,063	197,881	539
LG Chemical India Pvt. Ltd.	32,764	25	32,739	-	-
LG Polymers India Pvt. Ltd.	129,945	43,883	86,062	49,198	1,918
LG Chemical (Guangzhou) Engineering Plastics Co., Ltd.	98,282	33,189	65,093	37,137	1,929
LG Chem (Nanjing) Information & Electronics Materials Co., Ltd.	3,828,573	1,801,243	2,027,330	906,428	50,044
LG Chem (Taiwan), Ltd.	113,170	43,188	69,982	28,929	2,291
LG Chem Display Materials (Beijing) Co., Ltd.	45,100	17,619	27,481	17,233	750
Tianjin LG Bohai Chemical Co., Ltd.	239,324	57,016	182,308	120,464	13,491
Tianjin LG BOTIAN Chemical Co., Ltd.	49,751	32,522	17,229	25,658	1,853
LG Chem (China) Investment Co., Ltd.	634,729	327,473	307,256	14,851	1,507
LG Chem (Tianjin) Engineering Plastics Co., Ltd.	44,022	4,749	39,273	9,025	(187)
LG Chem Europe GmbH	316,473	268,779	47,694	192,855	1,374
LG Chem Poland Sp. z o.o.	66,768	28,568	38,200	30,692	1,416
LG Chem Michigan Inc.	823,966	589,479	234,487	138,827	(30,929)
LGC Petrochemical India Private Ltd.	3,758	615	3,143	917	96
HAENGBOKNURI CO., LTD.	3,531	1,483	2,048	2,822	170
LG CHEM TK Kimya SANAYI VE TIC. Ltd. STI.	13,018	11,783	1,235	12,753	87
LG Chem Japan Co., Ltd.	6,212	1,298	4,914	1,423	125
LG NanoH2O, LLC ¹	24,750	4,468	20,282	6,602	763
Nanjing LG Chem New Energy Battery Co., Ltd.	1,028,543	866,638	161,905	292,651	(1,432)
LG Chem (Chongqing) Engineering Plastics Co., Ltd.	33,180	10,128	23,052	6,020	(381)
LG Chem Wroclaw Energy sp. z o.o.	5,354,528	4,558,507	796,021	850,292	(301,767)
LG Chem(HUIZHOU) Petrochemical Co., Ltd.	359,817	276,431	83,386	108,337	4,113
FarmHannong Co., Ltd. ^{1,2}	1,080,255	686,404	393,851	221,184	23,404
LG Life Sciences India Pvt. Ltd.	3,115	3,159	(44)	1,284	509
LG Life Sciences (Beijing) Co., Ltd.	1,908	547	1,361	345	15
LG Life Sciences (Thailand) Ltd.	22,689	12,235	10,454	8,563	(257)
LG Chem Hai Phong Vietnam Company Ltd.	12,657	5,842	6,815	4,121	(58)
LG Chem Australia Pty Ltd.	2,436	1,377	1,059	974	17
LG Chem Mexico S.A. de C.V.	978	91	887	384	63
LG Chem Hai Phong Engineering Plastics Ltd.	22,376	9,252	13,124	2,624	(1,083)
LG Chem (Guangzhou) Information & Electronics Materials Co., Ltd.	634,171	477,022	157,149	124,270	(17,163)

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

LEYOU NEW ENERGY MATERIALS(WUXI) Co., LTD	349,245	42,885	306,360	-	(18)
LG Chem Fund I LLC	19,360	29	19,331	-	(885)
Ugimag Korea Co., Ltd. ¹	38,409	33,854	4,555	5,021	(1,964)
Uniseal, Inc. ^{1,2}	38,977	7,249	31,728	16,219	639
LG Chem Nanjing Energy Solution Co., Ltd.	1,210,156	741,018	469,138	62,463	(1,501)
LG Chem Life Science Innovation Center, Inc.	3,764	2,351	1,413	1,237	62
Associates					
TECHWIN Co., Ltd.	184,014	97,906	86,108	-	-
LG Chem BRASIL INTERMEDIACAO DE NEGOCIOS DO SETOR Q UIMICO LTDA.	534	141	393	540	(167)
LG Chem Malaysia SDN.BHD.	430	2	428	150	21
FJ Composite Material Co., Ltd.	9,256	4,938	4,318	554	337
WUXI CL New Energy Technology Ltd.	3,885	4,487	(602)	-	366
LG Life Sciences Poland Ltd.	152	141	11	60	(27)
Combustion Synthesis Co., Ltd.	940	36	904	19	(65)
HUAJIN NEW ENERGY MATERIALS(QUZHOU)CO., LTD.	240,251	69,223	171,028	-	527
VINFAST LITHIUM BATTERY PACK LLC.	59,873	45,489	14,384	7,445	(287)
Joint ventures					
LG VINA Chemical Co., Ltd.	37,917	30,992	6,925	18,268	(101)
HL Greenpower Co., Ltd.	306,585	260,401	46,184	134,821	(754)
SEETEC Co., Ltd.	327,397	50,495	276,902	139,012	4,698

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

² Represent financial information of intermediate parent company consolidating its subsidiaries.

(in millions of Korean won)

	December 31, 2019			2019	
	Assets	Liabilities	Equity	Revenue	Profit (loss) for the period
Subsidiaries					
Ningbo LG Yongxing Chemical Co., Ltd.	781,530	174,627	606,903	444,034	37,542
Ningbo Zhenhai LG Yongxing Trade Co., Ltd.	5,956	1,472	4,484	4,279	73
LG Chem HK Ltd.	-	-	-	-	(12)
LG Chem America, Inc.	311,718	285,645	26,073	198,042	(584)
LG Chemical India Pvt. Ltd.	32,758	17	32,741	-	10
LG Polymers India Pvt. Ltd.	122,078	37,794	84,284	56,931	3,006
LG Chemical (Guangzhou) Engineering Plastics Co., Ltd.	103,530	42,832	60,698	47,844	1,456
LG Chem (Nanjing) Information & Electronics Materials Co., Ltd.	3,685,798	1,785,288	1,900,510	739,744	(3,487)
LG Chem (Taiwan), Ltd.	101,804	34,195	67,609	42,093	1,603
LG Chem Display Materials (Beijing) Co., Ltd.	41,729	11,486	30,243	25,087	1,377
Tianjin LG Bohai Chemical Co., Ltd.	244,047	81,853	162,194	138,646	17,465
Tianjin LG BOTIAN Chemical Co., Ltd.	43,473	28,726	14,747	34,219	1,984
LG Chem (China) Investment Co., Ltd.	934,186	630,040	304,146	14,769	1,027
LG Chem (Tianjin) Engineering Plastics Co., Ltd.	45,380	7,448	37,932	17,364	(485)
LG Chem Europe GmbH	330,807	286,252	44,555	225,811	(134)
LG Chem Poland Sp. z o.o.	63,814	26,005	37,809	31,854	(563)
LG Chem Michigan Inc.	709,715	448,675	261,040	116,113	(23,551)
LGC Petrochemical India Private Ltd.	3,762	708	3,054	960	106
HAENGBOKNURI CO., LTD.	3,716	1,837	1,879	2,432	54
LG CHEM TK Kimya SANAYI VE TIC. Ltd. STI.	9,807	8,601	1,206	7,828	56

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

LG Chem Japan Co., Ltd.	5,638	1,138	4,500	1,592	152
LG NanoH2O, LLC ¹	23,684	5,219	18,465	7,725	794
NanoH2O (Jiangsu) Water Processing Technology Co. Ltd.	-	-	-	-	1,330
Nanjing LG Chem New Energy Battery Co., Ltd.	1,002,457	845,483	156,974	202,563	7,596
LG Chem (Chongqing) Engineering Plastics Co., Ltd.	33,009	10,480	22,529	8,472	(485)
LG Chem Wroclaw Energy sp. z o.o.	4,330,353	3,211,121	1,119,232	337,732	(26,639)
LG Chem(HUIZHOU) Petrochemical Co., Ltd.	364,406	288,234	76,172	107,463	(313)
FarmHannong Co., Ltd. ^{1,2}	1,022,865	652,462	370,403	228,206	26,544
LG Life Sciences India Pvt. Ltd.	2,774	3,322	(548)	1,009	(476)
LG Life Sciences (Beijing) Co., Ltd.	1,878	585	1,293	248	16
LG Life Sciences (Thailand) Ltd.	26,245	15,190	11,055	9,587	1,453
LG Chem Hai Phong Vietnam Company Ltd.	17,152	10,502	6,650	6,974	(2,780)
LG Chem Austrailia Pty Ltd.	2,595	1,471	1,124	416	(24)
LG Chem Mexico S.A. de C.V.	930	152	778	350	45
LG Chem Hai Phong Engineering Plastics Ltd.	22,794	9,053	13,741	-	(251)
LG Chem (Guangzhou) Information & Electronics Materials Co., Ltd.	570,429	402,793	167,636	-	(1,402)
LEYOU NEW ENERGY MATERIALS(WUXI) Co., LTD	348,722	54,207	294,515	-	(898)
LG Chem Fund I LLC	18,317	63	18,254	-	(834)
Ugimag Korea Co., Ltd. ¹	39,082	32,563	6,519	4,918	(1,719)
Uniseal, Inc. ^{1,2}	36,013	6,218	29,795	16,210	788
LG Chem Nanjing Energy Solution Co., Ltd.	807,952	550,770	257,182	-	(3,435)
LG Chem Life Science Innovation Center, Inc.	3,558	2,281	1,277	42	1
Associates					
LG Holdings (HK) Ltd.	196,270	40,724	155,546	12,149	5,313
TECHWIN Co., Ltd.	173,997	81,803	92,194	-	-
LG Chem BRASIL INTERMEDIACAO DE NEGOCIOS DO SETOR Q UIMICO LTDA.	410	108	302	470	86
LG Chem Malaysia SDN.BHD.	409	2	407	199	23
LG Fuel Cell Systems Inc.	-	-	-	-	(3)
FJ Composite Material Co., Ltd.	8,393	4,692	3,701	405	10
WUXI CL New Energy Technology Ltd.	3,701	4,617	(916)	-	(372)
LG Chem Life Sciences Poland Ltd.	178	87	91	104	3
Combustion Synthesis Co., Ltd.	971	79	892	14	(158)
HUAJIN NEW ENERGY MATERIALS(QUZHOU)CO., LTD.	203,635	66,725	136,910	-	233
VINFAST LITHIUM BATTERY PACK LLC.	28,283	14,413	13,870	-	-
Joint ventures					
LG VINA Chemical Co., Ltd.	34,259	27,559	6,700	13,907	151
HL Greenpower Co., Ltd.	401,313	353,936	47,377	168,154	849
SEETEC Co., Ltd..	351,935	59,732	292,203	136,423	3,503

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

² Represent financial information of intermediate parent company consolidating its subsidiaries.

LG Chem, Ltd. and Subsidiaries

Notes to the Consolidated Interim Financial Statements

March 31, 2020 and 2019 (Unaudited), and December 31, 2019

1.5 Changes in Scope for Consolidation

Subsidiaries newly included in the consolidation for the three-month period ended March 31, 2020, are as follows:

Subsidiary	Reason
PT FARM HANNONG INDONESIA	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 three-month period ended March 31, 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 March 31, 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.

- 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.

LG Chem, Ltd. and Subsidiaries

Notes to the Consolidated Interim Financial Statements

March 31, 2020 and 2019 (Unaudited), and December 31, 2019

- 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 and interpretations not yet adopted by the Group

There are no new accounting standards and interpretations that have been published that are not mandatory for March 31, 2020 reporting periods and have not been early adopted by the Group.

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.

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

(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.

As at March 31, 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>	March 31, 2020		December 31, 2019	
	Assets	Liabilities	Assets	Liabilities
USD	2,931,413	4,408,756	2,681,402	3,321,586
EUR	626,397	4,421,878	275,799	3,157,509
JPY	40,108	258,997	30,081	208,998
CNY and others	688,180	3,441	693,284	8,231

As at March 31, 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>	March 31, 2020		December 31, 2019	
	10% Increase	10% Decrease	10% Increase	10% Decrease
USD	(147,734)	147,734	(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 March 31, 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.

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

<i>(in millions of Korean won)</i>	March 31, 2020		December 31, 2019	
	10% Increase	10% Decrease	10% Increase	10% Decrease
KOSDAQ	293	(293)	676	(676)
NASDAQ	981	(981)	819	(819)
HSI	-	-	7,944	(7,944)
Total	1,274	(1,274)	9,439	(9,439)

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.

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 three-month periods ended March 31, 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>	Impact on post-tax profit		Impact on equity	
	2020	2019	2020	2019
Increase	(34,442)	(24,438)	(34,442)	(24,438)
Decrease	34,442	24,438	34,442	24,438

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

(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 March 31, 2020 is as follows. Expected credit losses include forward-looking information.

(in millions of Korean won)

	Receivables not past due ¹	Receivables past due but not impaired ¹	Impaired receivables ²	Total
March 31, 2020				
(trade receivables)				
Gross carrying amount	3,683,284	977,569	7,169	4,668,022
Expected loss rate	0.1%	0.1%	33.0%	0.1%
Loss allowance provision	2,265	644	2,364	5,273
December 31, 2019				
(trade receivables)				
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

¹ See Note 7.(3) for aging analysis

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

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

(in millions of Korean won)

	Trade receivables	
	March 31, 2020	December 31, 2019
Beginning balance	5,830	7,910
Increase in loss allowance recognized in profit or loss	(565)	(903)
Receivables written off as uncollectible	-	(1,164)
Exchange differences	8	(13)
Ending balance	5,273	5,830

As at March 31, 2020, the carrying amount of trade receivables representing the maximum exposure to credit risk amounts to ₩4,668,022 million (December 31, 2019: ₩3,744,054 million).

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

B. Other financial assets at amortized cost

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

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

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.

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.

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

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)

	March 31, 2020			
	Less than 1 year	Between 1-2 years	Between 2-5 years	Over 5 years
Borrowings (excluding lease liabilities)	2,553,553	1,583,116	5,975,365	2,574,734
Lease liabilities	60,736	48,684	85,221	115,331
Trade and other payables ¹	6,266,716	11,323	43	121
Total	8,881,005	1,643,123	6,060,629	2,690,186

(in millions of Korean won)

	December 31, 2019			
	Less than 1 year	Between 1-2 years	Between 2-5 years	Over 5 years
Borrowings (excluding 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 ¹	6,522,664	10,787	43	121
Total	8,050,804	1,497,905	4,139,817	2,090,245

¹ Included ₩ 929,020 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 + 0.75~0.95%) 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.

As at March 31, 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)

	March 31, 2020				
	Purpose of the contracts	Hedged items	Financial institution	Maturity	Fair value
Merchandise (raw materials) swap ¹	Cash flow hedge	Non-ferrous metal	Citi bank	~2021. 12	(7,573)

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

(in millions of Korean won)

	March 31, 2020		December 31, 2019	
	Assets	Liabilities	Assets	Liabilities
Merchandise (raw materials) swap ¹	1,126	8,699	21,371	-
Total	1,126	8,699	21,371	-

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

¹ 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 March 31, 2020 and December 31, 2019, were as follows:

<i>(in millions of Korean won, except for ratios)</i>	March 31, 2020	December 31, 2019
Total borrowings (Note 14) (A)	11,553,734	8,414,268
Less: cash and cash equivalents (B)	<u>(2,767,390)</u>	<u>(1,888,631)</u>
Net debt (C=A+B)	<u>8,786,344</u>	<u>6,525,637</u>
Total liabilities (D)	19,705,039	16,640,637
Total equity (E)	<u>17,416,089</u>	<u>17,383,789</u>
Total capital (F=C+E)	<u>26,202,433</u>	<u>23,909,426</u>
Gearing ratio (C/F)	33.5%	27.3%
Debt-to-equity ratio (D/E)	113.1%	95.7%

3.3 Fair Value

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

<i>(in millions of Korean won)</i>	March 31, 2020		December 31, 2019	
	Carrying amount	Fair value	Carrying amount	Fair value
Financial assets (current)				
Cash and cash equivalents	2,767,390	¹	1,888,631	¹
Deposits held by financial institutions	30,036	¹	32,515	¹
Trade receivables	4,662,749	¹	3,738,224	¹
Other receivables (excluding deposits held by financial institutions)	299,112	¹	234,036	¹
Current derivative financial assets	1,126	1,126	10,879	10,879
Financial assets (non-current)				
Deposits held by financial institutions	166,979	¹	107,434	¹
Other receivables (excluding deposits held by financial institutions)	53,875	¹	65,499	¹
Other non-current financial assets (carried at fair value)				

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

<i>(in millions of Korean won)</i>	March 31, 2020		December 31, 2019	
	Carrying amount	Fair value	Carrying amount	Fair value
Marketable financial assets	11,649	11,649	83,174	83,174
Non-marketable financial assets ²	69,128	69,128	66,289	66,289
Non-current derivative financial assets	-	-	10,492	10,492
Financial liabilities (current)				
Trade and other payables	6,266,716	¹	6,522,664	¹
Current borrowings (excluding lease liabilities)	2,372,082	¹	1,300,989	¹
Current lease liabilities	59,151	³	55,108	³
Current derivative financial liabilities	4,669	4,669	-	-
Financial liabilities (non-current)				
Non-current borrowings (excluding lease liabilities)	8,894,307	8,971,166	6,836,034	7,042,233
Non-current lease liabilities	228,194	³	222,137	³
Other non-current payables	11,487	¹	10,951	¹
Other non-current financial liabilities (Conversion rights)	8,276	8,276	930	930
Non-current derivative financial liabilities	4,030	4,030	-	-

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

² Acquisition costs of these financial assets approximate their fair values.

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

(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 Group (AA+), and the applied discount rates as at March 31, 2020 and December 31, 2019, are as follows:

<i>(in percentage)</i>	March 31, 2020	December 31, 2019
Discount rate	1.38% ~ 2.22%	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).

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

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

<i>(in millions of Korean won)</i>	March 31, 2020			
	Level 1	Level 2	Level 3	Total
Financial assets/liabilities measured at fair value				
Other non-current financial assets (marketable financial assets)	11,649	-	-	11,649
Other non-current financial assets (non-marketable financial assets)	-	-	69,128	69,128
Current derivative financial assets	-	1,126	-	1,126
Current derivative financial liabilities	-	4,669	-	4,669
Non-current financial liabilities (conversion rights)	-	-	8,276	8,276
Non-current derivative financial liabilities	-	4,030	-	4,030
Financial assets/liabilities not measured at fair value				
Non-current borrowings (excluding finance lease liabilities)	-	8,323,186	647,980	8,971,166
<i>(in millions of Korean won)</i>				
	December 31, 2019			
	Level 1	Level 2	Level 3	Total
Financial assets/liabilities measured at fair value				
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
Financial assets/liabilities not measured at fair value				
Non-current borrowings (excluding finance lease liabilities)	-	6,390,480	651,753	7,042,233

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

(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)

		March 31, 2020			
	Fair value	Level	Valuation Technique	Inputs	Coverage of Level 3 inputs
Financial liabilities					
– Convertible Bond					
Convertible Bond	647,980	3	Binominal option pricing model	Annual rates of credit volatility	-0.5%p ~ +0.5%p
Equity Conversion Option	8,276	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
Financial liabilities					
– Convertible Bond					
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%

(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:

(in millions of Korean won)

		March 31, 2020	
		The effect on profit	The effect on loss
Financial liabilities			
– Convertible Bond			
Annual rates of credit volatility		3,151	(3,182)
Financial liabilities			
– Equity Conversion Option			
Annual rates of credit volatility		192	(188)
Underlying asset (equity) volatility		1,555	(1,675)

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

<i>(in millions of Korean won)</i>	December 31, 2019	
	The effect on profit	The effect on loss
Financial liabilities		
– Convertible Bond		
Annual rates of credit volatility	4,130	(4,177)
Financial liabilities		
– Equity Conversion Option		
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.

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

5. Financial Instruments by Category

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

(in millions of Korean won)

Financial assets	March 31, 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 ¹	
Cash and cash equivalents	2,767,390	-	-	-	2,767,390
Trade receivables	4,018,561	-	644,188	-	4,662,749
Other receivables	249,030	-	80,118	-	329,148
Other non-current receivables	220,854	-	-	-	220,854
Other current financial assets	-	-	-	1,126	1,126
Other non-current financial assets	-	25,187	55,590	-	80,777
Total	7,255,835	25,187	779,896	1,126	8,062,044

(in millions of Korean won)

Financial liabilities	March 31, 2020			Total
	Financial liabilities at fair value through profit or loss	Financial liabilities at amortized cost	Other financial liabilities ²	
Trade payables	-	2,549,973	-	2,549,973
Other payables	-	3,716,743	-	3,716,743
Borrowings (current)	-	2,372,082	59,151	2,431,233
Other current payables (dividends payable)	-	153,608	-	153,608
Other current financial liabilities	-	-	4,669	4,669
Other non-current financial liabilities	8,276	-	4,030	12,306
Other non-current payables	-	11,487	-	11,487
Borrowings (non-current)	-	8,894,307	228,194	9,122,501
Total	8,276	17,698,200	296,044	18,002,520

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

(in millions of Korean won)

Financial assets	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 ¹	
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
Total	5,435,144	24,613	756,045	21,371	6,237,173

(in millions of Korean won)

Financial liabilities	December 31, 2019			Total
	Financial liabilities at fair value through profit or loss	Financial liabilities at amortized cost	Other financial liabilities ²	
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
Total	930	14,670,638	277,245	14,948,813

¹ Other financial assets include derivative assets that are not subject to the categorizations.

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

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

Net gains or losses on each category of financial instruments for the three-month periods ended March 31, 2020 and 2019, are as follows:

<i>(in millions of Korean won)</i>	2020	2019
Dividend income		
Financial assets at fair value through other comprehensive income	-	25
Interest income		
Financial assets at amortized cost	12,753	12,716
Interest expense		
Financial assets at amortized cost ¹	(685)	(1,647)
Financial assets at fair value through other comprehensive income ¹	(1,143)	(2,983)
Financial liabilities at amortized cost	(70,382)	(39,866)
Other financial liabilities	(936)	(652)
Gain (loss) on valuation		
Financial assets at fair value through profit or loss	-	30
Financial assets at fair value through other comprehensive income	6,276	6,992
Derivative instruments	(35,715)	25,371
Exchange differences		
Financial assets at amortized cost	255,271	47,257
Financial liabilities at amortized cost	(537,061)	(6,092)
Other financial liabilities	(575)	(190)

¹ Fees paid to financial institutions for factoring.

6. Cash and Cash Equivalents

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

<i>(in millions of Korean won)</i>	March 31, 2020	December 31, 2019
Bank deposits and cash on hand	1,489,254	902,764
Deposits held by financial institutions and others	1,278,136	985,867
Total	2,767,390	1,888,631

As at March 31, 2020, cash and cash equivalents include ₩2,974 million which is subject to a restriction on the use in association with the national R&D projects.

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

7. Trade and Other Receivables

Trade and other receivables and its provisions for impairment, as at March 31, 2020 and December 31, 2019, are as follows:

(in millions of Korean won)

	March 31, 2020		
	Gross amount	Provision for impairment	Carrying amount
Trade receivables	4,668,022	(5,273)	4,662,749
Other current receivables	331,257	(2,109)	329,148
Other non-current receivables	220,854	-	220,854
Total	5,220,133	(7,382)	5,212,751

(in millions of Korean won)

	December 31, 2019		
	Gross amount	Provision for impairment	Carrying amount
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
Total	4,185,647	(7,939)	4,177,708

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

(in millions of Korean won)

	March 31, 2020	December 31, 2019
Current		
Non-trade receivables	251,523	195,182
Deposits held by financial institutions	30,036	32,515
Accrued income	2,874	2,317
Guarantee deposits provided	44,715	36,537
	<u>329,148</u>	<u>266,551</u>
Non-current		
Non-trade receivables	-	-
Deposits held by financial institutions ¹	166,979	107,434
Loans	792	677
Guarantee deposits provided	53,083	64,822
	<u>220,854</u>	<u>172,933</u>
Total	550,002	439,484

¹ As at March 31, 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, ₩ 852 million is restricted from withdrawal in connection with maintaining checking accounts (2019: ₩ 808 million).

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

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

<i>(in millions of Korean won)</i>	March 31, 2020		December 31, 2019	
	Trade receivables	Other receivables	Trade receivables	Other receivables
Receivables not past due	3,683,284	521,143	3,005,591	378,107
Past due but not impaired				
Up to 3 months	705,832	23,909	554,620	43,891
Between 3-6 months	246,286	574	153,457	7,107
Over 6 months	25,451	4,374	21,149	5,578
	977,569	28,857	729,226	56,576
Impaired receivables	7,169	2,111	9,237	6,910
Total	4,668,022	552,111	3,744,054	441,593

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

<i>(in millions of Korean won)</i>	March 31, 2020			
	Trade receivables		Other receivables	
	Current	Non-current	Current	Non-current
Beginning balance	5,830	-	2,109	-
Additions (reversal)	(565)	-	-	-
Write-off	-	-	-	-
Exchange differences	8	-	-	-
Ending balance	5,273	-	2,109	-

<i>(in millions of Korean won)</i>	December 31, 2019			
	Trade receivables		Other receivables	
	Current	Non-current	Current	Non-current
Beginning balance	7,910	-	2,726	-
Additions (reversal)	(903)	-	(630)	-
Write-off	(1,164)	-	-	-
Exchange differences	(13)	-	13	-
Ending balance	5,830	-	2,109	-

As at March 31 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 ₩219,042 million at March 31, 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
Notes to the Consolidated Interim Financial Statements
March 31, 2020 and 2019 (Unaudited), and December 31, 2019

8. Other Financial Assets and Liabilities

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

<i>(in millions of Korean won)</i>	March 31, 2020	December 31, 2019
Other financial assets		
Derivative assets (forward contract) (current)	1,126	10,879
Financial assets at fair value through other comprehensive income (excluding forward contract) (non-current)	55,590	124,850
Derivative assets (forward contract) (non-current)	-	10,492
Financial assets at fair value through profit or loss (excluding forward contract) (non-current)	25,187	24,613
	<u>81,903</u>	<u>170,834</u>
Other financial liabilities		
Derivative liabilities (forward contract) (current)	4,669	-
Derivative liabilities (forward contract) (non-current)	4,030	-
Financial liabilities at fair value through profit or loss (conversion rights) (non-current)	8,276	930
	<u>16,975</u>	<u>930</u>

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

<i>(in millions of Korean won)</i>	March 31, 2020	December 31, 2019
Beginning balance	149,463	93,350
Acquisitions / Transfer	3,735	23,572
Disposals	(79,918)	(2,873)
Gain (loss) on valuation (before income tax effects) through other comprehensive income	6,276	35,315
Others	1,221	99
Ending balance	<u>80,777</u>	<u>149,463</u>

During the three-month period ended March 31, 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
March 31, 2020 and 2019 (Unaudited), and December 31, 2019

9. Inventories

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

(in millions of Korean won)

	March 31, 2020		
	Gross amount	Valuation allowance	Carrying amount
Merchandise	154,241	(6,019)	148,222
Finished / Semi-finished products	3,182,034	(144,865)	3,037,169
Work-in-process	17,955	-	17,955
Raw materials	1,254,320	(19,022)	1,235,298
Supplies	179,596	-	179,596
Materials-in-transit	716,914	-	716,914
Total	5,505,060	(169,906)	5,335,154

(in millions of Korean won)

	December 31, 2019		
	Gross amount	Valuation allowance	Carrying amount
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
Total	5,191,371	(157,650)	5,033,721

During the three-month period ended March 31, 2020, the cost of inventories recognized as expense and included in 'cost of sales' amounted to ₩4,327,635 million (2019: ₩4,156,616 million).

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

10. Investments in Associates and Joint Ventures

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

(in millions of
Korean won)

	March 31, 2020							
	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	Ending balance
LG VINA Chemical Co., Ltd.	4,403	-	-	613	163	-	-	5,179
HL Greenpower Co., Ltd.	23,366	-	-	(742)	-	-	8	22,632
LG Holdings (HK) Ltd. ¹	40,973	-	-	436	(369)	(41,040)	-	-
TECHWIN Co., Ltd.	19,376	-	(314)	(1,278)	-	-	-	17,784
SEETEC Co., Ltd	142,554	-	(10,000)	2,276	-	-	151	134,981
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	-	-	(41)	(17)	-	-	2,113
WUXI CL New Energy Technology Ltd ²	-	-	-	-	-	-	-	-
LG Life Sciences Poland Ltd.	17	-	-	-	-	-	-	17
Combustion Synthesis Co., Ltd.	2,042	-	-	(85)	32	-	142	2,131
HUAJIN NEW ENERGY MATERIALS(QUZHOU) CO., LTD ³	67,058	13,611	-	133	2,848	-	-	83,650
VINFAST LITHIUM BATTERY PACK LIMITED LIABILITY COMPANY	4,888	-	-	(90)	13	-	-	4,811
	<u>307,577</u>	<u>13,611</u>	<u>(10,314)</u>	<u>1,222</u>	<u>2,670</u>	<u>(41,040)</u>	<u>301</u>	<u>274,027</u>

LG Chem, Ltd. and Subsidiaries
Notes to the Consolidated Interim Financial Statements
March 31, 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>

¹ During the three-month period ended March 31, 2020, the Parent Company disposed of the shares of LG Holdings (HK) Ltd.

² As at March 31, 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.

³ During the three-month period ended March 31, 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
March 31, 2020 and 2019 (Unaudited), and December 31, 2019

11. Property, Plant and Equipment

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

<i>(in millions of Korean won)</i>	March 31, 2020											
	Land	Buildings	Structures	Machinery	Vehicles	Tools	Equipment	Others	Right-of- use assets	Construction -in-progress	Machinery -in-transit	Total
Beginning balance	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	489	615,456	27,540	818,270	775	64,895	11,939	1,756	26,981	1,377,343	84,262	3,029,706
Disposals/ Transfer Exchange differences	(496)	14,724	5,425	65,720	37	4,376	1,527	-	8,264	(38,935)	-	60,642
Depreciation	-	(31,298)	(14,679)	(349,851)	(532)	(46,120)	(12,299)	(21,984)	(16,707)	-	-	(493,470)
Impairment	-	(7)	(6,514)	(25,276)	-	(855)	(31)	(195)	(11)	(455)	(259)	(33,603)
Ending balance	1,759,521	4,489,826	969,497	6,853,729	6,541	622,398	164,567	154,699	333,126	3,904,125	225,217	19,483,246
Cost	1,796,473	5,409,472	1,619,975	17,970,491	33,653	1,520,155	482,251	380,493	410,341	3,995,546	225,217	33,844,067
Accumulated depreciation	-	(880,311)	(627,259)	(10,880,583)	(26,963)	(885,023)	(314,856)	(219,876)	(77,129)	-	-	(13,912,000)
Accumulated impairment	(36,952)	(39,335)	(23,219)	(236,179)	(149)	(12,734)	(2,828)	(5,918)	(86)	(91,421)	-	(448,821)

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

<i>(in millions of Korean won)</i>	December 31, 2019											
	Land	Buildings	Structures	Machinery	Vehicles	Tools	Equipment	Others	Right-of- use assets	Construction -in-progress	Machinery -in-transit	Total
Beginning balance	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
Restated beginning balance	<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)
Ending balance	<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 three-month period ended March 31, 2020, the Group capitalized ₩9,880 million of borrowing costs (2019: ₩5,563 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 1.62% (2019: 2.40%).

Line items including depreciation in the consolidated interim statements of profit or loss for the three-month periods ended March 31, 2020 and 2019, are as follows:

<i>(in millions of Korean won)</i>	2020	2019
Cost of sales	446,065	338,830
Selling and administrative expenses	45,900	33,833
Others	612	1,240
Discontinued operations	893	2,339
Total	<u>493,470</u>	<u>376,242</u>

Lease

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

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

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

leases:

<i>(in millions of Korean won)</i>	March 31, 2020	December 31, 2019
Right-of-use assets ¹		
Real-estate	283,997	272,958
Machinery	22,644	23,041
Vehicles	25,140	22,425
Tools	359	162
Equipment	986	1,034
	<u>333,126</u>	<u>319,620</u>

¹ 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 three-month period ended March 31, 2020, were ₩ 26,981 million.

<i>(in millions of Korean won)</i>	March 31, 2020	December 31, 2019
Lease liabilities ¹		
Current	59,151	55,108
Non-current	228,194	222,137
	<u>287,345</u>	<u>277,245</u>

¹ Included in the line item 'borrowings' in the consolidated statements of financial position.

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

(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>	March 31, 2020	December 31, 2019
Depreciation of right-of-use assets		
Real-estate	11,985	3,431
Machinery	1,204	741
Vehicles	3,370	1,387
Tools	34	3
Equipment	113	206
	<u>16,706</u>	<u>5,768</u>
Interest expense relating to lease liabilities (included in finance cost)	936	652
Expense relating to short-term leases (included in cost of goods sold and administrative expenses)	9,470	14,803
Expense relating to leases of low-value assets that are not short-term leases (included in cost of goods sold and administrative expenses)	3,363	2,489
Expense relating to variable lease payments not included in lease liabilities (included in cost of goods sold and administrative expenses)	5	6

The total cash outflow for leases during the three-month period ended March 31, 2020, was ₩ 26,996 million.

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

12. Intangible Assets

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

<i>(in millions of Korean won)</i>	March 31, 2020					
	Development costs	Industrial property rights	Goodwill	Memberships	Others	Total
Beginning balance	269,596	569,129	1,010,534	47,329	309,641	2,206,229
Separate acquisitions/ Transfer	13,002	14,167	-	843	5,173	33,185
Additions – internal development	1,773	-	-	-	-	1,773
Disposals/Transfer	(39)	(1,143)	-	(695)	-	(1,877)
Exchange differences	258	2,351	10,323	20	2,965	15,917
Amortization	(15,537)	(11,203)	-	-	(10,001)	(36,741)
Impairment	(12)	(49)	-	-	(2)	(63)
Transfer to assets held for sale (Note 34)	-	(86)	-	-	-	(86)
Ending balance	<u>269,041</u>	<u>573,166</u>	<u>1,020,857</u>	<u>47,497</u>	<u>307,776</u>	<u>2,218,337</u>

<i>(in millions of Korean won)</i>	December 31, 2019					
	Development costs	Industrial property rights	Goodwill	Memberships	Others	Total
Beginning balance	220,860	405,282	1,017,855	50,885	311,356	2,006,238
Separate acquisitions/ Transfer ¹	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)
Ending balance	<u>269,596</u>	<u>569,129</u>	<u>1,010,534</u>	<u>47,329</u>	<u>309,641</u>	<u>2,206,229</u>

¹ Intangible assets acquired from Dupont related to S-OLED are included.

Line items including amortization of intangible assets for the three-month periods ended March 31, 2020 and 2019, as follows:

<i>(in millions of Korean won)</i>	2020	2019
Cost of sales	7,964	5,945
Selling and administrative expenses	28,777	22,914
Discontinued operations	-	52
Total	<u>36,741</u>	<u>28,911</u>

The Group recognized total research and development costs of ₩256,417 million (2019: ₩262,558 million) as expenses.

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

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

<i>(in thousands of tons and millions of Korean won)</i>	March 31, 2020			
	2019		2020	
	Quantity	Amount	Quantity	Amount
Beginning balance	7,656	4,375	7,546	-
Allocation with nil consideration	-	-	4	-
Purchase/Sale	-	-	-	-
Borrowings/ Carry forwards between years	-	-	-	-
Surrendered to the government	-	-	-	-
Ending balance	7,656	4,375	7,550	-

<i>(in thousands of tons and millions of Korean won)</i>	December 31, 2019					
	2018		2019		2020	
	Quantity	Amount	Quantity	Amount	Quantity	Amount
Beginning balance	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)	-	-	-	-
Ending balance	-	-	7,656	4,375	7,546	-

13. Other Current and Non-Current Assets

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

<i>(in millions of Korean won)</i>	March 31, 2020	December 31, 2019
Current		
Prepayments to suppliers and prepaid expenses	151,333	106,380
Prepaid value added tax	557,048	545,668
Others	128,923	141,748
Total	837,304	793,796
Non-current		
Long-term prepayments and long-term prepaid expenses	149,647	144,336
Others	99	96
Total	149,746	144,432

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

14. Borrowings

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

<i>(in millions of Korean won)</i>	March 31, 2020	December 31, 2019
Current		
Short-term borrowings	1,470,648	771,102
Current portion of long-term borrowings of bank loans	541,681	309,944
Current-portion of debentures	359,753	219,943
Finance lease liabilities	59,151	55,108
	<u>2,431,233</u>	<u>1,356,097</u>
Non-current		
Long-term borrowings	2,703,831	1,536,821
Debentures	6,190,476	5,299,213
Finance lease liabilities	228,194	222,137
	<u>9,122,501</u>	<u>7,058,171</u>
Total	<u>11,553,734</u>	<u>8,414,268</u>

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

<i>(in millions of Korean won)</i>	Bank	Latest maturity date	Interest rate(%) as at March 31, 2020	March 31, 2020	December 31, 2019
Bank loans	Nonghyup Bank, others	Mar. 24, 2021	2.60 and others	1,470,648	771,102
Total				<u>1,470,648</u>	<u>771,102</u>

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

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

(in millions of Korean won)	March 31, 2020				
	Bank	Annual interest rate (%)	Amount in Korean won	Current	Non-current
Borrowings in Korean won	KDB ¹	(1Y)+1.45~1.99	7,429	807	6,622
	Kookmin Bank	24M MOR+1.89	1,927	-	1,927
Borrowings in foreign currencies	HSBC	USD: 3M LIBOR + 0.95~1.40 CNY: PBOC ×0.95	147,239	33,751	113,488
	SMBC	3M LIBOR + 0.65~1.05	246,344	43,607	202,737
	Agricultural Bank of China	USD: 3M LIBOR + 0.80 CNY: PBOC ×0.90	34,225	10,602	23,623
	Construction Bank of China	PBOC ×0.90	92,395	15,588	76,807
	Communications Bank of China	PBOC ×1.00	37,116	9,086	28,030
	CITI	USD: 3M LIBOR + 0.95 EUR: EURIBOR + 0.65	289,701	45,434	244,267
	ING	6M EURIBOR + 0.70 ~0.83	162,189	-	162,189
	UOB	6M LIBOR + 1.20	117,399	117,399	-
	Standard Chartered Bank	USD: 3M LIBOR + 1.20 CNY: PBOC ×0.95	112,806	74,011	38,795
	Mizuho Banking Corporation	3M LIBOR + 0.98	29,285	29,285	-
	CNOOC Finance	PBOC ×0.90	34,486	24,140	10,346
	EBRD	6M EURIBOR + 0.62	337,894	-	337,894
	Hangseng	3M LIBOR + 1.00	29,319	29,319	-
	Bank of China	3M LIBOR + 0.95	19,334	13,194	6,140
	MUFG	USD: 3M LIBOR + 1.00 EUR: 3M EURIBOR + 0.60~0.80	180,947	6,105	174,842
	Industrial and Commercial Bank of China	PBOC ×1.00	49,990	7,631	42,359
CIMB	3M LIBOR + 1.50	58,027	58,027	-	
KEB Hana Bank	3M EURIBOR + 0.62	270,316	-	270,316	
KDB	3M LIBOR + 0.93	109,856	21,971	87,885	
Deutsche Bank	PBOC ×0.84	93,373	1,724	91,649	
EIB	3M EURIBOR + 0.47	648,757	-	648,757	
DBS	6M EURIBOR + 0.60	135,158	-	135,158	
Total			3,245,512	541,681	2,703,831

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

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

(in millions of Korean won)		December 31, 2019			
		Bank	Annual interest rate (%)	Amount in Korean won	Current
Borrowings in Korean won	KDB ¹	(1Y)+1.45~1.99	7,607	986	6,621
	Kookmin Bank	24M MOR+1.89	1,188	-	1,188
Borrowings in foreign currencies	HSBC	USD: 3M LIBOR +0.95~1.40 CNY: PBOC ×0.95	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 ×0.90	33,594	10,059	23,535
	Construction Bank of China	PBOC ×0.90	37,146	7,146	30,000
	Communications Bank of China	PBOC ×1.00	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 ×0.95	107,534	12,431	95,103
	Mizuho Banking Corporation	3M LIBOR + 0.98	31,180	6,929	24,251
	CNOOC Finance	PBOC ×0.90	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 ×1.00	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×0.84	90,248	1,658	88,590	
Total			1,846,765	309,944	1,536,821

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

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

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

		March 31, 2020				
		Annual interest rate (%)	Latest maturity date	Amount in Korean won	Current	Non-current
<i>(in millions of Korean won)</i>						
	Financial institution					
50-1st Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	1.95	2020.5.19	120,000	120,000	-
50-2nd Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	2.28	2022.5.19	400,000	-	400,000
50-3rd Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	2.53	2024.5.19	280,000	-	280,000
51-1st Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	2.56	2021.2.20	190,000	190,000	-
51-2nd Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	2.88	2023.2.20	240,000	-	240,000
51-3rd Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	3.07	2025.2.20	270,000	-	270,000
51-4th Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	3.29	2028.2.20	300,000	-	300,000
52-1st Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	2.02	2022.3.13	160,000	-	160,000
52-2nd Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	2.11	2024.3.13	240,000	-	240,000
52-3rd Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	2.21	2026.3.13	200,000	-	200,000
52-4th Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	2.40	2029.3.13	400,000	-	400,000
53-1st Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	1.57	2023.2.19	350,000	-	350,000
53-2nd Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	1.65	2025.2.19	250,000	-	250,000
53-3rd Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	1.72	2027.2.19	50,000	-	50,000
53-4th Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	1.91	2030.2.19	250,000	-	250,000
1-1st USD Overseas Convertible bonds¹	Credit Suisse	-	2021.4.16	268,972	-	268,972
1-2nd EUR Overseas Convertible bonds²	Credit Suisse	-	2021.4.16	425,095	-	425,095
USD foreign currency debenture with maturity in 2024	CITI and others	3.25	2024.10.15	611,300	-	611,300
USD foreign currency debenture with maturity in 2029	CITI and others	3.63	2029.4.15	611,300	-	611,300
EUR foreign currency debenture with maturity in 2023	CITI and others	0.50	2023.4.15	674,325	-	674,325
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	2.23	2025.2.14	30,000	-	30,000
Less: discount on debentures				(40,763)	(247)	(40,516)
Total				6,550,229	359,753	6,190,476

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

(in millions of Korean won)

		December 31, 2019				
	Financial institution	Annual interest rate (%)	Latest maturity date	Amount in Korean won	Current	Non- current
50-1st Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	1.95	2020.5.19	120,000	120,000	-
50-2nd Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	2.28	2022.5.19	400,000	-	400,000
50-3rd Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	2.53	2024.5.19	280,000	-	280,000
51-1st Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	2.56	2021.2.20	190,000	-	190,000
51-2nd Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	2.88	2023.2.20	240,000	-	240,000
51-3rd Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	3.07	2025.2.20	270,000	-	270,000
51-4th Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	3.29	2028.2.20	300,000	-	300,000
52-1st Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	2.02	2022.3.13	160,000	-	160,000
52-2nd Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	2.11	2024.3.13	240,000	-	240,000
52-3rd Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	2.21	2026.3.13	200,000	-	200,000
52-4th Debenture (non-guaranteed/public)	NH Investment & Securities Co., Ltd. and others	2.40	2029.3.13	400,000	-	400,000
1-1st USD Overseas Convertible bonds¹	Credit Suisse	-	2021.4.16	254,716	-	254,716
1-2nd EUR Overseas Convertible bonds²	Credit Suisse	-	2021.4.16	408,950	-	408,950
USD foreign currency debenture with maturity in 2024	CITI and others	3.25	2024.10.15	578,900	-	578,900
USD foreign currency debenture with maturity in 2029	CITI and others	3.63	2029.4.15	578,900	-	578,900
EUR foreign currency debenture with maturity in 2023	CITI and others	0.50	2023.4.15	648,715	-	648,715
Debentures in Korean won (non-guaranteed)	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)
Total				<u>5,519,156</u>	<u>219,943</u>	<u>5,299,213</u>

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

¹ Details of 1-1st USD overseas convertible bonds are as follows:

	Details
Aggregate principal amount	USD 220,000,000
Issue price	USD 220,000,000
Coupon rate (%)	0.00
Issue date	April 16, 2018
Maturity date	April 16, 2021
Redemption	- 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.
Underlying shares	509,606 registered ordinary shares (treasury shares)
Conversion price (Korean won/shares)	460,000
Conversion period	From May 27, 2018 to April 06, 2021
Call option by the issuer	- 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.
Call option by bondholders	- 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

² Details of 1-2nd EUR overseas convertible bonds are as follows:

	Details
Aggregate principal amount	EUR 315,200,000
Issue price	EUR 315,200,000
Coupon rate (%)	0.00
Issue date	April 16, 2018
Maturity date	April 16, 2021
Redemption	- 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.
Underlying shares	775,128 registered ordinary shares (treasury shares)
Conversion price (Korean won/shares)	533,600
Conversion period	From May 27, 2018 to April 06, 2021
Call option by the issuer	- 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.
Call option by bondholders	- 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

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

Details of lease liabilities as at March 31, 2020 and December 31, 2019, are as follows:

(in millions of Korean won)

Leaser	March 31, 2020				
	Annual interest rate (%)	Latest maturity date	Total amount	Current	Non-current
Hyundai Oil Bank and others	1.98 ~ 4.13	2068.12.31	287,345	59,151	228,194

(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 three-month period ended March 31, 2020 and for the year ended December 31, 2019, as follows:

(in millions of Korean won)

	March 31, 2020				
	Warranty ¹	Greenhouse gas emission ²	Legal Claims ³	Restoration ⁴	Total
Beginning balance	596,251	25,157	370	114,950	736,728
Additions	36,274	8,829	21	16,503	61,627
Used	(59,763)	-	-	(5,153)	(64,916)
Ending balance	572,762	33,986	391	126,300	733,439
Less : current portion	(387,409)	(33,986)	-	(29,981)	(451,376)
Total	185,353	-	391	96,319	282,063

(in millions of Korean won)

	December 31, 2019				
	Warranty ¹	Greenhouse gas emission ²	Legal claims ³	Restoration ⁴	Total
Beginning balance	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)
Ending balance	596,251	25,157	370	114,950	736,728
Less : current portion	(417,561)	(25,157)	-	(29,411)	(472,129)
Total	178,690	-	370	85,539	264,599

¹ 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.

² Greenhouse gas emission provisions have been accrued for estimated expenditures to be obligated for any excess emission. The estimated emission as at March 31, 2020 amounts to 2,238 thousand tons (March 31, 2019: 1,964 thousand tons).

³ Lawsuit provisions have been accrued for certain pending cases.

⁴ As at March 31, 2020, restoration provisions have been accrued for the estimated expenses to restore land pollutions and others.

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

16. Net Defined Benefit Liabilities

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

<i>(in millions of Korean won)</i>	March 31, 2020	December 31, 2019
Present value of defined benefit obligations ¹	1,374,143	1,343,553
Fair value of plan assets	<u>(1,146,275)</u>	<u>(1,164,393)</u>
Liabilities in the consolidated interim statement of financial position	<u>227,868</u>	<u>179,160</u>

¹ The present value of retirement benefit obligations is net of existing contributions to the National Pension Plan of ₩740 million as at March 31, 2020 (2019: ₩768 million).

The amounts recognized in the consolidated interim statements of profit or loss for the three-month periods ended March 31, 2020 and 2019, are as follows:

<i>(in millions of Korean won)</i>	2020	2019
Current service cost ¹	45,978	40,378
Interest cost	<u>1,057</u>	<u>1,528</u>
Total, included in employee benefit expenses	<u>47,035</u>	<u>41,906</u>

¹ The above amounts excluded ₩950 million (2019: ₩359 million) of expenses capitalized to construction in progress and development costs.

Post-employment benefits recognized for defined contribution plan for the three-month period ended March 31, 2020, amounted to ₩2,345 million (2019: ₩2,218 million).

Post-employment benefits recognized in the consolidated interim statements of profit or loss for the three-month periods ended March 31, 2020 and 2019, are as follows:

<i>(in millions of Korean won)</i>	2020	2019
Cost of sales	30,162	29,517
Selling and administrative expenses	19,187	14,554
Discontinued operations	<u>31</u>	<u>53</u>
Total	<u>49,380</u>	<u>44,124</u>

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

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

<i>(in millions of Korean won)</i>	March 31, 2020	December 31, 2019
Beginning balance	1,343,553	1,167,524
Transfer in	2,256	20,820
Transfer out	(1,429)	(5,909)
Current service cost	46,928	162,931
Past service cost	-	-
Interest expense	7,747	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	(105)	(949)
Payments from plans	(24,807)	(90,523)
Ending balance	<u>1,374,143</u>	<u>1,343,553</u>

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

<i>(in millions of Korean won)</i>	March 31, 2020	December 31, 2019
Beginning balance	1,164,393	939,980
Transfer in	-	-
Transfer out	(616)	(184)
Interest income	6,690	24,586
Remeasurements:		
Return on plan assets (excluding amounts included in interest income)	(1,324)	(6,796)
Contributions:		
Employers	343	283,196
Payments from plans	(22,935)	(75,299)
Administrative costs	(276)	(1,090)
Ending balance	<u>1,146,275</u>	<u>1,164,393</u>

The actual return on plan assets for the three-month period ended March 31, 2020, was ₩5,366 million (December 31, 2019: ₩17,790 million).

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

	March 31, 2020	December 31, 2019
Discount rate	2.4% ~ 3.0%	2.4% ~ 2.5%
Salary growth rate	2.2% ~ 5.0%	4.0% ~ 5.0%

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

The sensitivity analysis for changes in key actuarial assumptions as at March 31, 2020, is as follows:

<i>(in millions of Korean won)</i>	Increase by 0.5%	Decrease by 0.5%
Discount rate:		
Increase (decrease) in defined benefit obligations	(79,057)	86,913
Salary growth rate:		
Increase (decrease) in defined benefit obligations	84,274	(77,574)

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 March 31, 2020 and December 31, 2019, consist of:

<i>(in millions of Korean won)</i>	March 31, 2020		December 31, 2019	
	Amount	Composition (%)	Amount	Composition (%)
Insurance contracts with guaranteed yield	1,126,735	98.3	1,138,725	97.8
Equity linked bonds	18,813	1.64	24,891	2.14
Time deposits	727	0.06	777	0.06
	<u>1,146,275</u>	<u>100</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.

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

17. Other Current and Non-Current Liabilities

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

<i>(in millions of Korean won)</i>	March 31, 2020	December 31, 2019
Current		
Advances from customers	113,248	150,673
Dividends payable	153,608	-
Withholdings	46,919	108,140
Unearned revenues	47,200	48,907
Accrued expenses	185,953	198,206
Total	546,928	505,926
Non-current		
Long-term accrued expenses	60,611	59,514
Long-term unearned revenues	15,272	15,272
Long-term advanced received	50,961	58,699
Total	126,844	133,485

18. Commitments and Contingencies

(1) As at March 31, 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 March 31, 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	59,100	-	-	220	1,100	29	-	10
Limit of the letter of credit	32,000	427	-	366	4,815	-	3,594	-
Limit of discount of notes from export	-	854	-	-	-	-	-	-
Limit of guaranteed payments in other foreign currency	-	132	-	-	-	-	-	-
Limit of loan arrangements	-	-	104,717	2,526	5,256	1,925	200	-

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.

(3) As at March 31, 2020, the Parent Company and certain subsidiaries have B2B purchase arrangements with several financial institutions with limit of ₩ 450,000 million and ₩ 152,400 million, respectively as well as enterprise general fund arrangement with limit of ₩ 350,000 million.

(4) As at March 31, 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

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

subsidiaries. However, the ultimate outcome of these cases cannot be determined at the reporting date.

- (5) In addition, as at March 31, 2020, the Parent Company and certain subsidiaries have been named as a plaintiff in 19 and 18 legal actions, respectively, involving ₩ 21,737 million and ₩ 3,428 million in claims, respectively. They have been named as a defendant in 141 and 38 legal actions, respectively, with ₩ 5,365 million and ₩ 21,617 million in claims, respectively. The ultimate outcome of these cases cannot be determined at the reporting date.
- (6) As at March 31, 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 March 31, 2020, the Parent Company shut down the relevant production facilities.
- (7) The Parent Company has entered into manufacture and production technical contracts with ExxonMobil and others.
- (8) 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.
- (9) As at March 31, 2020, the Parent Company has entered into payment guarantee contract of USD 6 million, EUR 6 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 87 million with financial institutions in relation to custom of imported raw materials.
- (10) As at March 31, 2020 and December 31, 2019, assets pledged as collateral for the borrowings are as follows:

(in millions of Korean won)

	March 31, 2020			
	Secured amount	Borrowings / Loan	Limit	Secured party
Factory	20,880	Current and non-current borrowings	16,029	KDB
	<u>20,880</u>		<u>16,029</u>	

(in millions of Korean won)

	December 31, 2019			
	Secured amount	Borrowings / Loan	Limit	Secured party
Factory	20,880	Current and non-current borrowings	16,208	KDB
	<u>20,880</u>		<u>16,208</u>	

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

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

<i>(in millions of Korean won)</i>	March 31, 2020	December 31, 2019
Property, plant and equipment	2,104,526	2,069,630

(12) 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 ₩ 103,400 million.

(13) In December 2019, the Group had entered into an agreement with GM to establish a joint venture of electric-car battery with 50:50 shares. The committed amount of investment is ₩ 1,000,000 million.

19. Share Capital

Changes in share capital and share premium for the three-month period ended March 31, 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
March 31, 2020	70,592,343	352,962	7,688,800	38,444	2,014,036

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

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

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

20. Retained Earnings

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

<i>(in millions of Korean won)</i>	March 31, 2020	December 31, 2019
Legal reserve ¹	352,629	352,286
Discretionary reserve ²	13,779,000	13,608,917
Retained earnings before appropriation	<u>533,728</u>	<u>837,487</u>
Total	<u>14,665,357</u>	<u>14,798,690</u>

¹ 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.

² 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 March 31, 2020 and December 31, 2019, are as follows:

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

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

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

22. Selling and Administrative Expenses

Selling and administrative expenses for the three-month periods ended March 31, 2020 and 2019, are as follows:

<i>(in millions of Korean won)</i>	2020	2019
Wages and salaries	225,716	236,363
Post-employment benefits (Note 16)	19,187	14,554
Employee benefits	46,136	42,019
Travel expense	10,831	16,292
Water & utilities	16,003	13,874
Packaging expense	1,381	1,855
Rental expenses	19,650	23,511
Commission expenses	190,896	111,421
Depreciation (Note 11)	46,213	33,836
Advertising expense	4,421	6,405
Freight expenses	161,926	139,512
Training expense	2,635	4,614
Amortization (Note 12)	28,777	22,914
Sample expense	4,537	4,642
Development costs	53,951	46,653
Others	86,315	174,686
Total	918,575	893,151

23. Breakdown of Expenses by Nature

Cost of sales, and selling and administrative expenses by nature for the three-month periods ended March 31, 2020 and 2019, consist of:

<i>(in millions of Korean won)</i>	2020	2019
Changes in inventories of merchandise, finished goods, semi-finished goods and work in process	(336,833)	(137,611)
Raw materials and consumables used	4,433,277	4,014,673
Purchase of merchandise	231,191	279,554
Employee benefit expenses (Note 24)	689,893	677,742
Advertising expenses	4,648	6,681
Freight expenses	173,096	151,292
Commission expenses	287,477	184,916
Depreciation and amortization	529,019	401,525
Rentals and fees	17,508	22,018
Other expenses	849,995	739,836
Total	6,879,271	6,340,626

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

24. Employee Benefit Expenses

Details of employee benefit expenses for the three-month periods ended March 31, 2020 and 2019, are as follows:

<i>(in millions of Korean won)</i>	2020	2019
Salaries	576,015	574,448
Post-employment benefits – Defined benefit plan (Note 16)	47,004	41,853
Post-employment benefits – Defined contribution plan (Note 16)	2,345	2,218
Others	64,529	59,223
Total	<u>689,893</u>	<u>677,742</u>

25. Finance Income and Costs

Details of finance income and costs for the three-month periods ended March 31, 2020 and 2019, are as follows:

<i>(in millions of Korean won)</i>	2020	2019
Finance income		
Interest income ¹	12,753	12,716
Dividend income	-	26
Exchange differences	106,067	58,429
Gain on valuation of derivative instruments	-	50
Total	<u>118,820</u>	<u>71,221</u>
Finance costs		
Interest expense ²	63,513	39,816
Exchange differences	350,261	34,152
Loss on valuation of derivative instruments	6,771	272
Total	<u>420,545</u>	<u>74,240</u>

¹ Details of interest income for the three-month periods ended March 31, 2020 and 2019, are as follows:

<i>(in millions of Korean won)</i>	2020	2019
Deposits held by financial institutions	7,490	10,346
Other loans and receivables	5,263	2,370
Total	<u>12,753</u>	<u>12,716</u>

² Details of interest expense for the three-month periods ended March 31, 2020 and 2019, are as follows:

<i>(in millions of Korean won)</i>	2020	2019
Interest on bank overdraft and borrowings	23,511	22,716
Interest on finance lease liabilities	936	652
Interest on debentures	37,938	18,848
Other interest expenses	10,761	2,931
Capitalized interest for qualifying assets	(9,633)	(5,331)
Total	<u>63,513</u>	<u>39,816</u>

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

26. Other Non-Operating Income

Details of other non-operating income for the three-month periods ended March 31, 2020 and 2019, are as follows:

<i>(in millions of Korean won)</i>	2020	2019
Exchange differences	288,863	78,445
Gain on disposal of property, plant and equipment	716	2,297
Gain on disposal of intangible assets	115	160
Gain on disposal of associates and joint ventures (Note 10)	328,634	-
Others	9,203	5,517
Total	<u>627,531</u>	<u>86,419</u>

27. Other Non-Operating Expenses

Details of other non-operating expenses for the three-month periods ended March 31, 2020 and 2019, are as follows:

<i>(in millions of Korean won)</i>	2020	2019
Exchange differences	327,034	61,747
Loss on disposal of property, plant and equipment	5,933	12,443
Loss on disposal of intangible assets	115	889
Impairment loss on intangible assets (Note 11)	32,453	4,791
Donations	2,729	323
Others	19,210	4,535
Total	<u>387,474</u>	<u>84,728</u>

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 24.2% (the estimated tax rate for the year ended December 31, 2019: 24.3%).

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

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 periods ended March 31, 2020 and 2019, are computed as follows:

Basic earnings per ordinary share from continuing operations

<i>(in millions of Korean won and in number of shares)</i>	2020	2019
Profit from continuing operations attributable to ordinary shares ¹	40,635	179,557
Weighted average number of ordinary shares outstanding ²	<u>68,939,926</u>	<u>68,939,926</u>
Basic earnings per ordinary share from continuing operations (in won)	<u>589</u>	<u>2,604</u>

Basic earnings per ordinary share

<i>(in millions of Korean won and in number of shares)</i>	2020	2019
Profit attributable to ordinary shares ¹	18,879	174,924
Weighted average number of ordinary shares outstanding ²	<u>68,939,926</u>	<u>68,939,926</u>
Basic earnings per ordinary shares (in won)	<u>274</u>	<u>2,537</u>

Basic earnings per preferred share from continuing operations

<i>(in millions of Korean won and in number of shares)</i>	2020	2019
Profit from continuing operations attributable to preferred share ¹	4,618	20,079
Weighted average number of preferred shares outstanding ²	<u>7,672,433</u>	<u>7,672,433</u>
Basic earnings per preferred share from continuing operations (in won)	<u>601</u>	<u>2,617</u>

Basic earnings per preferred share

<i>(in millions of Korean won and in number of shares)</i>	2020	2019
Profit attributable to preferred shares ¹	2,197	19,563
Weighted average number of preferred shares outstanding ²	<u>7,672,433</u>	<u>7,672,433</u>
Basic earnings per preferred shares (in won)	<u>286</u>	<u>2,550</u>

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

¹ Profit attributable to ordinary and preferred shares are as follows:

<i>(in millions of Korean won)</i>	2020	2019
Profit from continuing operations attributable to the equity holders of the Parent Company	45,253	199,636
Ordinary shares dividends (A)	34,470	103,410
Preferred shares dividends (B)	3,932	11,604
Undistributed earnings from continuing operation for the period	6,851	84,622
Undistributed earnings available for ordinary shares (C)	6,165	76,147
Undistributed earnings available for preferred shares (D)	686	8,475
Profit from continuing operations for the year attributable to ordinary shares (A+C)	40,635	179,557
Profit from continuing operations for the year attributable to preferred shares (B+D)	4,618	20,079
 <i>(in millions of Korean won)</i>	 2020	 2019
Profit attributable to the equity holders of the Parent Company	21,076	194,487
Ordinary shares dividends (A)	18,879	103,410
Preferred shares dividends (B)	2,197	11,604
Undistributed earnings for the period	-	79,473
Undistributed earnings available for ordinary shares (C)	-	71,514
Undistributed earnings available for preferred shares (D)	-	7,959
Profit for the period attributable to ordinary shares (A+C)	18,879	174,924
Profit for the period attributable to preferred shares (B+D)	2,197	19,563

² Weighted average numbers of shares are calculated as follows:

Ordinary shares outstanding	2020			
	Period	Number of shares	Number of days	Number of shares x days
Beginning balance	2020. 1. 1 - 2020. 3. 31	68,939,926	91	6,273,533,266
Total				<u>6,273,533,266</u>

Weighted average number of ordinary shares outstanding: 6,273,533,266 / 91 = 68,939,926 shares

Preferred shares outstanding	2020			
	Period	Number of shares	Number of days	Number of shares x days
Beginning balance	2020. 1. 1 - 2020. 3. 31	7,672,433	91	698,191,403
Total				<u>698,191,403</u>

Weighted average number of preferred shares outstanding: 698,191,403 / 91 = 7,672,433 shares

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

Ordinary shares outstanding	2019			
	Period	Number of shares	Number of days	Number of shares x days
Beginning balance	2019. 1. 1 - 2019. 3. 31	68,939,926	90	6,204,593,340
Total				6,204,593,340

Weighted average number of ordinary shares outstanding: 6,204,593,340 / 90 = 68,939,926 shares

Preferred shares outstanding	2019			
	Period	Number of shares	Number of days	Number of shares x days
Beginning balance	2019. 1. 1 - 2019. 3. 31	7,672,433	90	690,518,970
Total				690,518,970

Weighted average number of preferred shares outstanding: 690,518,970 / 90 = 7,672,433 shares

Diluted earnings per share is calculated based on the weighted average number of ordinary shares outstanding, adjusted for the assumption that all of dilutive potential ordinary shares to be converted. The 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.

<i>(in millions of Korean won and in number of shares)</i>	2020	2019
Diluted earnings per ordinary shares from continuing operations		
Profit from continuing operation for the period attributable to ordinary shares	40,635	179,557
Gain and loss on convertible bonds (after tax effects)	3,270	2,769
Profit from continuing operation used in calculating diluted earnings per share from continuing operation	43,905	182,326
Weighted average number of ordinary shares outstanding	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
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
Diluted earnings per share from continuing operation attributable to the ordinary shares (in won)	625	2,596

<i>(in millions of Korean won and in number of shares)</i>	2020	2019
--	------	------

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

Diluted earnings per ordinary shares

Profit for the period attributable to the ordinary shares	18,879	174,924
Gain and loss on convertible bonds (after tax effects)	3,230	2,760
Profit used in calculating diluted earnings per share	22,109	177,684
Weighted average number of ordinary shares outstanding	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
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
Diluted earnings per share attributable to the ordinary shares (in won)	315	2,530

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

2020 **2019**

Diluted earnings per preferred share from continuing operations

Profit from continuing operation for the period attributable to preferred shares	4,618	20,079
Gain and loss on convertible bonds (after tax effects)	275	(63)
Profit from continuing operation used in calculating diluted earnings per share from continuing operation	4,893	20,016
Weighted average number of preferred shares outstanding	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
Diluted earnings per share from continuing operation attributable to preferred shares (in won)	638	2,609

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

2020 **2019**

Diluted earnings per preferred shares

Profit for the year attributable to preferred shares	2,197	19,563
Gain and loss on convertible bonds (after tax effects)	314	(54)
Profit used in calculating diluted earnings per share	2,511	19,509
Weighted average number of preferred shares outstanding	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
Diluted earnings per share attributable to the preferred shares (in won)	328	2,543

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

Basic and diluted losses per share attributable to ordinary and preferred shares from discounted operations for the three-month periods ended March 31, 2020 and 2019, are as follows:

<i>(in Korean won)</i>	2020	2019
Basic losses per ordinary share from discounted operations	(315)	(67)
Basic losses per preferred share from discounted operations	(315)	(67)
Diluted losses per ordinary share from discounted operations	(310)	(66)
Diluted losses per preferred share from discounted operations	(310)	(66)

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.

31. Related Party Transactions

As at March 31, 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 March 31, 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 ¹
LG Electronics, Inc.	LG Innotek Co., Ltd. and others	Inspur LG Digital Mobile Communications Co., Ltd. and others	LG Enterprise group ¹
LG International Corp.	Pantos Logistics Co., Ltd. and others	LG International (Japan) Ltd. and others	LG Enterprise group ¹
LG Hausys, Ltd.	-	LG Hausys Tianjin Co., Ltd. and others	LG Enterprise group ¹
LG Household & Health Care Ltd.	Coca-Cola Beverage Co. and others	-	LG Enterprise group ¹
LG Uplus Corp.	LG HelloVision Corp.	-	LG Enterprise group ¹
G II R Inc.	HS AD Inc.	-	LG Enterprise group ¹
Silicon Works Co., Ltd.	-	-	LG Enterprise group ¹
SERVEONE ²	-	Serveone(Nanjing).Co., Ltd. and others	LG Enterprise group ¹

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

¹ 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.

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

Sales and purchases with related parties for the three-month periods ended March 31, 2020 and 2019, are as follows:

(in millions of Korean won)

	2020			
	Sales and others	Purchase and others		
		Purchase of raw materials /merchandises	Acquisition of property, plant and equipment and intangible assets	Others
Entity with a significant influence over the Group				
LG Corp.	-	-	-	18,161
Associates and joint ventures				
SEETEC Co., Ltd.	4,703	37,380	-	22,835
TECWIN Co., Ltd.	-	34	39	57
HL Greenpower Co., Ltd.	182,987	-	-	1,629
Others	14	82	1	723
Other related parties				
LG MMA Corporation	22,907	37,350	-	878
S&I Corporation and its subsidiaries	56	5,516	154,164	14,214
LG CNS Co., Ltd. and its subsidiaries	1,220	783	80,690	19,881
Others	-	-	-	2,653
Others				
LG Display Co., Ltd. and its subsidiaries	213,632	24	-	95
LG Electronics Inc. and its subsidiaries	253,271	161,351	82,574	57,786
LG International Corp. and its subsidiaries	8,202	91,441	26,108	144,476
LG Hausys, Ltd. and its subsidiaries	43,188	368	649	1,875
Others	2,449	6,377	87	1,666
Total	732,629	340,706	344,312	286,929

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

(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	Others
Entity with a significant influence over the Group				
LG Corp.	2,655	-	-	16,399
Associates and joint ventures				
SEETEC Co., Ltd.	3,252	40,071	210	20,446
TECWIN Co., Ltd.	3	17	1,242	31
HL Greenpower Co., Ltd.	190,486	-	-	137
Others	-	-	-	654
Other related parties				
LG MMA Corporation	28,280	52,233	-	1,576
S&I Corporation and its subsidiaries	3,685	157,037	163,462	47,645
LG CNS Co., Ltd. and its subsidiaries	3,240	253	39,130	21,312
Others	-	-	-	5,077
Others				
LG Display Co., Ltd. and its subsidiaries	286,656	34	505	130
LG Electronics Inc. and its subsidiaries	261,648	145,886	95,077	5,921
LG International Corp. and its subsidiaries	55,717	116,668	3,062	138,999
LG Hausys, Ltd. and its subsidiaries	46,908	3,586	252	1,808
Others	3,965	6,218	-	1,853
Total	886,495	522,003	302,940	261,988

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

Balances of receivables and payables arising from sales and purchases of goods and services as at March 31, 2020 and December 31, 2019, are as follows:

(in millions of Korean won)

	March 31, 2020			
	Receivables			
	Trade receivables and others	Loan receivables	Other receivables	Total
Entity with a significant influence over the Group				
LG Corp.	-	-	12,406	12,406
Associates and joint ventures				
SEETEC Co., Ltd.	6,896	-	199	7,095
TECWIN Co., Ltd.	-	-	314	314
HL Greenpower Co., Ltd.	137,251	-	-	137,251
Others	-	-	25	25
Other related parties				
LG MMA Corporation	8,543	-	495	9,038
S&I Corporation and its subsidiaries	11	-	24,553	24,564
LG CNS Co., Ltd. and its subsidiaries	1,438	-	-	1,438
Others	671	-	4,350	5,021
Others				
LG Display Co., Ltd. and its subsidiaries	155,603	-	-	155,603
LG Electronics Inc. and its subsidiaries	234,384	-	81,083	315,467
LG International Corp. and its subsidiaries	738	-	-	738
LG Hausys, Ltd. and its subsidiaries	34,867	-	46	34,913
Others	56	-	1,596	1,652
Total	580,458	-	125,067	705,525

(in millions of Korean won)

	March 31, 2020			
	Payables			
	Trade payables	Borrowings	Other payables	Total
Entity with a significant influence over the Group				
LG Corp.	-	-	48,428	48,428
Associates and joint ventures				
SEETEC Co., Ltd.	12,344	-	10,558	22,902
TECWIN Co., Ltd.	-	-	44	44
HL Greenpower Co., Ltd.	-	-	389	389
Others	-	-	179	179
Other related parties				
LG MMA Corporation	13,442	-	-	13,442
S&I Corporation and its subsidiaries	15	-	212,178	212,193
LG CNS Co., Ltd. and its subsidiaries	-	-	99,769	99,769
Others	-	-	523	523
Others				
LG Display Co., Ltd. and its subsidiaries	15	-	112	127
LG Electronics Inc. and its subsidiaries	140,369	-	352,277	492,646
LG International Corp. and its subsidiaries	18,544	-	102,904	121,448
LG Hausys, Ltd. and its subsidiaries	604	-	1,722	2,326
Others	2,321	-	1,910	4,231
Total	187,654	-	830,993	1,018,647

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

(in millions of Korean won)

	December 31, 2019			
	Receivables			Total
	Trade receivables and others	Loan receivables	Other receivables	
Entity with a significant influence over the Group				
LG Corp.	-	-	12,391	12,391
Associates and joint ventures				
SEETEC Co., Ltd.	4,140	-	636	4,776
TECWIN Co., Ltd.	-	-	-	-
HL Greenpower Co., Ltd.	54,907	-	-	54,907
Others	-	-	10	10
Other related parties				
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
Others				
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
Total	470,015	-	65,338	535,353

(in millions of Korean won)

	December 31, 2019			
	Payables			Total
	Trade payables	Borrowings	Other payables	
Entity with a significant influence over the Group				
LG Corp.	-	-	1,360	1,360
Associates and joint ventures				
SEETEC Co., Ltd.	15,781	-	11,375	27,156
TECWIN Co., Ltd.	-	-	1,633	1,633
HL Greenpower Co., Ltd.	-	-	65	65
Others	-	-	258	258
Other related parties				
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	-	163,654	164,514
Others	-	-	462	462
Others				
LG Display Co., Ltd. and its subsidiaries	7	-	87	94
LG Electronics Inc. and its subsidiaries	115,622	-	436,962	552,584
LG International Corp. and its subsidiaries	10,398	-	97,017	107,415
LG Hausys, Ltd. and its subsidiaries	512	-	5,925	6,437
Others	1,706	-	4,328	6,034
Total	158,318	-	1,024,054	1,182,372

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

Fund transactions with related parties for the three-month periods ended March 31, 2020 and 2019, are as follows:

(in millions of Korean won)

	2020		2019	
	Equity contributions in cash	Loan (Repayment)	Equity contributions in cash (capital reduction)	Loan (Repayment)
Associates and joint ventures				
HUAJIN NEW ENERGY MATERIALS(QUAZHOU)CO., LTD	13,611	-	-	-
Total	13,611	-	-	-

Dividends received from related parties for the three-month periods ended March 31, 2020 and 2019, are as follows:

(in millions of Korean won)

	2020	2019
Associates and joint ventures		
SEETEC Co., Ltd.	10,000	10,000
TECWIN Co., Ltd.	314	-
Total	10,314	10,000

There are no dividends paid by the Group to related parties for the three-month periods ended March 31, 2020 and 2019.

Compensation for key management of the Group for the three-month periods ended March 31, 2020 and 2019, consists of:

(in millions of Korean won)

	2020	2019
Short-term employee benefits	16,710	27,647
Post-employment benefits	1,783	1,669
Total	18,493	29,316

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 March 31, 2020.

As at March 31, 2020, there is no payment guarantees provided by the Group for related parties.

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

32. Cash Generated from Operations

Reconciliation between profit before income tax and cash generated from operations for the three-month periods ended March 31, 2020 and 2019, is as follows:

<i>(in millions of Korean won)</i>	2020	2019
Profit before income tax		
Profit before income tax from continuing operations	176,012	286,268
Loss before income tax from discontinued operations	(26,725)	(6,686)
	<u>149,287</u>	<u>279,582</u>
Adjustments for:		
Depreciation	493,171	376,242
Amortization	36,741	28,911
Post-employment benefits	47,035	41,906
Finance income	(164,602)	(81,818)
Finance costs	486,835	85,814
Foreign exchange differences	596	(473)
Loss(gain) on valuation of inventories	12,256	(8,371)
Gain on disposal of property, plant and equipment	(716)	(2,299)
Gain on disposal of intangible assets	(115)	(160)
Loss on disposal of property, plant and equipment	5,933	12,443
Loss on disposal of intangible assets	115	889
Impairment loss on property, plant and equipment	33,603	4,791
Impairment loss on intangible assets	63	-
Gain on disposal of investments in joint ventures	(328,634)	-
Additions to provisions	61,627	143,648
Other income	(50,436)	(2,985)
Increase in inventories	(274,042)	(161,765)
Increase in trade receivables	(748,867)	(171,857)
Decrease in other receivables	12,701	25,841
Increase in other current assets	(32,398)	(76,515)
Increase in trade payables	26,493	210,092
Increase in other payables	371,572	14,683
Increase (decrease) in other current liabilities	(83,889)	33,100
Decrease in provisions	(64,916)	(20,564)
Decrease in net defined benefit liabilities	(496)	(418)
Other cash flows from operations	17,041	(56,598)
Cash generated from operations	<u><u>5,958</u></u>	<u><u>674,119</u></u>

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

Changes in liabilities arising from financial activities for the three-month period ended March 31, 2020, are as follows:

<i>(in millions of Korean won)</i>	2020						At March 31, 2020
	At January 1, 2020	Cash flows from financing activities	Reclassification of current portion	Amortization	Lease liabilities	Others	
Short-term borrowings	1,136,154	(225,690)	255,123	-	-	905,893	2,071,480
Long-term borrowings	1,758,958	2,177,879	(255,123)	-	16,810	(766,499)	2,932,025
Debentures	5,519,156	906,932	-	4,812	-	119,329	6,550,229
Conversion rights	930	-	-	-	-	7,346	8,276
Other payables for the reverse factoring arrangement	856,287	(562,879)	-	-	-	629,038	922,446
Total	9,271,485	2,296,242	-	4,812	16,810	895,107	12,484,456

The significant non-cash transactions for the three-month periods ended March 31, 2020 and 2019, are as follows:

<i>(in millions of Korean won)</i>	2020	2019
Transfer of construction-in-progress	1,643,916	840,742
Transfer of machinery-in-transit	18,814	31,798
Reclassification of long-term borrowings into current portion	494,921	129,270
Other payables related to acquisitions of property, plant and equipment and intangible assets	1,865,597	1,536,600
Reclassification of other payables under the reverse factoring arrangement	633,254	-

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 ¹	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

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

Common and others ¹	Crop protection products, Seeds, Fertilizers, General management, sales and R&D and others	National Agriculture Cooperative Federation and others
--------------------------------	--	--

¹ 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 three-month periods ended March 31, 2020 and 2019, is as follows:

<i>(in millions of Korean won)</i>	2020					
	Petro-chemicals	Energy solutions	Advanced materials	Life sciences	Common and others ³	Total
Total segment revenue	3,695,937	2,260,876	1,107,413	159,334	242,489	7,466,049
Inter-segment revenue	136,092	228	195,025	1,070	17,905	350,320
Revenue from external customers ¹	3,559,845	2,260,648	912,388	158,264	224,584	7,115,729
Operating profit (loss) ²	242,615	(51,832)	62,056	23,486	(39,867)	236,458

<i>(in millions of Korean won)</i>	2019					
	Petro-chemicals	Energy solutions	Advanced materials	Life sciences	Common and others ³	Total
Total segment revenue	3,753,558	1,650,133	1,185,584	143,471	255,213	6,987,959
Inter-segment revenue	139,312	-	210,531	1,267	15,187	366,297
Revenue from external customers ¹	3,614,246	1,650,133	975,053	142,204	240,026	6,621,662
Operating profit (loss) ²	395,728	(147,911)	10,920	11,826	10,473	281,036

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

² Management assesses the performance of the operating segments based on a measurement of operating profit of segment.

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

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

The segment information on assets and liabilities as at March 31, 2020 and December 31, 2019, is as follows:

<i>(in millions of Korean won)</i>	March 31, 2020					
	Petro-chemicals	Energy solutions	Advanced materials	Life sciences	Common and others	Total
Reportable segment asset ¹	11,363,561	14,039,557	4,749,403	1,866,584	5,102,023	37,121,128
Investments in associates and joint ventures	5,908	27,443	83,650	17	157,009	274,027
Reportable segment liability ¹	3,738,031	8,132,064	1,277,845	182,029	6,375,070	19,705,039

<i>(in millions of Korean won)</i>	December 31, 2019					
	Petro-chemicals	Energy solutions	Advanced materials	Life sciences	Common and others	Total
Reportable segment asset ¹	10,564,216	12,091,983	4,724,794	1,906,005	4,737,428	34,024,426
Investments in associates and joint ventures	5,132	28,254	67,059	17	207,115	307,577
Reportable segment liability ¹	3,358,939	6,587,857	1,159,270	232,049	5,302,522	16,640,637

¹ 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 three-month periods ended March 31, 2020 and 2019, and as at March 31, 2020 and December 31, 2019, are as follows:

<i>(in millions of Korean won)</i>	Sales		Non-current assets¹	
	2020	2019	March 31, 2020	December 31, 2019
	Korea ²	2,097,930	2,036,255	13,590,940
China	2,030,725	2,186,582	4,072,429	3,975,505
Asia	981,238	878,229	59,727	58,990
America	625,853	443,675	605,603	559,051
Europe	1,292,355	971,845	3,425,742	3,051,227
Others	87,628	105,076	-	-
Total	7,115,729	6,621,662	21,754,441	20,853,199

¹ Represents aggregate amount of property, plant and equipment, intangible assets and investment properties.

² 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 three-month periods ended March 31, 2020 and 2019.

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

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

34.1 Non-current assets held for sale

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

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

<i>(in millions of Korean won)</i>	March 31, 2020	December 31, 2019
Assets of disposal group		
Property, plant and equipment	20,343	19,573
Intangible assets	86	-
Total	<u>20,429</u>	<u>19,573</u>

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 three-month periods ended March 31, 2020 and 2019.

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 March 31, 2020. 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.

Comprehensive income information from discontinued operation for the three-month periods ended March 31, 2020 and 2019, is as follows:

<i>(in millions of Korean won)</i>	Glass substrate	
	2020	2019
Revenue	10,093	17,701
Expense	<u>(36,818)</u>	<u>(24,387)</u>
Loss before income tax of discontinued operation	(26,725)	(6,686)
Income tax benefits	2,548	1,538
Loss after income tax of discontinued operations	<u>(24,177)</u>	<u>(5,148)</u>

Net cash flows from discontinued operations for the three-month periods ended March 31, 2020 and 2019, are as follows:

<i>(in millions of Korean won)</i>	Glass substrate	
	2020	2019
Net cash outflow from operating activities	(6,395)	(20,537)
Net cash outflow from investing activities	(2,404)	(11,474)
Net cash inflow from financing activities	8,799	32,011

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

35. Assets and Liabilities related to Contracts with Customers

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

<i>(in millions of Korean won)</i>	March 31, 2020	December 31, 2019
Contract assets		
A right to recover the product	3,497	5,191
Total contract assets	<u>3,497</u>	<u>5,191</u>
Contract liabilities		
Advances in relation to revenue from the Group's main business activities	132,929	183,606
Expected services to be transferred	2,000	3,500
Expected customer incentives	5,341	6,400
Unearned revenue	34,001	34,247
Expected refunds	6,881	10,893
Total contract liabilities	<u>181,152</u>	<u>238,646</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>	March 31, 2020
Revenue recognized in the current year from the contract liability balance at the beginning of the year	84,598
Advances in relation to revenue from the Group's main business activities	78,581
Unearned revenue	4,517
Expected services to be transferred	1,500
Revenue recognized from performance obligations satisfied in previous periods	-

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

36. Investment Properties

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

<i>(in millions of Korean won)</i>	March 31, 2020			December 31, 2019				
	Cost	Accumulated depreciation	Accumulated impairment	Book amount	Cost	Accumulated depreciation	Accumulated impairment	Book amount
Land	4,211	-	-	4,211	4,368	-	-	4,368
Buildings	61,243	(12,516)	(80)	48,647	61,242	(12,202)	(80)	48,960
	<u>65,454</u>	<u>(12,516)</u>	<u>(80)</u>	<u>52,858</u>	<u>65,610</u>	<u>(12,202)</u>	<u>(80)</u>	<u>53,328</u>

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

<i>(in millions of Korean won)</i>	2020			2019		
	Land	Building	Total	Land	Building	Total
Beginning balance	4,368	48,960	53,328	486	464	950
Acquisitions/Transfers	-	-	-	3,882	49,722	53,604
Disposals/Transfers	(157)	-	(157)	-	-	-
Depreciation	-	(313)	(313)	-	(1,226)	(1,226)
Ending balance	<u>4,211</u>	<u>48,647</u>	<u>52,858</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 March 31, 2020, is ₩ 53,836 million.

Rental income from investment properties under operating lease is ₩ 1,944 million, and operating expenses incurred for investment properties that generated rental income (including maintenance and repair expenses) are ₩ 310 million. Operating expenses incurred for investment properties that do not generate rental income (including maintenance and repair expenses) are ₩ 3 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.

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

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

<i>(in millions of Korean won)</i>	March 31, 2020	December 31, 2019
Within one year	6,743	6,848
	6,743	6,848

37. Events after the Reporting Period

On April 24, 2020, the Group paid USD 35,293,000 of capital to UltiumCells LLC, a joint venture with General Motors.

On May 7, 2020, a gas leaking accident occurred at LG Polymers India Pvt. Ltd.'s manufacturing facility. The Group is investigating the current situation of the accident.