S-OIL Corporation and Subsidiaries

Consolidated Financial Statements December 31, 2020 and 2019

S-OIL Corporation and Subsidiaries

Index

December 31, 2020 and 2019

	Page(s)
Independent Auditor's Report	1 – 4
Consolidated Financial Statements	
Consolidated Statements of Financial Position	5
Consolidated Statements of Comprehensive Income	6
Consolidated Statements of Changes in Equity	7 - 8
Consolidated Statements of Cash Flows	9
Notes to the Consolidated Financial Statements	10 - 76





Independent Auditor's Report

(English Translation of a Report Originally Issued in Korean)

To the Board of Directors and Shareholders of S-OIL Corporation

Opinion

We have audited the accompanying consolidated financial statements of S-OIL Corporation and its subsidiaries (collectively referred to as the "Group"), which comprise the consolidated statements of financial position as of December 31, 2020 and 2019, and the consolidated statements of comprehensive income, changes in equity and cash flows for the years then ended, and notes to the consolidated financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Group as of December 31, 2020 and 2019, and its consolidated financial performance and its consolidated cash flows for the years then ended in accordance with International Financial Reporting Standards as adopted by the Republic of Korea.

Basis for Opinion

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

Emphasis of Matter

As discussed in the Note 5 to the consolidated financial statements, due to the outbreak of Corona Virus Infection Disease 2019 ("COVID-19") in 2020, the world, including Korea, is facing uncertainty over difficult economic condition and prolonged occurrence of adverse conditions. However, due to the uncertainty aforementioned regarding the duration and extent of COVID-19, the Group cannot fully estimate the financial impact from the COVID-19 and the consolidated financial statements do not reflect any impact from this uncertainty. Our opinion is not modified with respect to this matter.

Key Audit Matters

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

Related Party Transactions - Existence and Disclosure

Why it is determined to be a key audit matter

Sales and purchases transactions with related parties of the Group in 2020 are \(\pi\) 2,989,594 million and \(\pi\) 12,344,874 million, respectively. These amounts represent 18% of total sales and 80% of total purchases. We focused on the impact of these significant related party transactions on the consolidated financial statements. See Note 33 for details.

More specifically, sales transactions with Aramco Trading Company and its subsidiaries amount to $\mbox{$\mbox{$$\mu$}$}$ 2,874,290 million and purchase transactions with Saudi Arabian Oil Company and Aramco Trading Company and its subsidiaries amount to $\mbox{$\mbox{μ}$}$ 12,144,852 million. Given the significant size of transactions, we considered related party transactions with these particular related parties (existence and disclosure) as a key audit matter.

How our audit addressed the key audit matter

Our procedures with respect to existence and disclosure of sales and purchases from related parties include:

- · Obtaining an understanding and evaluating process and relevant controls relating to the related party transactions
- Performing external confirmation procedures and examining supporting documents, in a sample basis, to substantive test of sales and purchases at transaction level
- · Evaluating appropriateness of disclosure in accordance with the applicable financial reporting framework.

Inventory Valuation

Why it is determined to be a key audit matter

Valuation allowance for inventories of \forall 7,214 million and reversal of loss on valuation of inventories of \forall 26,247 million were recognized as of and for the year ended December 31, 2020. See Note 12 for details.

In measuring allowance for inventories, significant management's estimates and judgment are made as to future estimated sales price. Given the size of the balance and the extent of judgment involved, we considered inventory valuation as a key audit matter.

How our audit addressed the key audit matter

Our procedures with respect to inventory valuation include:

- · Obtaining an understanding and evaluating process and relevant controls relating to the inventory valuation
- · Examining supporting documents for future estimated sales price which is one of the assumptions management used

· Recalculating mathematical accuracy of allowance for inventories

Other Matter

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

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

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

In preparing the consolidated financial statements, management is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group or to cease operations.

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

Auditor's Responsibilities for the Audit of the Consolidated Financial Statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Korean Standards on Auditing will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

As part of an audit in accordance with Korean Standards on Auditing, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- · Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.

- · Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business
 activities within the Group to express an opinion on the consolidated financial statements. We are
 responsible for the direction, supervision and performance of the Group audit. We remain solely
 responsible for our audit opinion.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

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

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

The engagement partner on the audit resulting in this independent auditor's report is Sung-Ki Jun, Certified Public Accountant.

Seoul, Korea March 9, 2021

This report is effective as of March 9, 2021, the audit report date. Certain subsequent events or circumstances, which may occur between the audit report date and the time of reading this report, could have a material impact on the accompanying consolidated financial statements and notes thereto. Accordingly, the readers of the audit report should understand that there is a possibility that the above audit report may have to be revised to reflect the impact of such subsequent events or circumstances, if any.

S-OIL Corporation and Subsidiaries Consolidated Statements of Financial Position December 31, 2020 and 2019

(In millions of Korean won)			
	Notes	2020	2019
Assets Current assets			
	2 7 11	₩ 737,439	₩ 291,005
Cash and cash equivalents Trade receivables	3,7,11 3,8,11	1,196,327	1,312,318
Other receivables	3,8,11,35	171,902	264,710
Other current financial assets	3,4,9,11	344,119	264,322
Derivative financial instruments	3,4,10,11	5,336	566
Inventories	12	2,192,289	3,196,033
Other current assets	9	347,667	297,945
Current income tax assets		1,470	1,963
		4,996,549	5,628,862
Non-comment coasts			
Non-current assets Other receivables	3,8,11,35	78,670	76,305
Other non-current financial assets	3,4,9,11	58,865	58,332
Investments in joint venture	13	31,636	30,317
Property, plant and equipment	6,14,16	10,077,801	10,139,139
Intangible assets	6,15	98,770	101,329
Other non-current assets	9,35	255,368	299,033
Deferred income tax assets	30	92,851	84
		10,693,961	10,704,539
Total assets		₩ 15,690,510	₩ 16,333,401
Liabilities Current liabilities			
	2 44 47	₩ 2,003,623	₩ 1,655,203
Trade payables Other payables	3,11,17 3,11,17,35	391,752	607,960
Borrowings	3,11,18	2,615,377	2,825,112
Derivative financial instruments	3,4,10,11	33,577	8,160
Current income tax liabilities	0, 1, 10, 11	208	829
Provisions for other liabilities and charges	19	2,875	3,594
Contract liabilities	19	20,668	21,601
Other current liabilities	17	1,497,031	626,201
		6,565,111	5,748,660
Non-current liabilities			
Other payables	3,11,17,35	245,653	280,779
Net defined benefit liabilities	20	2,613	11,557
Borrowings	3,11,18	3,194,602	3,554,805
Deferred income tax liabilities	30	54	240,974
		3,442,922	4,088,115
Total liabilities		10,008,033	9,836,775
Fauity			
Equity Share capital	22	291,512	291,512
Share premium	22 22	379,190	379,190
Reserves	25	977,944	979,629
Treasury share	23	(1,876)	(1,876)
Retained earnings	24	4,035,707	4,848,171
Total equity		5,682,477	6,496,626
Total liabilities and equity		₩ 15,690,510	₩ 16,333,401
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The above consolidated statements of financial position should be read in conjunction with the accompanying notes.

S-OIL Corporation and Subsidiaries Consolidated Statements of Comprehensive Income Years Ended December 31, 2020 and 2019

(In millions of Korean won, except per share data)	Notes	2020	2019
Sales	6	₩ 16,829,681	₩ 24,394,173
Cost of sales	26,31	(17,366,204)	(23,346,806)
Gross profit (loss)		(536,523)	1,047,367
Selling expenses Administrative expenses	27,31 27,31	(458,855) (103,768)	(507,462) (119,828)
Operating profit (loss)		(1,099,146)	420,077
Other income Other expenses Finance income Finance costs Share of net profit of joint venture	28 28 29 29 13	394,473 (430,609) 416,394 (452,615) 3,706	370,423 (440,571) 163,408 (405,536) 2,550
Profit(loss) before income tax Income tax benefit (expense)	30	(1,167,797) 371,689	110,351 (44,922)
Profit (loss) for the year		(796,108)	65,429
Other comprehensive income (loss), net of tax Items that will not be reclassified to profit or loss Remeasurements of net defined benefit liabilities Gains on valuation of financial assets at fair value through other comprehensive income	20	(9,748) 3,541	(11,114) 2,271
Items that may be subsequently reclassified to profit or loss Share of other comprehensive income of joint venture Currency translation differences	25 25	9 (105)	(25) 32
Total other comprehensive loss for the year		(6,303)	(8,836)
Total comprehensive income (loss) for the year		₩ (802,411)	₩ 56,593
Earnings (Loss) per share Basic and diluted earnings (loss) per ordinary share Basic and diluted earnings (loss) per preferred share	32 32	₩ (6,839) ₩ (6,814)	₩ 561 ₩ 586

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

S-OIL Corporation and Subsidiaries Consolidated Statements of Changes in Equity Years ended December 31, 2020 and 2019

(In millions of Korean won)	Share Capital	Share Premium	Reserves	Treasury Share	Retained Earnings	Total Equity
Balance at January 1, 2019	₩ 291,512	₩ 379,190	₩ 977,351	₩ (1,876)	₩ 4,823,057	₩ 6,469,234
Profit for the year	-	_	_	_	65,429	65,429
Other comprehensive income (loss)						
Gains on valuation of financial assets at fair value through						
other comprehensive income	-	-	2,271	-	-	2,271
Share of other comprehensive income in joint venture	-	-	(25)	-	-	(25)
Foreign currency translation adjustments	-	-	32	-	-	32
Remeasurements of net defined benefit liabilities	<u> </u>	<u>-</u>			(11,114)	(11,114)
Other comprehensive income (loss) for the year			2,278	-	(11,114)	(8,836)
Total comprehensive income for the year		<u> </u>	2,278	-	54,315	56,593
Transactions with owners						
Dividends paid for 2018	-	-	-	-	(17,559)	(17,559)
Interim dividends paid for 2019					(11,642)	(11,642)
Balance at December 31, 2019	₩ 291,512	₩ 379,190	₩ 979,629	₩ (1,876)	₩ 4,848,171	₩ 6,496,626

S-OIL Corporation and Subsidiaries Consolidated Statements of Changes in Equity Years ended December 31, 2020 and 2019

(In millions of Korean won)		Share Sapital		Share remium	Re	eserves		easury Share	Retained Earnings	То	tal Equity
Balance at January 1, 2020	₩	291,512	₩	379,190	₩	979,629	₩	(1,876)	₩ 4,848,171	₩	6,496,626
Loss for the year		-		_				_	(796,108)		(796, 108)
Other comprehensive income (loss)											
Gains on valuation of financial assets at fair value through											
other comprehensive income		-		-		3,541		-	-		3,541
Reclassification due to disposal of financial assets at fair											
value through other comprehensive income		-		-		(5,130)		-	5,130		-
Share of other comprehensive income in joint venture		-		-		9		-	-		9
Foreign currency translation adjustments		-		-		(105)		-	-		(105)
Remeasurements of net defined benefit liabilities								_	(9,748)		(9,748)
Other comprehensive loss for the year		-		-		(1,685)		_	(4,618)		(6,303)
Total comprehensive loss for the year		-				(1,685)		_	(800,726)		(802,411)
Transactions with owners											
Dividends paid for 2019									(11,738)		(11,738)
Balance at December 31, 2020	₩	291,512	₩	379,190	₩	977,944	₩	(1,876)	₩ 4,035,707	₩	5,682,477

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

S-OIL Corporation and Subsidiaries Consolidated Statements of Cash Flows Years ended December 31, 2020 and 2019

(In millions of Korean won)	Notes		2020		2019
Cash flows from operating activities					
Cash generated from operations	34	₩	1,745,149	₩	810,225
Interest received			13,248		13,169
Interest paid			(169,630)		(180,115)
Income tax refunded			` 39,117		` 31,471
Dividends received			3,088		4,697
Net cash inflow from operating activities		₩	1,630,972	₩	679,447
Cash flows from investing activities					
Proceeds from disposal of property, plant and equipment		₩	23,819	₩	6,219
Proceeds from disposal of intangible assets			2,781		383
Decrease in other receivables			15,646		19,302
Proceeds from disposal of investments in associate			-		398
Decrease in other financial assets			11,867		4,500
Acquisition of property, plant and equipment	14		(547,100)		(827,344)
Acquisition of intangible assets	15		(362)		(263)
Purchase of financial assets at fair value through profit or			()		(/
loss	4		(5,863)		(7,634)
Increase in other receivables			(5,098)		(9,156)
Settlement of derivative assets and liabilities			(49,212)		(32,509)
Increase in other financial assets			(82,669)		(222,084)
Others			595		(1,267)
Net cash outflow from investing activities		₩	(635,596)	₩	(1,069,455)
Cash flows from financing activities					
Proceeds from borrowings		₩	1,097,361	₩	669,099
Repayment of borrowings			(1,571,332)		(576,095)
Decrease in other payables			(62,975)		(47,310)
Dividends paid			(11,742)		(29,237)
Net cash inflow (outflow) from financing activities		₩	(548,688)	₩	16,457
Net increase (decrease) in cash and cash equivalents		₩	446,688	₩	(373,551)
Cash and cash equivalents at the beginning of the year	7		291,005		664,506
Effects of exchange rate changes on cash and cash			,		,
equivalents			(254)		50
Cash and cash equivalents at the end of the year	7	₩	737,439	₩	291,005

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

1. General Information

The general information of S-OIL Corporation (the "Company" or the "Parent Company") and its subsidiaries, S-International Ltd., North East Chemicals Co., Ltd. and S-OIL Singapore PTE. LTD. (the "Subsidiaries") (collectively referred to as the "Group") under Korean IFRS 1110 *Consolidated Financial Statements*, are as follows:

The Company

S-OIL Corporation was established in 1976 to manufacture and sell oil refining products, lube products and petrochemical products, and to import and export crude oil and products. In 1987, the Company listed its stock on the Korea Exchange. The Company's headquarters is located in Mapo-gu, Seoul, Korea.

As at December 31, 2020, the major shareholders of the Company and their respective shareholdings are as follows:

	2020					
Name of shareholders	Number of ordinary shares	Percentage of ownership (%)				
Aramco Overseas Co., B.V.	71,387,560	63.41				
Institutional and individual investors	41,195,232	36.59				
Total	112,582,792	100.00				

Consolidated Subsidiaries

Details of the consolidated subsidiaries as at December 31, 2020 and 2019, are as follows:

	Number of Shares	Location	Ownership interest held by the Group (%)	2019 Ownership interest held by the Group (%)	Main business	Closing Month
S-International Ltd.	10	Samoa	100	100	Purchasing and sales of crude oil and petroleum goods	December
North East Chemicals Co., Ltd. ¹	-	Korea	-	100	Warehousing and handling of liquid chemicals	December
S-OIL Singapore PTE. LTD.	1,200,000	Singapore	100	100	Lube base oil trading and overseas services	December

¹ North East Chemicals Co., Ltd. is excluded from the consolidated subsidiaries because it was merged with the Company during 2020.

Summarized financial information for consolidated subsidiaries as at and for the years ended December 31, 2020 and 2019, is as follows:

(In millions of Korean won)				2020				
Subsidiary	Assets	Liabilities	Equity	Sales	Profit for the year	Total comprehensive income (loss)		
S-International Ltd.	₩ 1,268	₩ -	₩ 1,268	₩ -	₩ 6	₩ (76)		
North East Chemicals Co., Ltd. ¹	-	-	-	7,522	2,156	2,207		
S-OIL Singapore PTE. LTD. ²	14,523	13,026	1,497	95,279	531	467		
(In millions of Korean won)				2019		Total		
Subsidiary	Assets	Liabilities	Equity	Equity Sales		Prof uity Sales		comprehensive income (loss)
S-International Ltd.	₩ 1,343	₩ -	₩ 1,343	₩ -	₩ 16	₩ 61		
North East Chemicals Co., Ltd. ¹	143,678	65,510	78,168	10,729	2,781	2,809		
S-OIL Singapore PTE. LTD. ²	1,030	-	1,030	-	-	(1)		

¹ Transactions before the merger with the Company were presented.

² S-OIL Singapore PTE. LTD. was newly included in the consolidation for the year ended December 31, 2019, and transactions after the acquisition were presented.

Changes in Scope for Consolidation

There are no subsidiaries newly included in the consolidation for the year ended December 31, 2020.

A subsidiary excluded from the consolidation for the year ended December 31, 2020, is North East Chemicals Co., Ltd.

2. Significant Accounting Policies

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

2.1 Basis of Preparation

The Group maintains its accounting records in Korean won and prepares statutory consolidated 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 financial statements have been condensed, restructured and translated into English from the Korean language consolidated financial statements.

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

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

The financial statements have been prepared on a historical cost basis, except for the following:

- · Certain financial assets and liabilities (including derivative instruments), certain classes of property, plant and equipment and investment property measured at fair value
- · assets held for sale measured at fair value less costs to sell, and
- · defined benefit pension plans plan assets measured at fair value.

The preparation of consolidated financial statements requires the use of critical accounting estimates. Management also needs to exercise judgement in applying the Group's accounting policies. The areas involving a higher degree of judgment or complexity, or areas where assumptions and estimates are significant to the consolidated financial statements are disclosed in Note 5.

(1) New and amended standards adopted by the Group

The Group has applied the following standards and amendments 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 definition of material. Information is material if omitting, misstating or obscuring it could reasonably be expected to influence the decisions that the primary users of general-purpose financial statements make on the basis of those financial statements. The amendments do not have a significant impact on the financial statements.

- Amendments to Korean IFRS 1103 Business Combination - Definition of 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 the definition of output excludes the returns in the form of lower costs and other economic benefits. If substantially all of the fair value of the gross assets acquired is concentrated in a single identifiable asset or group of similar identifiable assets, an entity may elect to apply an optional concentration test that permits a simplified assessment of whether an acquired set of activities and assets is not a business. The amendment does not have a significant impact on the financial statements.

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

The amendments allow to apply the exceptions 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 financial statements.

(2) New standards and interpretations not yet adopted by the Group

The following new accounting standards and interpretations have been published that are not mandatory for December 31, 2020 reporting periods and have not been early adopted by the Group.

- Amendments to Korean IFRS 1116 *Lease* – Practical expedient for COVID-19 - Related Rent Exemption, Concessions, Suspension

As a practical expedient, a lessee may elect not to assess whether a rent concession occurring as a direct consequence of the COVID-19 pandemic is a lease modification, and the amounts recognized in profit or loss as a result of applying this exemption should be disclosed. The amendments should be applied for annual periods beginning on or after June 1, 2020, and earlier application is permitted.

The Group does not expect that this amendment has a significant impact on the financial statements.

- Amendments to Korean IFRS 1109 Financial Instruments, Korean IFRS 1039 Financial Instruments: Recognition and Measurement, Korean IFRS 1107 Financial Instruments: Disclosure, Korean IFRS 1104 Insurance Contracts and Korean IFRS 1116 Lease – Interest Rate Benchmark Reform

In relation to interest rate benchmark reform, the amendments provide exceptions including adjust effective interest rate instead of book amounts when interest rate benchmark of financial instruments at amortized costs is replaced, and apply hedge accounting without discontinuance although the interest rate benchmark is replaced in hedging relationship. The amendments should be applied for annual periods beginning on or after January 1, 2021, and earlier application is permitted. The Group does not expect that this amendment has a significant impact on the financial statements.

- Amendments to Korean IFRS 1103 *Business Combination* - Reference to the Conceptual Framework

The amendments update a reference of definition of assets and liabilities qualify for recognition in revised Conceptual Framework for Financial Reporting. However, the amendments add an exception for the recognition of liabilities and contingent liabilities within the scope of Korea IFRS 1037 Provisions, Contingent Liabilities and Contingent Assets, and Korean IFRS 2121 Levies. The amendments also confirm that contingent assets should not be recognized at the acquisition date. The amendments should be applied for annual periods beginning on or after January 1, 2022, and earlier application is permitted. The Group does not expect that this amendment has a significant impact on the financial statements.

- Amendments to Korean IFRS 1016 Property, Plant and Equipment - Proceeds before intended use

The amendments prohibit an entity from deducting from the cost of an item of property, plant and equipment any proceeds from selling items produced while the entity is preparing the asset for its intended use. Instead, the entity will recognize the proceeds from selling such items, and the costs of producing those items, in profit or loss. The amendments should be applied for annual periods beginning on or after January 1, 2022, and earlier application is permitted. The Group is in review for the impact of this amendment on the financial statements.

- Amendments to Korean IFRS 1037 *Provisions, Contingent Liabilities and Contingent Assets* - Onerous Contracts: Cost of Fulfilling a Contract

The amendments clarify that the direct costs of fulfilling a contract include both the incremental costs of fulfilling the contract and an allocation of other costs directly related to fulfilling contracts when assessing whether the contract is onerous. The amendments should be applied for annual periods beginning on or after January 1, 2022, and earlier application is permitted. The Group does not expect that this amendment has a significant impact on the financial statements.

- Annual improvements to Korean IFRS 2018-2020

Annual improvements of Korean IFRS 2018-2020 Cycle should be applied for annual periods beginning on or after January 1, 2022, and earlier application is permitted. The Group does not expect that these amendments have a significant impact on the financial statements.

- Korean IFRS 1101 First time Adoption of Korean International Financial Reporting Standards
 Subsidiaries that are first-time adopters
- Korean IFRS 1109 Financial Instruments Fees related to the 10% test for derecognition of financial liabilities
- Korean IFRS 1116 Leases Lease incentives
- · Korean IFRS 1041 Agriculture Measuring fair value
- Amendments to Korean IFRS 1001 *Presentation of Financial Statements* Classification of Liabilities as Current or Non-current

The amendments clarify that liabilities are classified as either current or non-current, depending on the substantive rights that exist at the end of the reporting period. Classification is unaffected by the likelihood that an entity will exercise right to defer settlement of the liability or the expectations of management. Also, the settlement of liability include the transfer of the entity's own equity instruments, however, it would be excluded if an option to settle them by the entity's own equity instruments if compound financial instruments is met the definition of equity instruments and recognized separately from the liability. The amendments should be applied for annual periods beginning on or after January 1, 2023, and earlier application is permitted. The Group is in review for the impact of this amendment on the financial statements.

2.2 Consolidation

The Group has prepared the consolidated financial statements in accordance with Korean IFRS 1110 *Consolidated Financial Statements*.

(1) Subsidiaries

Subsidiaries are all entities over which the Group has control. The Group controls an entity when the Group is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power to direct the activities of the entity. Subsidiaries are fully consolidated from the date on which control is transferred to the Group. They are deconsolidated from the date that control ceases.

The acquisition method of accounting is used to account for business combinations by the Group. The consideration transferred is measured at the fair values of the assets transferred, and identifiable assets acquired and liabilities and contingent liabilities assumed in a business combination are measured initially at their fair values at the acquisition date. The Group recognizes any non-controlling interest in the acquired entity on an acquisition-by-acquisition basis either at fair value or at the non-controlling interest's proportionate share of the acquired entity's net identifiable assets. All other non-

controlling interests are measured at fair values, unless otherwise required by other standards. Acquisition-related costs are expensed as incurred.

The excess of consideration transferred, amount of any non-controlling interest in the acquired entity and acquisition-date fair value of any previous equity interest in the acquired entity over the fair value of the net identifiable assets acquired is recoded as goodwill. If those amounts are less than the fair value of the net identifiable assets of the business acquired, the difference is recognized directly in the profit or loss as a bargain purchase.

Intercompany transactions, balances and unrealized gains on transactions between group companies are eliminated. Accounting policies of subsidiaries have been changed where necessary to ensure consistency with the policies adopted by the Group.

(2) Associates

Associates are entities over which the Group has significant influence but not control or joint control. Investments in associates are accounted for using the equity method of accounting, after initially being recognized at cost. Unrealized gains on transactions between the Group and its associates are eliminated to the extent of the Group's interest in the associates. If the Group's share of losses of an associate equals or exceeds its interest in the associate (including long-term interests that, in substance, form part of the Group's net investment in the associate), the Group discontinues recognizing its share of further losses. After the Group's interest is reduced to zero, additional losses are provided for, and a liability is recognized, only to the extent that the Group has incurred legal or constructive obligations or made payments on behalf of the associate. If there is an objective evidence of impairment for the investment in the associate, the Group recognizes the difference between the recoverable amount of the associate and its book amount as impairment loss. If an associate uses accounting policies other than those of the Group for like transactions and events in similar circumstances, if necessary, adjustments shall be made to make the associate's accounting policies conform to those of the Group when the associate's financial statements are used by the entity in applying the equity method.

(3) Joint Arrangements

A joint arrangement, wherein two or more parties have joint control, is classified as either a joint operation or a joint venture. A joint operator recognizes its direct right to the assets, liabilities, revenues and expenses of joint operations and its share of any jointly held or incurred assets, liabilities, revenues and expenses. Interests in joint ventures are accounted for using the equity method, after initially being recognized at cost in the consolidated statement of financial position.

2.3 Foreign Currency Translation

(1) Functional and presentation currency

Items included in the financial statements of each of the Group's entities are measured using the currency of the primary economic environment in which each entity operates (the "functional currency"). The consolidated financial statements are presented in Korean won, which is the Parent Company's

functional and presentation currency.

(2) Transactions and balances

Foreign currency transactions are translated into the functional currency using the exchange rates at the dates of the transactions. Foreign exchange gains and losses resulting from the settlement of such transactions and from the translation of monetary assets and liabilities denominated in foreign currencies at year end exchange rates are generally recognized in profit or loss.

Non-monetary items that are measured at fair value in a foreign currency are translated using the exchange rates at the date when the fair value was determined. Translation differences on assets and liabilities carried at fair value are reported as part of the fair value gain or loss. For example, translation differences on non-monetary assets and liabilities such as equities held at fair value through profit or loss are recognized in profit or loss as part of the fair value gain or loss and translation differences on non-monetary assets such as equities held at fair value through other comprehensive income are recognized in other comprehensive income.

(3) Translation to presentation currency

The results and financial position of subsidiary that have a functional currency different from the presentation currency are translated into the presentation currency of as follows:

- · assets and liabilities for each statement of financial position presented are translated at the closing rate at the end of the reporting period,
- · income and expenses for each statement of profit or loss are translated at average exchange rates.
- · equity is translated at the historical exchange rate, and
- · all resulting exchange differences are recognized in other comprehensive income.

2.4 Financial Assets

(1) Classification

The Group classifies its financial assets in the following measurement categories:

- those to be measured at fair value through profit or loss
- those to be measured at fair value through other comprehensive income, and
- · those to be measured at amortized cost.

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

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

For investments in equity instruments that are not held for trading, this will depend on whether the Group has made an irrevocable election at the time of initial recognition to account for the equity investment at fair value through other comprehensive income. Changes in fair value of non-designated equity investment are recognized in profit or loss.

(2) Measurement

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

Financial assets with embedded derivatives are considered in their entirety when determining whether their cash flows are solely payment of principal and interest.

A. Debt instruments

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

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

Fair value through profit or loss: Assets that do not meet the criteria for amortized cost or fair
value through other comprehensive income are measured at fair value through profit or loss.
A gain or loss on a debt investment that is subsequently measured at fair value through profit
or loss and is not part of a hedging relationship is recognized in profit or loss and presented
net in the statement of profit or loss within 'other income or expenses' in the year in which it
arises.

B. Equity instruments

The Group subsequently measures all equity investments at fair value. Where the Group's management has elected to present fair value gains and losses on equity investments, which held for long-term investment or strategic purpose, in other comprehensive income, there is no subsequent reclassification of fair value gains and losses to profit or loss following the derecognition of the investment. Dividend income from such investments continue to be recognized in profit or loss as 'other income' when the right to receive payments is established.

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

(3) Impairment

The Group assesses on a forward-looking basis the expected credit losses associated with its debt instruments carried at amortized cost and fair value through other comprehensive income. The impairment methodology applied depends on whether there has been a significant increase in credit risk. For trade receivables and lease receivables, the Group applies the simplified approach, which requires expected lifetime credit losses to be recognized from initial recognition of the receivables.

(4) Recognition and Derecognition

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

(5) Offsetting of financial instruments

Financial assets and liabilities are offset and the net amount reported in the statements of financial position where there is a legally enforceable right to offset the recognized amounts and there is an intention to settle on a net basis or realize the assets and settle the liability simultaneously. The legally enforceable right must not be contingent on future events and must be enforceable in the normal course of business and in the event of default, insolvency or bankruptcy of the Group or the counterparty.

S-OIL Corporation and Subsidiaries

Notes to the Consolidated Financial Statements

December 31, 2020 and 2019

2.5 Derivative Instruments

Derivatives are initially recognized at fair value on the date when a derivative contract is entered into and are subsequently remeasured at their fair value at the end of each reporting period. Changes in the fair value of any derivative instrument that does not qualify for hedge accounting are recognized immediately in profit or loss within 'other income or other expenses' based on the nature of transactions.

The Group applies cash flow hedge accounting to hedge the foreign currency risk associated with forecast sale. The effective portion of changes in the fair value of derivatives that are designated and qualify as cash flow hedges is recognized in the cash flow hedge reserve within equity, limited to the cumulative change in fair value (present value) of the hedged item (the present value of the cumulative change in the future expected cash flows of the hedged item) from the inception of the hedge. The ineffective portion is recognized in 'other income or other expenses'.

When forward contracts are used to hedge the foreign currency risk associated with forecast sale, the Group generally designates only the change in fair value of the forward contract related to the spot element as the hedging instrument. Gains or losses relating to the effective portion of the change in the spot element of the forward contracts are recognized in the cash flow hedge reserve within equity. Amounts accumulated in equity are reclassified to 'sale' in the periods when the hedged item affects profit or loss.

2.6 Inventories

Inventories are stated at the lower of cost and net realizable value. Cost is determined using the first-in, first-out (FIFO) method except for in-transit inventories which are determined using the specific identification method and supplies which are determined using the moving weighted average method.

2.7 Property, Plant and Equipment

Property, plant and equipment are stated at historical cost less accumulated depreciation and accumulated impairment losses. Historical cost includes expenditure that is directly attributable to the acquisition of the items.

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

Buildings Structures Machinery and equipment Vehicles Other property, plant and equipment Catalysts Estimated useful lives
20 - 40 years
20 - 40 years
15 - 30 years
5 years
3 - 5 years
Units-of-production method

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

2.8 Borrowing Costs

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

2.9 Intangible Assets

Goodwill is measured as described in Note 2.2 (1), and carried at cost less accumulated impairment losses

Intangible assets, except for goodwill, are initially recognized at its historical cost and carried at its cost less accumulated amortization and accumulated impairment losses. Membership rights that have an indefinite useful life are not subject to amortization because there is no foreseeable limit to the period over which the assets are expected to be utilized. The Group amortizes intangible assets with a limited useful life using the straight-line method over the following periods:

Estimated useful lives

Facility usage rights
Other intangible assets

Periods with exclusive supply rights or contract periods 5 years

2.10 Impairment of Non-financial Assets

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

2.11 Financial Liabilities

(1) Classification and measurement

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

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

financial position.

(2) Derecognition

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

2.12 Current Tax and Deferred Tax

The tax expense for the period consists of current tax and deferred tax. Current tax and deferred tax are recognized in profit or loss, except to the extent that it relates to items recognized in other comprehensive income or directly in equity. In this case, the tax is also recognized in other comprehensive income or directly in equity, respectively.

The current tax is measured at the amount expected to be paid to the taxation authorities, using the tax rates (and tax laws) that have been enacted or substantively enacted by the end of the reporting period.

Management periodically evaluates positions taken in tax returns with respect to situations in which applicable tax regulation is subject to interpretation. The Group recognizes current income tax on the basis of amounts expected to be paid to the tax authorities.

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

The Group recognizes deferred tax liability all taxable temporary differences associated with investments in subsidiaries, associates, and interests in joint arrangements, except to the extent that the Group is able to control the timing of the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future. In addition, The Group recognizes a deferred tax asset for all deductible temporary differences arising from such investments to the extent that it is probable the temporary difference will reverse in the foreseeable future and taxable profit will be available against which the temporary difference can be utilized.

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

2.13 Post-employment Benefits

The Group operates both defined contribution and defined benefit pension plans.

For defined contribution plans, the Group pays contribution to publicly or privately administered pension insurance plans on mandatory, contractual or voluntary basis. The Group has no further payment obligation once the contribution have been paid. The contribution are recognized as employee benefit expense when they are due.

A defined benefit plan is a pension plan that is not a defined contribution plan. Generally, post-employment benefits are payable after the completion of employment, and the benefit amount depended on the employee's age, periods of service or salary levels. The liability recognized in the consolidated statement of financial position in respect of defined benefit pension plans is the present value of the defined benefit obligation at the end of the reporting period less the fair value of plan assets. The defined benefit obligation is calculated annually by independent actuaries using the projected unit credit method. The present value of the defined benefit obligation is determined by discounting the estimated future cash outflows using interest rates of high-quality corporate bonds that are denominated in the currency in which the benefits will be paid, and that have terms approximating to the terms of the related obligation. Remeasurement gains and losses arising from experience adjustments and changes in actuarial assumptions are recognized in the period in which they occur, directly in other comprehensive income.

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

2.14 Provisions

Provisions are measured at the present value of management's best estimate of the expenditure required to settle the present obligation at the end of the reporting period, and the increase in the provision due to the passage of time is recognized as interest expense.

2.15 Customer Loyalty Program

The award credits ("points") provide the customers with benefits that they would not have if there is no contract entered into. Accordingly, providing points to customers is a separate performance obligation. Transaction price per performance obligation is allocated based on relative stand-alone selling price of goods and points. The management estimates the stand-alone selling price of points based on discounts to be provided when the points are redeemed and the probability of redemption from past experience. Stand-alone selling price of goods are estimated based on the retail price.

2.16 Share Capital

Ordinary shares and preferred shares that are not mandatorily redeemable are classified as equity.

Where the Company purchases its own equity share capital (treasury share), the consideration paid, including any directly attributable incremental costs is deducted from equity attributable to the subsequently reissued, any consideration received is included in equity attributable to the Company's equity holders.

S-OIL Corporation and Subsidiaries Notes to the Consolidated Financial Statements

December 31, 2020 and 2019

2.17 Revenue Recognition

The Group manufactures and sells oil refining products, lube products and petrochemical products, and imports and exports crude oil and products. Revenue from the sale of goods is recognized when the Group sells a product to the customer based on the contract.

The Group estimates an amount of variable consideration by using the expected value which the Group expects to better predict the amount of consideration. The Group recognize revenue with transaction price including variable consideration only to the extent that it is highly probable that a significant reversal in the amount of cumulative revenue recognized will not occur when the refund period has lapsed. The refund liability is measured at the amount of consideration received for which the Group does not expect to be entitled.

The transaction price in an arrangement must be allocated to each separate performance obligation based on the relative stand-alone selling prices of the goods or services being provided to a customer. The Group determines the stand-alone selling price for each separate performance obligation by using 'adjust market assessment approach'. In limited circumstances, the Group plans to use 'expected cost plus a margin approach' to estimate expected cost plus a reasonable margin.

A gross contract liability (refund liability) for the expected refunds to customers is recognized and sales are adjusted. At the same time, the Group has a right to collect the product from the customer when the customer exercises the right of return and recognizes an asset and adjusts cost of sales. Right to collect the product from the customer is measured by previous book amount of the product less cost to collect the product.

2.18 Lease

(1) Lessor

Lease income from operating leases where the Group is a lessor is recognized in income on a straightline basis over the lease term. Initial direct costs incurred in obtaining an operating lease are added to the carrying amount of the underlying asset and recognized as expense over the lease term on the same basis as lease income. The respective leased assets are included in the statement of financial position based on their nature.

(2) Lessee

The Group leases vessels, storage facilities, sites for gas station and charging station and other facilities and machinery. Lease contracts are made for fixed periods of 1 to 20 years, but may have extension options.

Contracts may contain both lease and non-lease components. The Group allocates the consideration in the contract to the lease and non-lease components based on their relative stand-alone prices.

Lease terms are negotiated on an individual basis and contain a wide range of different terms and conditions.

The lease agreements do not impose any covenants, but leased assets may not be used as security for borrowing purposes.

The Group determines the lease term as the non-cancellable period of a lease, together with periods covered by an option to extend the lease if the lessee is reasonably certain to exercise that option. When the lessee and the lessor each has the right to terminate the lease without permission from the other party, the Group should consider a termination penalty in determining the period for which the contract is enforceable.

Assets and liabilities arising from a lease are initially measured on a present value basis. Lease liabilities include the net present value of the following lease payments:

- Fixed payments (including in-substance fixed payments), less any lease incentives receivable
- Variable lease payment that are based on an index or a rate, initially measured using the index or rate as at the commencement date
- Amounts expected to be payable by the Group (the lessee) under residual value guarantees
- The exercise price of a purchase option if the Group (the lessee) is reasonably certain to exercise that option, and
- Payments of penalties for terminating the lease, if the lease term reflects the Group (the lessee) exercising that option

The lease payments are discounted using the interest rate implicit in the lease. If that rate cannot be determined, the lessee's incremental borrowing rate is used, being the rate that the lessee would have to pay to borrow the funds necessary to obtain an asset of similar value in a similar economic environment with similar terms and conditions.

To determine the incremental borrowing rate, the Group:

- where possible, uses recent third-party financing received by the individual lessee as a starting point, adjusted to reflect changes in financing conditions since third party financing was received, and
- makes adjustments specific to the lease, for example term, country, currency and security.

The Group is exposed to potential future increases in variable lease payments based on an index or rate, which are not included in the lease liability until they take effect. When adjustments to lease payments based on an index or rate take effect, the lease liability is reassessed and adjusted against the right-of-use asset.

Each lease payment is allocated between the liability and finance cost. The finance cost is charged to profit or loss over the lease period so as to produce a constant periodic rate of interest on the remaining balance of the liability for each period.

Right-of-use assets are measured at cost comprising the following:

- the amount of the initial measurement of lease liability
- any lease payments made at or before the commencement date less any lease incentives received
- any initial direct costs, and
- restoration costs

The right-of-use asset is depreciated over the shorter of the asset's useful life and the lease term on a straight-line basis. If the Group is reasonably certain to exercise a purchase option, the right-of-use asset is depreciated over the underlying asset's useful life of 1 to 20 years.

Payments associated with short-term leases and leases of low-value assets are recognized on a straight-line basis as an expense in profit or loss. Short-term leases are leases with a lease term of 12 months or less. Low-value assets comprise IT-equipment and others.

2.19 Dividends

Dividends paid to the Group's shareholders is recognized as a liability in the consolidated financial statements in the period in which the dividends are approved by the Group's shareholders.

2.20 Earnings per Share

Basic earnings per share is calculated by dividing the profit attributable to equity holders of the Group by the weighted average number of ordinary shares in issue during the year. Basic earnings per preferred share is also calculated by dividing the profit attributable to participating shares with right to participate in distribution of earnings by the weighted average number of preferred shares in issue during the year.

2.21 Segment Reporting

Information of each operating segment is reported in a manner consistent with the internal business segment reporting provided to the chief operating decision-maker. The chief operating decision-maker, who is responsible for allocating resources and assessing performance of the operating segments, has been identified as the Board of Directors that makes strategic decisions.

2.22 Greenhouse Gas Emission Permits and Obligations

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

2.23 Approval of Issuance of the Consolidated Financial Statements

The issuance of the consolidated financial statements for the year 2020 of the Group was approved by the Board of Directors on March 4, 2021, which is subject to change with the approval of shareholders at the general shareholders' meeting.

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 any adverse effects on the financial performance of the Group.

Risk management is carried out by each relevant department under policies approved by the Board of Directors. The Group identifies, evaluates and hedges financial risks in close co-operation with the Group's operating units.

(1) Market risk

a. Foreign exchange risk

The Group operates internationally and is exposed to foreign exchange risk arising from foreign currency transactions, primarily with respect to the US dollar. Foreign exchange risk arises when future commercial transactions, recognized asset and liabilities are presented in currencies other than the functional currency.

The purpose of foreign exchange risk management is to maximize the Group's value by minimizing the uncertainty and volatility of foreign exchange gains and losses from foreign exchange rate fluctuations.

The Group maintains foreign exchange risk management system to offset foreign exchange effects arising from recognized income/expense and assets/liabilities.

As at December 31, 2020, if the Korean won had weakened or strengthened by 10% against the foreign currencies with all other variables held constant, profit for the year would have been decreased or increased by \$\psi\$ 192,505 million (2019: \$\psi\$ 216,641 million) in relation to foreign currency-denominated trade receivables, trade payables, and usance borrowings. However, the Group's foreign exchange risk is controlled effectively as the above foreign exchange risk has offsetting effect with other foreign exchange effects affecting operating income.

The Group's financial instruments denominated in major currencies as at December 31, 2020 and 2019, are converted into Korean won as follows:

(In millions of Kore	,		2020		2019
KRW	•	₩	261,433	₩	376,064
USD			922,950		930,503
EUR			9,872		3,845
AUD			2,072		1,906
-	Γotal	₩	1,196,327	₩	1,312,318
Trade payables					
KRW		₩	49,331	₩	57,341
USD			1,953,408		1,597,862
JPY			884		
-	Total	₩	2,003,623	₩	1,655,203
Borrowings				•	
KRW		₩	4,134,393	₩	4,180,179
USD			1,675,586		2,199,738
-	Γotal	₩	5,809,979	₩	6,379,917

b. Product margin risk

The Group is exposed to product margin risk arising from difference in timing of purchase and sale. The purpose of product margin risk management is to maximize the Group's value by minimizing the uncertainty of volatility of product margin.

In order to minimize the product margin risk, the Group tries to sell products produced within the month. For the products that need to be stored for a longer period, the Group secures the product margin by executing product swap to mitigate a risk of future price fluctuation.

c. Interest rate risk

Interest rate risk is defined as the risk that the interest income or expenses arising from deposits and borrowings will fluctuate because of changes in future market interest rate. The interest rate risk mainly arises on floating rate deposits and borrowings. As a result, the Group is exposed to cash flow interest rate risk.

The objective of interest rate risk management lies in maximizing the Group's value by minimizing uncertainty caused by fluctuations in interest rates and minimizing net interest expense.

The table below summarizes the impact of increases or decreases of interest rate on the Group's equity and profit for the year. The analysis is based on the assumption that the interest rate has increased/decreased by 100bp with all other variables held constant.

	20		2019				
(In millions of Korean won)	Impact on post-tax profit	Impact on equity		Impact on post-tax profi		Impact on equity	
100bp increase	₩ -	₩	-	₩	(5,901)	₩	(5,901)
100bp decrease	-		-		5,901		5,901

d. Price risk of financial assets at fair value through other comprehensive income and financial assets at fair value through profit or loss

The Group is exposed to equity securities price risk arises from investments held by the Group that are classified as financial assets at fair value through other comprehensive income and financial assets at fair value through profit or loss in the consolidated statement of financial position. To manage its price risk arising from investments in equity securities, the Group diversifies its portfolio.

The table below summarizes the impact of increases/decreases of these two indexes on the Group's total comprehensive income for the year. The analysis is based on the assumption that the equity indexes has increased/decreased by 10% with all other variables held constant, and that all the Group's equity instruments moved in line with the indexes.

(In millions of Korean won)	2	2020		2019
Listed stocks	₩	21	₩	16
Unlisted stocks		3,192		3,575
Fund		1,049		624
	₩	4,262	₩	4,215

(2) Credit risk

a. Risk management

Credit risk arises from receivables, cash and cash equivalents, derivative financial instruments and deposits with banks and financial institutions. For banks and financial institutions, only independently rated parties with high ratings are accepted. If customers are independently rated, these ratings are used. If there is no independent rating, the credit quality of the customer is evaluated taking into account its financial position, past experience and other factors.

Individual risk limits are set based on internal or external ratings in accordance with limits set by the Group. The utilization of credit limits is strictly executed.

The maximum exposure to credit risk as at December 31, 2020 and 2019, is as follows:

(In millions of Korean won)	2020		2019	
Financial assets				
Cash and cash equivalents	₩	737,385	₩	290,925
Trade receivables		1,196,327		1,312,318
Other receivables		250,572		341,015
Other financial assets		344,194		264,515
Derivative financial assets		5,336		566
Total	₩	2,533,814	₩	2,209,339

With the exception of trade receivables and other receivables, none of financial assets is past due or impaired. There is no collateral held by the Group except for trade receivables and other receivables.

b. Impairment of financial assets

The Group has three types of financial assets that are subject to the expected credit loss model:

- · trade receivables for sales of goods and provision of services,
- · other receivables and other financial assets at amortized cost, and
- debt investments carried at fair value through other comprehensive income.
- · lease receivables, which are subject to application of Korean IFRS 1116 *Leases*.

The identified impairment loss in lease receivables was immaterial. While cash equivalents are also subject to the impairment requirement, the identified impairment loss was immaterial.

(i) Trade receivables

The Group applies the simplified approach to measuring expected credit losses which uses a lifetime expected loss allowance for all trade receivables.

Expected credit losses are estimated based on the information that has impact on credit risk related to customers.

On that basis, the loss allowance as at December 31, 2020 and January 1, 2020 was determined as follows for both trade receivables:

(In millions of Korean won)	December 31, 2020		January 1, 2020	
Gross carrying amount – trade receivables	₩	1,197,889	₩	1,314,664
Loss allowance provision	₩	(1,562)	₩	(2,346)

Changes in the loss allowance provision for trade receivables for the years ended December 31, 2020 and 2019, are as follows:

(In millions of Korean won)	Trade receivables			
	20	020		2019
Beginning balance	₩	2,346	₩	2,487
Receivables written off during the year as uncollectible		(71)		(94)
Unused amounts reversed		(713)		(47)
Ending balance	₩	1,562	₩	2,346

Trade receivables are written off when there is no reasonable expectation of recovery.

Impairment losses on trade receivables are presented as net impairment losses within impairment loss in the statement of comprehensive income. Subsequent recoveries of amounts previously written off are credited against the same line item.

(ii) Other receivables and other financial assets at amortized cost

There are no movements in loss allowance provision for other receivables and other financial assets at amortized cost for the year ended December 31, 2020.

All of the other receivables and other financial assets at amortized costs other than lease receivables are considered to have low credit risk, and the loss allowance recognized during the period was, therefore, limited to 12 months expected losses. Other instruments are considered to be low credit risk when they have a low risk of default and the issuer has a strong capacity to meet its contractual cash flow obligations in the near term. The Group applies the simplified approach to measuring expected credit losses which uses a lifetime expected loss allowance for all lease receivables.

(iii) Debt investments at fair value through other comprehensive income

Debt investments at fair value through other comprehensive income include government bonds, corporate bonds and trade receivables subject to be sold or discounted. The loss allowance for debt investments at fair value through other comprehensive income is recognized in profit or loss and reduces the fair value loss otherwise recognized in other comprehensive income.

All of the debt investments at fair value through other comprehensive income other than trade receivables subject to be sold or discounted are considered to have low credit risk, and the loss allowance recognized during the period was, therefore, limited to 12 months expected losses. Management considers 'low credit risk' for listed bonds to be an investment grade credit rating with at least one major rating agency. Other instruments are considered to be low credit risk when they have a low risk of default and the issuer has a strong capacity to meet its contractual cash flow obligations in the near term.

The Group applies the simplified approach to measure expected credit losses which uses a lifetime expected loss allowance for all trade receivables. There are no movements in loss allowance provision for other financial assets at fair value through other comprehensive income other than trade receivables subject to be sold or discounted for the year ended December 31, 2020.

c. Impairment loss

Following losses are recognized in profit or loss in relation to impaired financial assets for the years ended December 31, 2020 and 2019, are as follows:

(In millions of Korean won)	Trade receivables				
	2020)		2019	
Reversal of impairment loss	₩	713	₩		47

(3) Liquidity risk

Liquidity risk is defined as the risk that the Group is unable to meet its short-term payment obligations on time due to deterioration of its business performance.

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 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.

Details of the Group's liquidity risk analysis as at December 31, 2020 and 2019, are as follows:

(In millions of Korean won)	Less than	Between 1 and 2	Over	
December 31, 2020	1 year	years	2 years	Total
Trade payables	₩ 2,003,624	₩ -	₩ -	₩ 2,003,624
Other payables	401,663	60,782	204,571	667,016
Borrowings	2,696,384	519,973	2,891,493	6,107,850
Currency forward (gross)				
Inflow	1,103,218	-	-	1,103,218
Outflow	(1,127,419)	-	-	(1,127,419)
Commodity Swap (net)	4,095			4,095
Total	₩ 5,081,565	₩ 580,755	₩ 3,096,064	₩ 8,758,384
(In millions of Korean won)	Less than	Between 1 and 2	Over	
(In millions of Korean won) December 31, 2019	Less than 1 year	Between 1 and 2 years	Over 2 years	Total
,		1 and 2		Total ₩ 1,655,203
December 31, 2019	1 year	1 and 2 years	2 years	
December 31, 2019 Trade payables	1 year ₩ 1,655,203	1 and 2 years ₩ -	2 years ₩ -	₩ 1,655,203
December 31, 2019 Trade payables Other payables	1 year ₩ 1,655,203 620,458	1 and 2 years ₩ - 63,787	2 years ₩ - 240,154	₩ 1,655,203 924,399
December 31, 2019 Trade payables Other payables Borrowings Currency forward (gross) Inflow	1 year ₩ 1,655,203 620,458	1 and 2 years ₩ - 63,787	2 years ₩ - 240,154	₩ 1,655,203 924,399
December 31, 2019 Trade payables Other payables Borrowings Currency forward (gross) Inflow Outflow	1 year ₩ 1,655,203 620,458 2,952,053	1 and 2 years ₩ - 63,787	2 years ₩ - 240,154	₩ 1,655,203 924,399 6,772,621
December 31, 2019 Trade payables Other payables Borrowings Currency forward (gross) Inflow	1 year ₩ 1,655,203 620,458 2,952,053 293,867	1 and 2 years ₩ - 63,787	2 years ₩ - 240,154	₩ 1,655,203 924,399 6,772,621 293,867

The amounts disclosed in the above table are undiscounted cash flows.

3.2 Capital Risk Management

The Group's objectives when 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.

The Group monitors financial ratios, such as debt-to-equity ratio and net borrowings-to-equity ratio each month and implements required action plan to maintain or adjust the capital structure.

Debt-to-equity ratio and net borrowings-to-equity ratio as at December 31, 2020 and 2019, are as follows:

(In millions of Korean won)	2020	2019
Interest bearing liabilities (A) ¹	₩ 6,073,461	₩ 6,692,690
Cash and cash equivalents and current financial deposits (B)	1,081,439	555,206
Net borrowings (C=A-B)	4,992,022	6,137,484
Equity (D)	5,682,477	6,496,626
Debt-to-equity ratio (A/D)	107%	103%
Net borrowings-to-equity ratio (C/D)	88%	94%

¹ Borrowings and lease liabilities are included.

4. Fair Value

4.1 Fair Value of Financial Instruments by Category

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

(In millions of Korean won)	2020			2019				
	Carrying amount		Fair value		Carrying amount		Fair value	
Financial assets								
Financial assets at fair value through other comprehensive income Financial assets at fair value through	₩	44,505	₩	44,505	₩	49,837	₩	49,837
profit or loss		19,805		19,805		9,172		9,172
Total	₩	64,310	₩	64,310	₩	59,009	₩	59,009
Financial liabilities								
Derivative financial liabilities	₩	33,577	₩	33,577	₩	8,160	₩	8,160
Public bonds		3,934,393	3	,986,365		3,195,308		3,262,279
Total	₩	3,967,970	₩ 4	,019,942	₩	3,203,468	₩	3,270,439

Carrying amount of other financial assets and liabilities other than financial assets at fair value and derivative financial instruments and public bonds is a reasonable approximation of fair value.

4.2 Fair Value Hierarchy

Items that are measured at fair value are categorized by the fair value hierarchy levels, and the defined levels are as follows:

- Quoted prices (unadjusted) in active markets for identical assets or liabilities that an entity can access at the measurement date (Level 1).
- All inputs other than quoted prices included in level 1 that are observable (either directly that is, prices, or indirectly that is, derived from prices) for the asset or liability (Level 2).
- Unobservable inputs for the asset or liability (Level 3).

Fair value hierarchy classifications of the financial instruments that are measured at fair value as at December 31, 2020, are as follows:

(In millions of Korean won)		Level 1		Level 2		Level 3		Total
Financial assets/liabilities that are measured at fair value								
Assets								
Financial assets at fair value through other comprehensive income								
Equity securities	₩	290	₩	-	₩	44,031	₩	44,321
Debt securities		184		-		-		184
Financial assets at fair value through profit or loss								
Derivative financial assets held for trading		-		5,336		-		5,336
Equity securities		-		-		14,469		14,469
Total	₩	474	₩	5,336	₩	58,500	₩	64,310
Liabilities								
Financial liabilities at fair value through profit or loss								
Derivative financial liabilities held for								
trading	₩	-	₩	33,577	₩	-	₩	33,577
Borrowings								
Public bonds		3,986,365		_		<u>-</u>		3,986,365
Total	₩	3,986,365	₩	33,577	₩		₩	4,019,942

Fair value hierarchy classifications of the financial instruments that are measured at fair value as at December 31, 2019, are as follows:

(In millions of Korean won)		Level 1		Level 2		Level 3		Total
Financial assets/liabilities that are measured at fair value								
Assets								
Financial assets at fair value through other comprehensive income								
Equity securities	₩	220	₩	-	₩	49,313	₩	49,533
Debt securities		304		-		-		304
Financial assets at fair value through profit or loss								
Derivative financial assets held for								
trading		-		566		-		566
Equity securities				_		8,606		8,606
Total	₩	524	₩	566	₩	57,919	₩	59,009
Liabilities								
Financial liabilities at fair value through profit or loss								
Derivative financial liabilities held for								
trading	₩	-	₩	8,160	₩	-	₩	8,160
Borrowings								
Public bonds		3,262,279		_		<u>-</u>		3,262,279
Total	₩	3,262,279	₩	8,160	₩	_	₩	3,270,439

4.3 Transfers between Fair Value Hierarchy Levels of Recurring Fair Value Measurements

The Group's policy is to recognize transfers between levels of the fair value at the end of the reporting period. There were no transfers between levels 1 and 2 for recurring fair value measurements during the year. Changes in level 3 for recurring fair value measurements for the years ended December 31, 2020 and 2019, are as follows:

(In millions of Korean won)		2020		2019
Beginning balance	₩	57,919	₩	47,164
Acquisition		5,863		7,634
Disposal		(8,865)		-
Total profit or loss				
Gains on valuation (other comprehensive income)		3,583		3,121
Ending balance	₩	58,500	₩	57,919

4.4 Valuation Technique and the Inputs

Valuation techniques and inputs used in levels 2 and 3 fair value measurements as at December 31, 2020 are as follows:

(1) Level 3

(In millions of Korean won)	Fair value	Level	Valuation techniques		Inputs	Range of inputs
Equity instruments at fair value through other comprehensive income						
Equity securities	₩ 44,031	3	Present valu technique	е	Discount rate	8.58%
Financial assets at fair value through profit or loss			·			
Equity securities	14,469	3	Net asset val approach	ue	Discount rate	N/A
(2) Level 2						
(In millions of Korean won)			Fair value	Level	Valuation t	echniques
Financial assets at fair value profit or loss	e through					
Currency forward			₩ 5,127	2	Present value	e technique
Commodity swap			209	2	Present value	e technique
Financial liabilities at fair va profit or loss	llue througl	n				
Currency forward			29,273	2	Present valu	•
Commodity swap			4,304	2	Present valu	ie technique

4.5 Valuation Processes for Fair Value Measurements Categorized as Level 3

The accounting department of the Group that performs the fair value measurements required for financial reporting purposes, including Level 3 fair values. This department discusses valuation processes and result with the management.

4.6 Sensitivity Analysis for Recurring Fair Value Measurements Categorized as 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. Changes in fair value of financial instruments categorized as level 3 subject to sensitivity analysis; such as, equity securities, are recognized in other comprehensive income or profit or loss.

5. Critical Accounting Estimates and Assumptions

The preparation of consolidated financial statements requires the Group to make estimates and assumptions concerning the future. Estimates and judgements 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 will, by definition, seldom equal the related actual results.

During 2020, the spread of Coronavirus disease 2019 ("COVID-19") has a material impact on the global economy. Accordingly, this has had a considerable impact on the Group's financial position and financial performance due to decrease in demand for products and oil price decline. The slowdown or spread of COVID-19 in the future is expected to have a positive or negative impact on the financial statements after 2020.

The estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are discussed below.

5.1 Net Defined Benefit Liabilities

The present value of net defined benefit liability depends on a number of factors that are determined on an actuarial basis using a number of assumptions including the discount rate (Note 20).

5.2 Fair Value of Financial Instruments

The fair value of financial instruments that are not traded in an active market is determined by using valuation techniques. The Group uses its judgment to select a variety of methods and make assumptions that are mainly based on market conditions existing at the end of each reporting period (Note 4).

5.3 Income Taxes

The Group's taxable income generated from these operations are subject to income taxes based on tax laws and interpretations of tax authorities in numerous jurisdictions. There are many transactions and calculations for which the ultimate tax determination is uncertain (Note 30).

If certain portion of the taxable income is not used for investments or increase in wages or dividends, the Group is liable to pay additional income tax calculated based on the tax laws for the specified periods. Accordingly, the measurement of current and deferred income tax is affected by the tax effects. As the Group's income tax is dependent on the investments, increase in wages and dividends, there is an uncertainty measuring the final tax effects.

5.4 Estimated Goodwill Impairment

The recoverable amount of a cash generating unit (CGU) is determined based on value-in-use calculations (Note 15).

5.5 Impairment of Financial Assets

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

5.6 Lease

In determining the lease term, management considers all facts and circumstances that create an economic incentive to exercise an extension option, or not exercise a termination option. Extension options (or periods after termination options) are only included in the lease term if the lease is reasonably certain to be extended (or not terminated).

Most extension options in offices and others have not been included in the lease liability, because the Group could replace the assets without significant cost or business disruption.

The lease term is reassessed if an option is actually exercised (or not exercised) or the Group becomes obliged to exercise (or not exercise) it. The assessment of reasonable certainty is only revised if a significant event or a significant change in circumstances occurs, which affects this assessment, and that is within the control of the lessee.

In addition, the Group initially estimates and recognizes amounts expected to be payable under residual value guarantees as part of the lease liability. Typically, the expected residual value at lease commencement is equal to or higher than the guaranteed amount, and so the Group does not expect to pay anything under the guarantees.

5.7 Measurement of Net Realizable Value of Inventories

Inventories are measured at the lower of cost and net realizable value. It is required to estimate the expected selling price and the expected selling expenses in the measurement of the net realizable value. In these estimation processes, the management's judgments take an important role.

6. Operating Segment Information

The reportable operating segments of the Group are oil refining business, lube oil business and petrochemical business.

Financial information by operating segments as at and for the years ended December 31, 2020 and 2019, is as follows:

				20	020			
(In millions of Korean won)	Oil Refining Business		_	ube Oil usiness		ochemical usiness		Total
Sales from external customers Inter-segment sales	₩	12,635,043 3,746,009	₩	1,332,456 173,245	₩	2,862,182 800,195	₩	16,829,681 4,719,449
Total sales	₩	16,381,052	₩	1,505,701	₩	3,662,377	₩	21,549,130
Operating profit (loss)	₩	(1,704,106)	₩	425,335	₩	179,625	₩	(1,099,146)
Property, plant, equipment and intangible assets Depreciation and amortization	₩	7,061,125	₩	185,177	₩	2,930,269	₩	10,176,571
and others	₩	386,826	₩	10,323	₩	174,324	₩	571,473
(I II I Z A		" D . C			019			
(In millions of Korean won)		il Refining Business	_	ube Oil usiness	Petr	ochemical usiness		Total
(In millions of Korean won) Sales from external customers Inter-segment sales		_	_	ube Oil	Petr		₩	Total 24,394,173 6,643,300
Sales from external customers	I	3usiness 19,002,944	В	ube Oil usiness 1,516,086	Petr B	usiness 3,875,143	₩	24,394,173
Sales from external customers Inter-segment sales	₩	19,002,944 5,249,636	₩	ube Oil usiness 1,516,086 180,030	Petr B	3,875,143 1,213,634		24,394,173 6,643,300
Sales from external customers Inter-segment sales Total sales	₩	19,002,944 5,249,636 24,252,580	₩	ube Oil usiness 1,516,086 180,030 1,696,116	Petr B ₩	3,875,143 1,213,634 5,088,777	₩	24,394,173 6,643,300 31,037,473

Sales by geographic region for the years ended December 31, 2020 and 2019, are as follows:

(In millions of Korean won)		2020		2019
Korea	₩	7,667,689	₩	10,804,676
Southeast Asia		2,282,463		4,191,823
China		2,379,318		2,743,140
America		863,017		1,094,355
Japan		1,378,585		1,952,792
Australia		1,007,567		1,064,794
Europe		206,523		797,854
Others		1,044,519		1,744,739
Total	₩	16,829,681	₩	24,394,173

Details of a customer, who contributes more than ten percent of the Group sales for the years ended December 31, 2020 and 2019, are as follows:

(In millions of Korean won)		2020		2019	Segments
Customer 1 ¹	₩	2,874,290	₩	3,994,821	Oil refining and petrochemical
					business

¹ Aramco Trading Company, Aramco Trading Singapore PTE. LTD. and Aramco Trading Fujairah FZE, related parties of the Group

7. Cash and Cash Equivalents

Cash and cash equivalents as at December 31, 2020 and 2019, consists of:

(In millions of Korean won)	2020			2019
Cash on hand	₩	54	₩	80
Checking accounts		9		7
Passbook accounts		2,002		7,831
Foreign currency deposits		224,759		95,437
Time deposits		395,000		-
Others		115,615		187,650
Total	₩	737,439	₩	291,005

Cash and cash equivalents presented in the consolidated statements of financial position and cash flows are identical as at December 31, 2020 and 2019.

8. Trade and Other Receivables

Trade and other receivables as at December 31, 2020 and 2019, are as follows:

(In millions of Korean won)	20	20	20	19
	Current	Non-current	Current	Non-current
Trade receivables	₩ 1,197,889	₩ -	₩ 1,314,664	₩ -
Less : provision for impairment	(1,562)_	<u>-</u>	(2,346)	
Trade receivables - net	1,196,327	-	1,312,318	-
Other receivables				
Non-trade receivables	157,103	-	250,328	-
Accrued income	450	-	1,399	-
Loans	7,406	35,194	7,149	39,951
Lease receivables (Note 35)	6,943	16,550	5,834	10,323
Guaranty deposits		26,926		26,031
	171,902	78,670	264,710	76,305
Net book amount	₩ 1,368,229	₩ 78,670	₩ 1,577,028	₩ 76,305

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

(In millions of Korean won)	2020			2019
Receivables not past due	₩	1,193,449	₩	1,308,247
Up to one month		3,512		4,774
One to three months		392		401
Three to six months		126		95
Six to twelve months		110		46
Over one year		300		1,101
Total	₩	1,197,889	₩	1,314,664

As at December 31, 2020, trade receivables of \forall 408,649 million (2019: \forall 647,347 million) have collateral provided by customers. Among those trade receivables, \forall 2,635 million (2019: \forall 4,690 million) is past due but not impaired.

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

(In millions of Korean won)	2020		2	019
Receivables not past due	₩	249,364	₩	340,992
Up to one month		208		23
One to three months		-		-
Three to six months		1,000		-
Total	₩	250,572	₩	341,015

See Note 3.1 (2) b for the impairment of trade receivables, other financial assets at amortized cost and the Group's exposure to credit risk.

As at December 31, 2020, the balance of trade receivables that have been transferred but are not past due amounts to USD 15 million (2019: USD 280 million). As at December 31, 2020, the Group transferred the trade receivables to the Export-Import Bank of Korea and one other financial institution and derecognized the transferred receivables as all the risks and rewards are substantially transferred (Note 21).

The Group holds the trade receivables with the objective to collect the contractual cash flows and, therefore, the Group's business model for managing trade receivables is to collect the contractual cash flows. When discount agreements have been made on certain types of trade receivables, judgment on the business model is assessed. If selling price is infrequently observed or individually or collectively not significant, it is probable that the judgment is consistent with the business model with the objective of collecting the contractual cash flows. Portfolio for certain types of trade receivables which are discounted are classified as business model for selling or for collection of contractual cash flows, while undiscounted portfolio is classified as business model with the objective of collection of contractual cash flows. Trade receivables that are held for selling or for collection of contractual cash flows are measured at fair value and gains or losses on valuation are recognized as other comprehensive income.

9. Other Financial Assets and Other Assets

9.1 Other financial assets fair value through profit or loss

Other financial assets fair value through profit or loss as at December 31, 2020 and 2019, are as follows:

(In millions of Korean won)		2020	2019		
Non-current					
Fund	₩	14,469	₩	8,606	

9.2 Other financial assets at fair value through other comprehensive income

Other financial assets at fair value through other comprehensive income as at December 31, 2020 and 2019, are as follows:

(1) Equity investments at fair value through other comprehensive income

(In millions of Korean won)	2	2020	2	2019
Non-current				
Listed equities	₩	290	₩	220
Non-listed equities		44,031		49,313
Total	₩	44,321	₩	49,533

As at December 31, 2020 and 2019, the fair value of unlisted equities is determined using discounted cash flow analysis based on the risk adjusted yield.

Upon disposal of these equity investments, any balance within the accumulated other comprehensive income for these equity investments is reclassified to retained earnings and is not reclassified to profit or loss.

(2) Debt investments at fair value through other comprehensive income

Debt investments at fair value through other comprehensive income comprise the following investments in bonds having solely payments of principal and interest:

(In millions of Korean won) Government bonds	20	20	20	19
Current	₩	119	₩	121
Non-current		65		183
Total	₩	184	₩	304

Upon disposal of these debt investments, any balance within the accumulated other comprehensive income for these debt investments is reclassified to profit or loss.

9.3 Other financial assets at amortized cost

Other financial assets at amortized cost as at December 31, 2020 and 2019, are as follows:

(In millions of Korean won)			2020					2019					
	(Current	Non-curre	ent		Total		Current	Non-c	current		Total	
Short-term financial instruments (Time deposits) ¹	₩	344,000	₩	-	₩	344,000	₩	264,201	₩	-	₩	264,201	
Long-term deposit 1		-		10		10		-		10		10	
		344,000		10		344,010		264,201		10		264,211	
Less: provision for impairment		-				-		-		-		-	
	₩	344,000	₩	10	₩	344,010	₩	264,201	₩	10	₩	264,211	

¹ Short-term financial instruments include ₩ 21,984 million which are subject to restricted use in relation to contractual guarantee (Note 16). Long-term deposit of ₩ 10 million is subject to withdrawal restrictions.

Changes in financial assets at fair value through other comprehensive income for the years ended December 31, 2020 and 2019, are as follows:

(In millions of Korean won)	2020			2019
Beginning balance	₩	49,837	₩	50,431
Acquisition		1		2
Disposal		(8,987)		(3,729)
Other comprehensive income		3,654		3,133
Ending balance		44,505		49,837
Less: non-current portion		44,386		49,716
Current portion	₩	119	₩	121

Other assets as at December 31, 2020 and 2019, are as follows:

(In millions of Korean won)		20	020			2019			
	Cui	Current		Non-current		ırrent	No	n-current	
Advance payments	₩	941	₩	10,399	₩	6,287	₩	-	
Prepaid expenses		6,861		-		5,300		3,688	
Tax receivables	3	39,865		-		286,358		-	
Right-of-use assets (Note 35)		-		244,969		-		295,345	
	₩ 3	47,667	₩	255,368	₩	297,945	₩	299,033	

10. Derivative Financial Instruments

Details of derivative financial instruments as at December 31, 2020 and 2019, are as follows:

(In millions of Korean won)		202	20										
	Assets Liabilities			Assets Liabilities Assets				Liabilities Assets			Liabiliti		
Trading purpose													
Forward foreign exchange	₩	5,127	₩ 2	29,273	₩	566	₩	5,451					
Commodity swap		209		4,304				2,709					
	₩	5,336	₩ 3	3,577	₩	566	₩	8,160					
Current portion	₩	5,336	₩ 3	3,577	₩	566	₩	8,160					

Derivatives financial instruments held for trading purposes are classified as current assets or liabilities.

11. Financial Instruments by Category

Carrying amounts of financial assets and liabilities by category as at December 31, 2020 and 2019, are as follows:

(In millions of Korean won)	2020									
			Fir	nancial						
			asse	ets at fair						
			\	/alue						
	а	inancial essets at mortized	com	rough other prehensi	asse value	ancial ts at fair through	fir	Other nancial		
_		cost	ve	income	profi	t or loss	a	ssets ¹	Total	
Assets										
Cash and cash equivalents	₩	737,439	₩	-	₩	-	₩	-	₩ 737,439	
Trade receivables		1,188,792		7,535		-		-	1,196,327	
Other receivables		227,079		-		-		23,493	250,572	
Other financial assets		344,010		44,505		14,469		-	402,984	
Derivative financial instruments		_		_		5,336			5,336	
Total	₩	2,497,320	₩	52,040	₩	19,805	₩	23,493	₩2,592,658	

¹ Other financial assets represent lease receivables, which are not subject to categorizations.

(In millions of Korean won)	2020									
	lia	inancial bilities at ortized cost	liabilit value	iancial ties at fair through t or loss		er financial abilities ¹		Total		
Liabilities										
Trade payables	₩	2,003,623	₩	-	₩	-	₩	2,003,623		
Other payables		373,923		-		263,482		637,405		
Borrowings		5,809,979		-		-		5,809,979		
Derivative financial instruments		<u>-</u>		33,577		-		33,577		
Total	₩	8,187,525	₩	33,577	₩	263,482	₩	8,484,584		

¹ Other financial liabilities represent lease liabilities, which are not subject to categorizations.

(In millions of Korean won)	2019								
			Fii	nancial					_
			asse						
				value					
	а	inancial ssets at mortized cost	through other comprehensi ve income		Financial assets at fair value through profit or loss		Other financial assets ¹		Total
Assets					•				
Cash and cash equivalents	₩	291,005	₩	-	₩	-	₩	-	₩ 291,005
Trade receivables		1,274,525		37,793		-		-	1,312,318
Other receivables		324,858		-		-		16,157	341,015
Other financial assets		264,211		49,837		8,606		-	322,654
Derivative financial instruments		-				566			566
Total	₩	2,154,599	₩	87,630	₩	9,172	₩	16,157	₩2,267,558

¹ Other financial assets represent lease receivables, which are not subject to categorizations.

(In millions of Korean won)	2019									
	lia	inancial bilities at ortized cost	liabiliti value	ancial ies at fair through : or loss		er financial abilities ¹		Total		
Liabilities										
Trade payables	₩	1,655,203	₩	-	₩	-	₩	1,655,203		
Other payables		575,966		-		312,773		888,739		
Borrowings		6,379,917		-		-		6,379,917		
Derivative financial instruments		=		8,160		-		8,160		
Total	₩	8,611,086	₩	8,160	₩	312,773	₩	8,932,019		

¹ Other financial liabilities represent lease liabilities, which are not subject to categorizations.

Net gains or losses on each category of financial instruments for the years ended December 31, 2020 and 2019, are as follows:

(In millions of Korean won)	2020	2019
Financial assets at amortized cost		
Interest income	₩ 11,921	₩ 13,495
Foreign currency gains (losses)	(62,538)	45,649
Reversal of provision for impairment	713	47
Assets and liabilities at fair value through profit or loss		
Derivative financial instruments losses	(69,859)	(34,925)
Assets at fair value through other comprehensive income		
Gains on valuation and disposal (other comprehensive income)	3,654	3,133
Interest income	5	85
Dividend income	688	947
Other financial assets		
Interest income	425	380
Financial liabilities at amortized cost		
Foreign currency gains (losses)	185,335	(155,962)
Interest expenses ¹	(150,592)	(176,517)
Other financial liabilities		
Interest expenses	(7,471)	(6,299)
Foreign currency gains (losses)	8,980	(663)

¹ Interest expenses exclude capitalized borrowing costs on qualifying assets.

12. Inventories

Inventories as at December 31, 2020 and 2019, are as follows:

(In millions of Korean won)		2020		2019
Merchandise	₩	17,302	₩	12,215
Valuation allowance for merchandise		(59)		(14)
Finished goods		457,341		692,617
Valuation allowance for finished goods		(6,201)		(20,456)
Work in progress		298,008		434,851
Valuation allowance for work in progress		(648)		(12,509)
Raw materials and materials-in-transit		1,382,376		2,048,097
Valuation allowance for raw materials and materials-in-transit		(307)		(482)
Supplies		44,477		41,714
Total	₩	2,192,289	₩	3,196,033

Inventories cost that was recognized as cost of sales for the year ended December 31, 2020 amounted to $\mbox{$\forall$}$ 15,124,777 million (2019: $\mbox{$\forall$}$ 20,810,146 million). The Group recognized reversal of losses on valuation of inventories for $\mbox{$\forall$}$ 26,247 million for the year ended December 31, 2020 (2019: $\mbox{$\forall$}$ 210,430 million).

13. Investments in Joint venture

Details of joint venture as at December 31, 2020 and 2019, are as follows:

(In millions of Korean won, except number of shares)

		Closing	Number of	Percentage of	Acq	uisition				
Investee	Location	Month	Shares	Ownership (%)	(Cost		2020	:	2019
Joint venture ¹										
S-OIL TOTAL Lubricants	Korea	December	3.500.001	50% plus	₩	20 124	\ A/	31.636	₩	30.317
Co., Ltd.	Kolea	December	3,300,001	one share	VV	20, 134	vv	31,030	VV	30,317

¹ Although the Group owns more than 50% of the voting rights of S-OIL TOTAL Lubricants Co., Ltd., it is excluded from the consolidated subsidiaries as the Group is unable to exercise controls by virtue of an agreement with other investor.

Details of adjustments from financial information of joint venture to the book value of investments in joint venture for the years ended December 31, 2020 and 2019, are as follows:

(In millions of Kor	rean won)			20	20			
		Net assets at the end of the year	Percentage of ownership (%)		oup's hare	• • • • • • • • • • • • • • • • • • • •	alized or loss	Book value
Joint venture	S-OIL TOTAL Lubricants Co., Ltd.	₩ 63,881	50% plus one share	₩	31,941	₩	(305)	₩ 31,636
(In millions of Kor	rean won)			20	19			
		Net assets at the end of the year	Percentage of ownership (%)		oup's hare	• • • • • • • • • • • • • • • • • • • •	alized or loss	Book value
Joint venture	S-OIL TOTAL Lubricants Co., Ltd.	₩ 60,955	50% plus one share	₩	30,478	₩	(161)	₩ 30,317

The table below provides summarized financial information for joint venture for the years ended December 31, 2020 and 2019.

(In millions of Korean won)	S-OIL TOTAL Lubricants Co., Ltd.						
	2020	2019					
Current assets	₩ 84,663	₩ 87,164					
Non-current assets	38,354	36,083					
Total assets	₩ 123,017	₩ 123,247					
Current liabilities	46,045	54,309					
Non-current liabilities	13,091	7,983					
Total liabilities	₩ 59,136	₩ 62,292					
Total equity	₩ 63,881	₩ 60,955					
Sales	₩ 255,012	₩ 272,667					
Operating income	₩ 10,348	₩ 7,309					
Profit before income tax	₩ 9,938	₩ 6,360					
Profit for the year	₩ 7,774	₩ 4,918					
Total comprehensive income for the year	₩ 7,799	₩ 4,847					

Details of valuation of investments in associate and joint venture that are accounted for using the equity method for the years ended December 31, 2020 and 2019, are as follows:

(In millions of Korean won)	2	2020			2019		
	S-OIL TOTAL Lubricants		S-OIL TOTAL Lubricants		Korea Energy Terminal Co.,		
	Co	., Ltd.	C	Co., Ltd.		Ltd.1	Total
Beginning balance	₩	30,317	₩	31,537	₩	15	₩ 31,552
Share of profit (loss)		3,850		2,459		(15)	2,444
Unrealized gains (losses)		(144)		106		-	106
Dividend received		(2,400)		(3,750)		-	(3,750)
Other equity changes		13		(35)			(35)
Ending balance	₩	31,636	₩	30,317	₩	<u>-</u>	₩ 30,317

¹ During 2019, the Group sold its entire shares held in Korea Energy Terminal Co., Ltd. which was classified as an associate.

14. Property, Plant and Equipment

Changes in property, plant and equipment for the years ended December 31, 2020 and 2019, are as follows:

(In millions of Korean won)					2020				
				Construction-					
	Land	Buildings	Structures	equipment	Vehicles	Others	Catalysts	in-progress	Total
At January 1, 2020									
Acquisition cost	₩ 1,820,917	₩ 531,792	₩ 1,805,274	₩ 8,131,084	₩ 14,827	₩ 1,027,921	₩ 870,361	₩ 932,888	₩ 15,135,064
Accumulated depreciation		(108,839)	(662,602)	(3,013,736)	(13,600)	(602,005)	(595,143)		(4,995,925)
Net book amount	₩ 1,820,917	₩ 422,953	₩ 1,142,672	₩ 5,117,348	₩ 1,227	₩ 425,916	₩ 275,218	₩ 932,888	₩ 10,139,139
Changes during 2020									
Beginning net book amount	₩ 1,820,917	₩ 422,953	₩ 1,142,672	₩ 5,117,348	₩ 1,227	₩ 425,916	₩ 275,218	₩ 932,888	₩ 10,139,139
Additions	-	48	169	1	5	44,972	104,661	383,564	533,420
Transfers	-	737	204,067	33,758	-	87,560	16,454	(349,703)	(7,127)
Disposals	(13,770)	(743)	(5,294)	-	-	(3,666)	(279)	-	(23,752)
Depreciation		(13,324)	(71,619)	(217,185)	(494)	(101,377)	(159,880)		(563,879)
Ending net book amount	₩ 1,807,147	₩ 409,671	₩ 1,269,995	₩ 4,933,922	₩ 738	₩ 453,405	₩ 236,174	₩ 966,749	₩ 10,077,801
At December 31, 2020									
Acquisition cost	₩ 1,807,147	₩ 530,455	₩ 2,002,885	₩ 8,164,843	₩ 14,453	₩ 796,158	₩ 638,772	₩ 966,749	₩ 14,921,462
Accumulated depreciation		(120,784)	(732,890)	(3,230,921)	(13,715)	(342,753)	(402,598)		(4,843,661)
Net book amount	₩ 1,807,147	₩ 409,671	₩ 1,269,995	₩ 4,933,922	₩ 738	₩ 453,405	₩ 236,174	₩ 966,749	₩ 10,077,801

(In millions of Korean won)					2019			
				Machinery and			Construction-	
	Land	Buildings	Structures	equipment	Vehicles Others	Catalysts	in-progress	Total
At January 1, 2019								
Acquisition cost	₩ 1,774,635	₩ 522,818	₩ 1,786,536	₩ 7,947,627	₩ 14,800 ₩ 713,69	₩ 1,188,372	₩ 780,116	₩ 14,728,595
Accumulated depreciation	<u>-</u>	(96,077)	(593,900)	(2,800,659)	(13,128) (518,529	(965,575)		(4,987,868)
Net book amount	₩ 1,774,635	₩ 426,741	₩ 1,192,636	₩ 5,146,968	₩ 1,672 ₩ 195,162	2 ₩ 222,797	₩ 780,116	₩ 9,740,727
Changes during 2019								
Beginning net book amount	₩ 1,774,635	₩ 426,741	₩ 1,192,636	₩ 5,146,968	₩ 1,672 ₩ 195,162	2 ₩ 222,797	₩ 780,116	₩ 9,740,727
Additions	-	56	50	314	195 27,397	172,770	643,805	844,587
Transfers	49,356	14,754	19,628	183,142	89 296,050	54,515	(490,834)	126,700
Disposals	(3,074)	(5,187)	(344)	-	- (231	-	(199)	(9,035)
Depreciation		(13,411)	(69,298)	(213,076)	(729) (92,462	(174,864)		(563,840)
Ending net book amount	₩ 1,820,917	₩ 422,953	₩ 1,142,672	₩ 5,117,348	₩ 1,227 ₩ 425,916	8 ₩ 275,218	₩ 932,888	₩ 10,139,139
At December 31, 2019								
Acquisition cost	₩ 1,820,917	₩ 531,792	₩ 1,805,274	₩ 8,131,084	₩ 14,827 ₩ 1,027,92	₩ 870,361	₩ 932,888	₩ 15,135,064
Accumulated depreciation		(108,839)	(662,602)	(3,013,736)	(13,600) (602,005	(595,143)		(4,995,925)
Net book amount	₩ 1,820,917	₩ 422,953	₩ 1,142,672	₩ 5,117,348	₩ 1,227 ₩ 425,916	8 ₩ 275,218	₩ 932,888	₩ 10,139,139

Depreciation expense of \forall 528,335 million (2019: \forall 528,398 million) was charged to cost of sales, \forall 26,441 million (2019: \forall 24,298 million) to selling expenses and \forall 9,103 million (2019: \forall 11,144 million) to administrative expense.

As at December 31, 2020, a certain portion of property, plant and equipment is pledged as collateral for various borrowings and guarantees (Note 16).

During the year, the Group has capitalized borrowing costs amounting to $\mbox{$W$}$ 3,138 million (2019: $\mbox{$W$}$ 3,595 million) on property, plant and equipment that are qualifying assets. The capitalization rate of borrowings used to determine the amount of borrowing costs to be capitalized is 1.96% (2019: 2.41%) for general borrowings and nil (2019: 2.44%) for specific borrowings.

As at December 31, 2020, construction in-progress consists of expenses related to facilities installation and land.

As at December 31, 2020, the Group entered into agreements with Samsung Fire & Marine Insurance Co., Ltd. and three other insurance companies in relation to plant construction. The insurance amount covered up to $\mbox{$W$}$ 2,520,000 million is pledged as collateral from the Korea Development Bank and eight financial institutions.

15. Intangible Assets

Changes in intangible assets for the years ended December 31, 2020 and 2019, are as follows:

(In millions of Korean won)					20	20					
	Faci	lity usage			Membership						
	F	Rights	(Others	r	ights	G	oodwill	Total		
At January 1, 2020											
Acquisition cost	₩	10,794	₩	94,543	₩	22,746	₩	57,080	₩ 185,163		
Accumulated amortization		(6,208)		(75,155)		(2,471)			(83,834)		
Net book amount	₩	4,586	₩	19,388	₩	20,275	₩	57,080	₩ 101,329		
Changes during 2020											
Beginning net book amount	₩	4,586	₩	19,388	₩	20,275	₩	57,080	₩ 101,329		
Additions		-		362		-		-	362		
Transfers		-		7,127		-		-	7,127		
Decreases		-		(421)		(2,033)		_	(2,454)		
Amortization		(545)		(7,049)		_			(7,594)		
Ending net book amount	₩	4,041	₩	19,407	₩	18,242	₩	57,080	₩ 98,770		
At December 31, 2020											
Acquisition cost	₩	10,794	₩	101,611	₩	20,392	₩	57,080	₩ 189,877		
Accumulated amortization ¹		(6,753)		(82,204)		(2,150)			(91,107)		
Net book amount	₩	4,041	₩	19,407	₩	18,242	₩	57,080	₩ 98,770		

¹ The amounts include accumulated impairment losses.

(In millions of Korean won)					20	19			
	Facil	ity usage			Men	nbership			
	F	Rights	(Others	r	ights	G	oodwill	Total
At January 1, 2019									
Acquisition cost	₩	9,501	₩	90,646	₩	22,948	₩	57,080	₩ 180,175
Accumulated amortization	-	(5,637)		(67,620)		(2,471)			(75,728)
Net book amount	₩	3,864	₩	23,026	₩	20,477	₩	57,080	₩ 104,447
Changes during 2019									
Beginning net book amount	₩	3,864	₩	23,026	₩	20,477	₩	57,080	₩ 104,447
Additions		-		32		230		-	262
Transfers		1,293		3,865		-		-	5,158
Decreases		-		-		(432)		-	(432)
Amortization		(571)		(7,535)		-		_	(8,106)
Ending net book amount	₩	4,586	₩	19,388	₩	20,275	₩	57,080	₩ 101,329
At December 31, 2019									
Acquisition cost	₩	10,794	₩	94,543	₩	22,746	₩	57,080	₩ 185,163
Accumulated amortization ¹		(6,208)		(75,155)		(2,471)			(83,834)
Net book amount	₩	4,586	₩	19,388	₩	20,275	₩	57,080	₩ 101,329

¹ The amounts include accumulated impairment losses.

Amortization expense of $\mbox{$W$}$ 3,053 million (2019: $\mbox{$W$}$ 2,926 million) is included in cost of sales, $\mbox{$W$}$ 739 million (2019: $\mbox{$W$}$ 701 million) in selling expenses and $\mbox{$W$}$ 3,802 million (2019: $\mbox{$W$}$ 4,479 million) in administrative expense.

The Group recognized total research and development costs of \forall 11,355 million (2019: \forall 17,597 million) as expenses.

16. Assets Pledged as Collateral

As at December 31, 2020, assets pledged as collateral are as follows:

(In millions of Korean won and millions of other foreign currencies)

Pledged Assets as Collateral	Secured Amount	Creditors	Related Borrowings/ Guarantees	Balance of Borrowings
Land, Buildings, BTX and others	₩ 19,350 USD 144 FRF 155 JPY 11,781	The Korea Development Bank	Usance Borrowings and others	₩ 450,293 (USD 230)
Land, Buildings, Facilities and others ¹	₩ 2,520,000	The Korea Development Bank and others	Loans for facility	-
Time deposits ²	₩ 809	Korea Railroad Corporation	Contractual Guarantee	
Time deposits ²	₩ 4,627	Korea Industrial Complex Corporation	Contractual Guarantee	<u>-</u>
Time deposits ²	₩ 16,548	Public Procurement Service	Contractual Guarantee	
		Total (Including USD 230)		₩ 450,293

¹ The land, buildings, facilities and construction-in-progress have been pledged as collateral for agreements with the Korea Development Bank and eight other financial institutions in relation to industry facilities fund and there is no executed amount for the agreements in relation to industry facilities fund as at December 31, 2020.

17. Trade Payables, Other Payables and Other Liabilities

Trade payables and other payables as at December 31, 2020 and 2019, are as follows:

(In millions of Korean won)	202	0	2019				
	Current	Non-current	Current	Non-current			
Trade payables	₩ 2,003,623	₩ -	₩ 1,655,203	₩ -			
Other payables							
Non-trade payables	325,566	-	517,172	-			
Accrued expenses	11,068	-	22,487	-			
Dividend payables	62	-	66	-			
Lease liabilities (Note 35)	55,056	208,426	68,235	244,538			
Leasehold deposit received		37,227		36,241			
	391,752	245,653	607,960	280,779			
Total	₩ 2,395,375	₩ 245,653	₩ 2,263,163	₩ 280,779			

Other liabilities as at December 31, 2020 and 2019, are as follows:

(In millions of Korean won)	2020					2019				
	С	urrent	Non-cu	rrent		Current	Non-current			
Advances from customers	₩	125,507	₩	-	₩	88,084	₩	-		
Withholdings		3,951		-		4,466		-		
Tax payables		1,367,573		-		533,651		-		
Total	₩	1,497,031	₩	-	₩	626,201	₩	-		

 $^{^2}$ Short-term financial instruments include $\mbox{$W$}$ 21,984 million which are subject to restricted use in relation to contractual guarantee.

18. Borrowings

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

(In millions of Korean won)	2020		2019	
Current				
Short-term borrowings in Korean won	₩	200,000	₩	120,000
Banker's usance		1,675,586		2,199,738
Current maturities of debentures		739,791		359,813
Current maturities of long-term borrowings				145,561
		2,615,377		2,825,112
Non-current				
Debentures		3,194,602		2,835,495
Long-term borrowings				719,310
		3,194,602		3,554,805
Total	₩	5,809,979	₩	6,379,917

Details of carrying amount of borrowings as at December 31, 2020 and 2019, are as follows:

(In millions of Korean won)	Creditor	Maturity date	Interest rates (%) Dec. 31, 2020	2020	2019
Short-term borrowings			•		
Short-term borrowings in Korean won	The Korea Development Bank	Sep. 29, 2021	1.2	₩ 200,000	₩ 120,000
Banker's usance	The Korea Development Bank and others	Mar. 26, 2021 and others	0.44~0.77	1,675,586	2,199,738
				1,875,586	2,319,208
Current maturities of long-term	borrowings				
Loans for facilities from energy usage rationalization fund	KEB Hana Bank	-	-	-	280
Loans for industry facilities fund	The Korea Development Bank	-	-	-	10,714
Loans for industry facilities fund	The Korea Development Bank and others	-	-	-	134,567
					145,561
Long-term borrowings					
Loans for industry facilities fund	The Korea Development Bank	-	-	-	40,178
Loans for industry facilities fund	The Korea Development Bank and others	-	-	_	679,132
					719,310
Total				₩ 1,875,586	₩ 3,184,609

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

(In millions of Korean won)	Issuance date	Maturity Date	Interest Rates (%) Dec. 31, 2020	2020		• •			2019
Public bonds (45-3)	Aug. 28, 2012	Aug. 28, 2022	3.530	₩	50,000	₩	50,000		
Public bonds (46-2)	Jun. 26, 2014	Jun. 26, 2021	3.234		110,000		110,000		
Public bonds (46-3)	Jun. 26, 2014	Jun. 26, 2024	3.468		70,000		70,000		
Public bonds (47-2)	Nov. 27, 2014	Nov. 27, 2021	2.706		80,000		80,000		
Public bonds (47-3)	Nov. 27, 2014	Nov. 27, 2024	2.990		130,000		130,000		
Public bonds (48-1)	Oct. 29, 2015	Oct. 29, 2020	2.297		-		230,000		
Public bonds (48-2)	Oct. 29, 2015	Oct. 29, 2022	2.391		70,000		70,000		
Public bonds (48-3)	Oct. 29, 2015	Oct. 29, 2025	2.657		100,000		100,000		
Public bonds (49-1)	Apr. 18, 2016	Apr. 18, 2021	1.930		230,000		230,000		
Public bonds (49-2)	Apr. 18, 2016	Apr. 18, 2023	2.101		60,000		60,000		
Public bonds (49-3)	Apr. 18, 2016	Apr. 18, 2026	2.225		60,000		60,000		
Public bonds (50-1)	Sep. 2, 2016	Sep. 2, 2021	1.646		210,000		210,000		
Public bonds (50-2)	Sep. 2, 2016	Sep. 2, 2023	1.722		80,000		80,000		
Public bonds (50-3)	Sep. 2, 2016	Sep. 2, 2026	1.932		60,000		60,000		
Public bonds (51-1)	Feb. 22, 2017	Feb. 22, 2022	2.197		230,000		230,000		
Public bonds (51-2)	Feb. 22, 2017	Feb. 22, 2024	2.438		110,000		110,000		
Public bonds (51-3)	Feb. 22, 2017	Feb. 22, 2027	2.559		60,000		60,000		
Public bonds (52-1)	Sep. 19, 2017	Sep. 19, 2020	2.046		_		130,000		
Public bonds (52-2)	Sep. 19, 2017	Sep. 19, 2022	2.317		110,000		110,000		
Public bonds (52-3)	Sep. 19, 2017	Sep. 19, 2024	2.531		60,000		60,000		
Public bonds (53-1)	Jul. 3, 2018	Jul. 3, 2021	2.442		110,000		110,000		
Public bonds (53-2)	Jul. 3, 2018	Jul. 3, 2023	2.617		110,000		110,000		
Public bonds (53-3)	Jul. 3, 2018	Jul. 3, 2025	2.708		80,000		80,000		
Public bonds (54-1)	Jun. 7, 2019	Jun. 7, 2024	1.762		110,000		110,000		
Public bonds (54-2)	Jun. 7, 2019	Jun. 7, 2026	1.769		100,000		100,000		
Public bonds (54-3)	Jun. 7, 2019	Jun. 7, 2029	1.860		190,000		190,000		
Public bonds (55-1)	Nov. 4, 2019	Nov. 4, 2024	1.904		160,000		160,000		
Public bonds (55-2)	Nov. 4, 2019	Nov. 4, 2026	1.926		40,000		40,000		
Public bonds (55-3)	Nov. 4, 2019	Nov. 4, 2029	2.102		60,000		60,000		
Public bonds (56-1)	Mar. 10, 2020	Mar. 10, 2025	1.492		440,000		-		
Public bonds (56-2)	Mar. 10, 2020	Mar. 10, 2027	1.549		70,000		-		
Public bonds (56-3)	Mar. 10, 2020	Mar. 10, 2030	1.648		170,000		-		
Public bonds (57-1)	Aug. 28, 2020	Aug. 28, 2023	1.401		340,000		-		
Public bonds (57-2)	Aug. 28, 2020	Aug. 28, 2025	1.639		40,000		-		
Public bonds (57-3)	Aug. 28, 2020	Aug. 28, 2030	1.817		40,000		-		
Less: Present value discount					(5,607)		(4,692)		
Sub total			-		3,934,393		3,195,308		
Less: Current maturities					(739,791)		(359,813)		
Total			-	₩	3,194,602	₩	2,835,495		

As at December 31, 2020 and 2019, a certain portion of property, plant and equipment and etc. is pledged as collateral for various borrowings (Note 16).

19. Provisions and Contract Liabilities

Details and changes in provisions for other liabilities and charges for the years ended December 31, 2020 and 2019, are as follows:

(In millions of Korean won)	Environmental Restoration			
	2020		2019	
Beginning balance	₩	3,594	+	<i>t</i>
Additional provision		-		829
Used during year		(719)		(3)
Ending balance	₩	2,875	t	₩ 3,594

Changes in contract liabilities for the years ended December 31, 2020 and 2019, are as follows:

(In millions of Korean won)	20	20	2	019
Beginning balance	₩	21,601	₩	23,080
Additions		8,594		9,198
Used during year		(9,527)		(10,677)
Ending balance	₩	20,668	₩	21,601

Contract liabilities arise from customer loyalty program are adjusted from revenue.

20. Net Defined Benefit Assets/Liabilities

The majority of the plans are final salary pension plans, which provide benefit to employees in the form of a guaranteed level of pension payable for life. The level of benefits provided depends on employees' length of severance and their salary in the final years leading up to retirement. The majority of benefit payments are from trustee administered funds; however, there are also a number of unfunded plans. Plan assets held in trusts are governed by local regulations and practice in each country.

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

(In millions of Korean won)	2020		2019	
Present value of defined benefit obligations	₩	453,221	₩	409,063
Fair value of plan assets ¹		(450,608)		(397,506)
Net defined benefit liabilities	₩	2,613	₩	11,557

¹ The contributions to the National Pension Fund of \forall 390 million are included in the fair value of plan assets as at December 31, 2020 (2019: \forall 408 million).

Changes in the defined benefit obligations for the years ended December 31, 2020 and 2019, are as follows:

(In millions of Korean won)		2020		2019
Beginning balance	₩	409,063	₩	356,830
Current service cost		46,555		43,030
Interest expense		11,345		11,321
Remeasurements:				
Actuarial losses (gains) arising from change in financial				
assumptions		(3,128)		15,835
Actuarial losses arising from change in demographic assumptions		-		79
Actuarial losses (gains) from experience adjustments		9,881		(5,854)
Benefits payments		(20,495)		(12,178)
Ending Balance	₩	453,221	₩	409,063

Changes in the fair value of plan assets for the years ended December 31, 2020 and 2019, are as follows:

(In millions of Korean won)		2020		2019
Beginning balance	₩	397,506	₩	393,224
Interest income		10,377		11,823
Remeasurements :				
Return on plan assets		(4,308)		(5,271)
Contributions		67,111		10,138
Benefits payments		(20,078)		(12,408)
Ending balance	₩	450,608	₩	397,506

Plan assets as at December 31, 2020 and 2019, consist of financial assets including deposits.

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

	2020	2019
Discount rate	2.87%	2.17%~2.80%
Salary growth rate	5.32%	4.40%~5.32%

The sensitivity of the defined benefit obligation to changes in the principal assumptions is:

	Changes in	Impact on defined benefit obligations				
	assumption		December, 31 2019			
Solony growth roto	One percent increase	10.45% increase	10.78% increase			
Salary growth rate	One percent decrease	9.05% decrease	9.35% decrease			
Discount rate	One percent increase	8.98% decrease	9.28% decrease			
Discoulit Tale	One percent decrease	10.58% increase	10.93% increase			

The above sensitivity analyses are based on a change in an assumption while holding all other assumptions constant. 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 consolidated statement of financial position. The methods and types of assumptions used in preparing the sensitivity analysis did not change compared to the prior period.

The Group reviews the funding level on an annual basis and has a policy of eliminating deficit from the fund.

The weighted average duration of the defined benefit obligation is 9.78 years and expected contributions to post-employment benefit plans for the year ending December 31, 2020 are \forall 64,462 million.

The expense and others recognized in the current period in relation to defined contribution plan was $\forall 8,581 \text{ million}$ (2019: $\forall 8,282 \text{ million}$).

21. Contingencies and Commitments

As at December 31, 2020, the Group has overdraft agreements of up to $\mbox{$W$}$ 23,000 million and USD 482 million with Shinhan Bank and three other banks and general loan agreements of up to $\mbox{$W$}$ 214,750 million with Woori Bank and one other bank.

As at December 31, 2020, the Group has banker's usance agreements and imported credit agreements of up to a maximum of USD 4,260 million with the Korea Development Bank and 17 other banks.

As at December 31, 2020, Shinhan Bank has provided guarantees up to ₩ 492,000 million for the Group's obligation for repayment of remaining bonus points and extension of the payment of traffic taxes and others filed for November 2020.

As at December 31, 2020, KEB Hana Bank has provided guarantees up to ₩ 2,000 million for the restoration responsibilities of Onsan National Industrial Complex.

As at December 31, 2020, the Group offered one blank check to Korea National Oil Corporation ("KNOC") as payment guarantee.

As at December 31, 2020, the balance of trade receivables that have been transferred but are not past due amounts to USD 15 million (2019: USD 280 million). As at December 31, 2020, the Group transferred the trade receivables to the Export-Import Bank of Korea and one other financial institution and derecognized the transferred receivables as all the risks and rewards are substantially transferred (Note 8).

As at December 31, 2020, the Group has Stand-by credit line agreements, etc. with the Korea Development Bank and four other financial institutions for up to \(\psi\) 350,000 million and USD 150 million.

As at December 31, 2020, the Group has been provided performance guarantee and others amounting to \forall 5,512 million by Seoul Guarantee Insurance.

As at December 31, 2020, there is no significant pending litigation.

As at December 31, 2020, the amount of commitment in relation to the Group's purchase of property, plant and equipment is \forall 13,897 million.

22. Share Capital and Share Premium

Share capital and share premium as at December 31, 2020 and 2019, are as follows:

(In millions of Korean won, except number of shares)	Number of issued ordinary shares	Number of issued preferred shares	Share capital (Ordinary share)	Share capital (Preferred share)	Share premium	Total
December 31, 2019	112,582,792	4,021,927	₩ 281,457	₩ 10,055	₩ 379,190	₩ 670,702
December 31, 2020	112.582.792	4.021.927	₩ 281.457	₩ 10.055	₩ 379.190	₩ 670.702

Under its Articles of Incorporation, the Company is authorized to issue 60 million cumulative, participating preferred shares that are non-voting and entitled to a minimum cash dividend at 9% of par value. As all of the preferred share as at December 31, 2020, was issued before March 27, 1998, it receives 1% more dividends over ordinary share under the Articles of Incorporation.

The Company is authorized to issue non-voting convertible share up to 4 million shares. Each share of this non-voting convertible share was converted to one ordinary share. As at December 31, 2020, there is no outstanding convertible share issued by the Company.

The Company may grant options to purchase the Company's ordinary share to key employees or directors. The grant limit of the options is 15% of outstanding shares and the options may be granted with the special resolution of the shareholders. As at December 31, 2020, no option has been granted.

The Company is authorized to issue 180,000,000 ordinary shares with a par value of $\mbox{$W$}$ 2,500 per share and 112,582,792 ordinary shares are issued. The Company is authorized to issue 60,000,000 preferred shares with par value of $\mbox{$W$}$ 2,500 per share and 4,021,927 preferred shares are issued.

23. Treasury Share

As at December 31, 2020, the Company holds 184,080 treasury share of preferred shares amounting to \forall 1,876 million and is deducted from shareholders' equity. The Company intends to dispose of the treasury share depending on the market conditions.

24. Retained Earnings

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

(In millions of Korean won)	2020		2019	
Legal reserve				
Earned surplus reserve ¹	₩	145,756	₩	145,756
Discretionary reserve				
Reserve for improvement of financial structure		55,700		55,700
Reserve for business rationalization		103,145		103,145
Reserve for market development		3,536,498		3,508,498
		3,695,343		3,667,343
Revaluation reserve		984,648		984,648
Retained earnings before appropriation		(790,040)		50,424
	₩	4,035,707	₩	4,848,171

¹ The Commercial Code of the Republic of Korea requires the Company to appropriate, as a legal reserve, an amount equal to a minimum of 10% of annual cash dividends paid, until such reserve equals 50% of its issued share capital. As the Company's reserve exceeds 50% of its issued share capital, additional reserve is unnecessary. The reserve is not available for cash dividends payment, but may be transferred to share capital or used to reduce accumulated deficit.

Year-end cash dividends for 2019 amounting to \forall 11,258 million for ordinary share and \forall 480 million for preferred share were paid out in April 2020 (Dividends paid in 2019: \forall 16,887 million for ordinary share and \forall 672 million for preferred share).

A dividend in respect of the year ended December 31, 2020, of \forall 25 per preferred share, amounting to total dividend of \forall 96 million for preferred share, is to be proposed to shareholders at the annual general meeting on March 30, 2021. These consolidated financial statements do not reflect this dividend payable.

25. Reserves

Changes in reserves for the years ended December 31, 2020 and 2019, are as follows:

(In millions of Korean won)	dis	ains on posal of sury share	on v fi ass valu	ns (losses) raluation of inancial sets at fair ue through other prehensive income	compr	of other rehensive ne (loss) t venture	trai gains on	realized nslation s (losses) foreign eration		Total
Balance at January 1, 2020	₩	952,311	₩	19,188	₩	(74)	₩	8,204	₩	979,629
Gains on valuation of financial assets at fair value through other comprehensive income Reclassification due to		-		3,541		-		-		3,541
disposal of financial assets at fair value through other comprehensive income		-		(5,130)		-		-		(5,130)
Foreign currency translation adjustments		-		-		-		(105)		(105)
Share of other comprehensive income in joint venture		-		-		9		-		9
Balance at December 31, 2020	₩	952,311	₩	17,599	₩	(65)	₩	8,099	₩	977,944
Balance at January 1, 2019 Gains on valuation of	₩	952,311	₩	16,917	₩	(49)	₩	8,172	₩	977,351
financial assets at fair value through other comprehensive income		-		2,271		-		-		2,271
Foreign currency translation adjustments		-		-		-		32		32
Share of other comprehensive income in joint venture		-		-		(25)		-		(25)
Balance at December 31, 2019	₩	952,311	₩	19,188	₩	(74)	₩	8,204	₩	979,629

26. Cost of Sales

Cost of sales for the years ended December 31, 2020 and 2019, consists of:

(In millions of Korean won)		2020		2019
Beginning balance of merchandise and finished goods	₩	684,362	₩	769,842
Purchases of merchandise		1,477,493		2,043,007
Manufacturing cost for the year		17,555,606		23,565,688
Transfer from other accounts		6,643		26,146
Transfer to other accounts		(1,284,787)		(1,597,495)
Ending balance of merchandise and finished goods		(468,383)		(684,362)
Adjustments		(604,730)		(776,020)
Total	₩	17,366,204	₩	23,346,806

27. Selling and Administrative Expenses

Selling and administrative expenses for the years ended December 31, 2020 and 2019, are as follows:

(In millions of Korean won)	Selling e	expenses	Administrativ	ative expenses		
	2020	2019	2020	2019		
Salaries	₩ 69,544	₩ 64,817	₩ 32,545	₩ 32,476		
Post-employment benefits	11,603	10,670	6,381	5,832		
Employee benefits	17,399	29,562	9,416	17,603		
Training expenses	19	91	1,570	1,749		
Travel expenses	1,604	3,405	501	990		
Miscellaneous administrative expenses	177	176	543	580		
Communication expenses	2,495	2,199	1,300	1,311		
Vehicles maintenance expenses	379	442	284	366		
Utility expenses	1,726	2,273	855	1,100		
Rental expenses	3,004	3,610	1,245	1,277		
Service expenses for oil storages	20,682	27,293	-	_		
Service fees	11,159	11,583	1,309	5,340		
Entertainment expenses	709	1,360	869	1,347		
Export expenses	91,702	110,790	-	-		
Repairs and maintenance expenses	3,954	6,266	2,855	7,176		
Supplies expenses	341	242	47	83		
Chemicals expenses	536	622	-	-		
Outsourcing fees	13,167	12,653	12,573	7,910		
Promotional and advertising expenses	11,598	20,490	6,504	7,495		
Freight expenses	151,364	155,884	-	-		
Insurance premium	1,347	1,290	165	180		
Taxes and dues	5,658	5,329	7,788	6,685		
Depreciation expenses	26,441	24,298	9,103	11,144		
Amortization expenses	739	701	3,802	4,480		
Depreciation of right-of-use assets	11,939	11,159	3,715	3,715		
Reversal of provision for impairment	(713)	(47)	-	-		
Others	282	304	398	989		
Total	₩ 458,855	₩ 507,462	₩ 103,768	₩ 119,828		

28. Other Income and Expenses

Other income and expenses for the years ended December 31, 2020 and 2019, are as follows:

Other income

(In millions of Korean won)	2020		2	2019
Gains on disposal of property, plant and equipment	₩	5,757	₩	2,710
Dividend income		688		947
Others		52,186		47,914
Gains on foreign currency transactions		231,496		264,404
Gains on foreign currency translation		45,250		23,583
Gains on derivative transactions		53,759		29,902
Gains on valuation of derivatives		5,337		566
Gains on disposal of investments in associate		-		397
Total	₩	394,473	₩	370,423

Other expenses

(In millions of Korean won)	2020		2	019
Losses on disposal of property, plant and equipment	₩	5,693	₩	5,527
Donations		17,757		19,346
Others		17,725		24,614
Losses on foreign currency transactions		244,105		309,829
Losses on foreign currency translation		10,355		15,862
Losses on derivative transactions		95,377		57,233
Losses on valuation of derivatives		33,577		8,160
Losses on redemption of borrowings		6,020		_
Total	₩	430,609	₩	440,571

29. Finance Income and Costs

Finance income and costs for the years ended December 31, 2020 and 2019, consist of:

Finance income

(In millions of Korean won)		2020	2019		
Interest income	₩	12,351	₩	13,960	
Gains on foreign currency transactions		303,580		99,092	
Gains on foreign currency translation		100,463		50,356	
Total	₩	416,394	₩	163,408	

Finance costs

(In millions of Korean won)	:	2020	2019		
Interest expenses ¹	₩	158,080	₩	182,816	
Losses on foreign currency transactions		294,422		222,720	
Losses on foreign currency translation		113		-	
Total	₩	452,615	₩	405,536	

30. Tax Expense (Benefit) and Deferred Tax

Income tax expense (benefit) for the years ended December 31, 2020 and 2019, consists of:

(In millions Korean won)	2	020	2019	
Current tax				
Current tax on profit for the year	₩	1,279	₩	793
Adjustments due to changes in estimates related to prior years		(40,512)		(3,186)
Total current tax		(39,233)		(2,393)
Deferred tax				
Changes in defered tax due to temporary differences	(332,456)		47,315
Income tax expense (benefit)	₩ (371,689)	₩	44,922

The tax on the Group's profit before tax differs from the theoretical amount that would arise using the weighted average tax rate applicable to profits of the consolidated entities as follows:

(In millions of Korean won)	2020	2019		
Profit (loss) before income tax	₩ (1,167,797)	₩ 110,351		
Tax at domestic tax rates applicable to profits in the respective countries	₩ (321,144)	₩ 30,007		
Income not subject to tax	(10,571)	(4,984)		
Expenses not deductible for tax purposes	8,442	23,296		
Adjustments in respect of prior years	(40,512)	(3,186)		
Tax credit and others	(8,009)	(752)		
Effects of changes on tax brackets	105	541		
Income tax expense (benefit)	₩ (371,689)	₩ 44,922		

The weighted average applicable tax rate of the Group was 27.50% (2019: 27.19%).

The tax effect relating to components of other comprehensive income (expenses) for the years ended December 31, 2020 and 2019, is as follows:

(In millions Korean won)	2020							
	Bef	ore Tax	Tax	effect	Af	ter tax		
Gains on valuation of financial assets at fair value through other comprehensive income	₩	3,654	₩	(113)	₩	3,541		
Share of other comprehensive income of joint venture and associate		13		(4)		9		
Remeasurements of net defined benefit liabilities		(11,056)		1,308		(9,748)		
Foreign currency translation adjustments		(145)		40		(105)		
Total	₩	(7,534)	₩	1,231	₩	(6,303)		

¹ Interest expenses exclude capitalized borrowing costs on qualifying assets (Note 14).

(In millions Korean won)	2019						
	Befo	ore Tax	Tax	effect	Aft	er tax	
Gains on valuation of financial assets at fair value through other comprehensive income	₩	3,133	₩	(862)	₩	2,271	
Share of other comprehensive income of joint venture and associate		(34)		9		(25)	
Remeasurements of net defined benefit liabilities		(15,332)		4,218		(11,114)	
Foreign currency translation adjustments		44		(12)		32	
Total	₩	(12,189)	₩	3,353	₩	(8,836)	

The analysis of deferred tax assets and liabilities as at December 31, 2020 and 2019, is as follows:

(In millions of Korean won)	2020		2019	
Deferred tax assets				
Deferred tax asset to be recovered after more than 12 months	₩	323,767	₩	50,536
Deferred tax asset to be recovered within 12 months		91,847		52,757
		415,614		103,293
Deferred tax liabilities				
Deferred tax liability to be recovered after more than 12 months		(287,837)		(236,472)
Deferred tax liability to be recovered within 12 months		(34,980)		(107,711)
		(322,817)		(344,183)
Deferred tax assets (liabilities), net	₩	92,797	₩	(240,890)

Changes in deferred tax for the years ended December 31, 2020 and 2019, are as follows:

(In millions of Korean won)		2020		2019
Beginning balance	₩	(240,890)	₩	(196,928)
Deferred income tax charged to income		332,456		(47,315)
Deferred income tax charged to equity		1,231		3,353
Ending balance	₩	92,797	₩	(240,890)

Changes in deferred tax assets and liabilities for the years ended December 31, 2020 and 2019, are as follows:

(In millions of Korean won)	2020							
					Othe	er		
	Begi	nning	State	ment of	compreh	ensive	Ending	
	Bala	ance	profit	or loss	incor	ne	В	Balance
Depreciation	₩	4,567	₩	840	₩	-	₩	5,407
Losses on impairment of investments		1,146		(186)		-		960
Salaries and wages payable		8,005		(5,105)		-		2,900
Bonus card point and etc.		7,381		(621)		-		6,760
Subsidiary and joint ventures		(1,362)		103		-		(1,259)
Losses on valuation of derivative instruments		744		295		-		1,039
Losses on impairment of property, plant and equipment		1,491		(273)		-		1,218
Customs duties receivable		(34,799)		2,848		-		(31,951)
Accrued interest income		(373)		263		-		(110)
Net defined benefit liabilities		(4,301)		(1,997)		-		(6,298)
Employee benefits		8,229		(23)		-		8,206
Revaluation of lands	((214,639)		12,522		-		(202,117)
Annual overhaul and others		(65,579)		(2,687)		-		(68,266)
Tax loss carryforwards and tax credits		24,764		325,334		-		350,098

Losses (gains) on valuation of financial assets at fair value through other comprehensive income		(7,280)		1,143		(113)		(6,250)
Currency translation differences and share of other comprehensive income of associate and joint venture		(2,521)		-		36		(2,485)
Remeasurements of net defined benefit liabilities		33,637		-		1,308		34,945
Total	₩	(240,890)	₩	332,456	₩	1,231	₩	92,797

(In millions of Korean won)	2019							
					Ot			
	Вес	ginning	Stat	ement of	compre	hensive	E	inding
	Ва	lance	profit or loss		ince	ome	В	alance
Depreciation	₩	5,324	₩	(757)	₩	_	₩	4,567
Losses on impairment of investments		1,186		(40)		-		1,146
Salaries and wages payable		11,273		(3,268)		-		8,005
Bonus card point and etc.		7,470		(89)		-		7,381
Subsidiary and joint ventures		(1,226)		(136)		-		(1,362)
Losses on valuation of derivative instruments		1,649		(905)		-		744
Losses on impairment of property, plant and equipment		1,518		(27)		-		1,491
Customs duties receivable		(18,908)		(15,891)		-		(34,799)
Accrued interest income		(160)		(213)		-		(373)
Net defined benefit liabilities		(11,432)		7,131		-		(4,301)
Employee benefits		7,840		389		-		8,229
Revaluation of lands		(215,184)		545		-		(214,639)
Annual overhaul and others		(6,761)		(58,818)		-		(65,579)
Tax loss carryforwards and tax credits		-		24,764		-		24,764
Loss on valuation of financial assets at fair value through other comprehensive income		(6,418)		-		(862)		(7,280)
Currency translation differences and share of other comprehensive income of associate and joint venture		(2,518)		-		(3)		(2,521)
Remeasurements of net defined benefit liabilities		29,419		-		4,218		33,637
Total	₩	(196,928)	₩	(47,315)	₩	3,353	₩	(240,890)

31. Breakdown of Expenses by Nature

Expenses by nature for the years ended December 31, 2020 and 2019, are as follows:

(In millions of Korean won)		2020		2019
Raw materials and merchandises used	₩	14,783,816	₩	20,769,173
Changes in inventories of finished goods, work in-progress and merchandise		340,961		40,973
Employee benefit expense		368,549		365,606
Utility expenses		1,171,198		1,456,582
Depreciation and amortization		571,473		571,947
Depreciation of right-of-use assets		59,789		40,503
Freight expenses		229,427		232,528
Advertising costs		8,357		15,951
Other expenses		395,257		480,833
Total cost of sales, selling and administrative expenses	₩	17,928,827	₩	23,974,096

32. Earnings (Losses) per Share

Basic earnings (losses) per ordinary share is calculated by dividing the profit (loss) attributable to ordinary shareholders of the Group by the weighted average number of ordinary shares during the financial year. As the Group's preferred shares are participating shares with right to participate in distribution of earnings, earnings (losses) per share on preferred share is also calculated.

Basic earnings (losses) per ordinary share for the years ended December 31, 2020 and 2019, is calculated as follows:

(In millions of Korean won, except per share data)		2020	2019		
Profit (loss) for the year	₩	(796,108)	₩	65,429	
Adjustments:					
Dividends for preferred share		(96)		(96)	
Additional dividends for preferred share		26,247		(2,154)	
Profit (loss) attributable to ordinary share shareholders		(769,957)		63,179	
Weighted average number of shares of ordinary share		112,582,792		112,582,792	
Basic earnings (losses) per ordinary share	₩	(6,839)	₩	561	

Basic earnings per preferred share for the years ended December 31, 2020 and 2019, is calculated as follows:

(In millions of Korean won, except per share data)		2020	2019		
Profit (loss) attributable to preferred share shareholders	₩	(26,151)	₩	2,250	
Weighted average number of shares of preferred share ¹		3,837,847		3,837,847	
Basic earnings (losses) per preferred share	₩	(6,814)	₩	586	

¹ The 184,080 treasury shares are excluded in calculating weighted average number of shares of preferred share.

As there are no dilutive items outstanding, diluted earnings (losses) per share is identical to basic earnings (losses) per share.

33. Related Party Transactions

Details of related parties as at December 31, 2020 and 2019, are as follows:

	2020	2019
Ultimate parent company	Saudi Arabian Oil Company ¹	Saudi Arabian Oil Company ¹
Parent company	Aramco Overseas Co., B.V.	Aramco Overseas Co., B.V.
Joint venture	S-OIL TOTAL Lubricants Co., Ltd.	S-OIL TOTAL Lubricants Co., Ltd.
Other related parties who have transactions with the Company	Aramco Trading Company ²	Aramco Trading Company ²
	Aramco Trading Singapore PTE. LTD.2	Aramco Trading Singapore PTE. LTD.2
	Aramco Asia Singapore PTE Limited ²	Aramco Asia Singapore PTE Limited ²
	Saudi Aramco Base Oil Company –	Saudi Aramco Base Oil Company –
	Luberef Saudi Arabia ²	Luberef Saudi Arabia ²
	Aramco Chemicals Company ²	Aramco Chemicals Company ²
	-	Aramco Trading Limited ²
	Aramco Trading Fujairah FZE ²	Aramco Trading Fujairah FZE ²
	Motiva Enterprises LLC ²	-
	The National Shipping Company of	The National Shipping Company of
	Saudi Arabia ³	Saudi Arabia ³
	Hyundai Oilbank Co., Ltd.³	Hyundai Oilbank Co., Ltd.³

¹ The ultimate parent of Aramco Overseas Co., B.V.

Significant transactions with related parties for the years ended December 31, 2020 and 2019, and the related receivables and payables as at December 31, 2020 and 2019, are as follows:

(In millions of Koroon won)	(Salaa an	d others			Durobooo (es and others				
(In millions of Korean won)	202)19		2020	2019				
Ultimate parent company										20.0	
Saudi Arabian Oil Company ¹	₩	-	₩	-	₩	9,605,427	₩ 1	4,040,070			
Parent company											
Aramco Overseas Co., B.V.		-		-		461		_			
Joint venture											
S-OIL TOTAL Lubricants Co., Ltd.	6	9,347		84,141		27,393		33,649			
Other related parties											
Aramco Trading Company		-		27,368		1,415,325		2,214,744			
Aramco Trading Singapore PTE. LTD.	2,86	2,458	3,943,462		741,127		1,004,206				
Hyundai Oilbank Co., Ltd. ²	27	9,692		11,035		268,377		11,571			
Others	4	5,519		27,511		555,141		342,459			
Total	_ ₩ 3,25	7,016	₩ 4,0	93,517	₩	12,613,251	₩ 1	7,646,699			
(In millions of Korean won)	Rec	eivables	and oth	ers		Payables a	nd oth	ers			
	202	20	20	19		2020		2019			
Ultimate parent company											
Saudi Arabian Oil Company ¹	₩	-	₩	-	₩	1,696,768	₩	980,684			
Parent company											
Aramco Overseas Co., B.V.		-		-		459		-			

² Subsidiaries of Saudi Arabian Oil Company

³ Associates of Saudi Arabian Oil Company

Joint venture S-OIL TOTAL Lubricants Co., Ltd. Other related parties	3,775	3,596	3,277	3,657
Aramco Trading Company	-	-	126,945	387,357
Aramco Trading Singapore PTE. LTD.	229,718	42,673	-	25,207
Hyundai Oilbank Co., Ltd. ²	4,017	2,100	11,847	14,459
Others	1,986	23,931	77,671	49,623
Total	₩ 239,496	₩ 72,300	₩ 1,916,967	₩ 1,460,987

¹ The Group is under a long-term purchasing agreement with Saudi Arabian Oil Company in relation with crude oil purchase as at December 31, 2020.

Financial transactions with related parties for the years ended December 31, 2020 and 2019, are as follows:

Dividends received				Dividends paid			
2020 2019		2020 2019 2020		2020		2019	
₩	-	₩	-	₩	7,183	₩	17,944
	2,400		3,750		-		-
₩	2,400	₩	3,750	₩	7,183	₩	17,944
	₩	2020 ₩ - 2,400	2020 2 ₩ - ₩ 2,400	2020 2019 ₩ - ₩ - 2,400 3,750	2020 2019 20 ₩ - ₩ - ₩ 2,400 3,750	2020 2019 2020 ₩ - ₩ 7,183 2,400 3,750 -	2020 2019 2020 2 ₩ - ₩ 7,183 ₩ 2,400 3,750 -

The compensation to key management for employee services for the years ended December 31, 2020 and 2019, consists of:

(In millions of Korean won)	202	20	2019		
Short-term employee benefits	₩	1,361	₩	1,383	
Post-employment benefits		205		207	
Total	₩	1,566	₩	1,590	

Key management consists of registered executive officers who have the authority and responsibility in the planning, directing and control over the Group's operations.

34. Cash Generated From Operations

Cash generated from operations for the years ended December 31, 2020 and 2019, is as follows:

(In millions of Korean won)		2020		2019
Profit (loss) for the year	₩	(796,108)	₩	65,429
Adjustments:				
Income tax expense (benefit)		(371,689)		44,922
Depreciation expense of property, plant and equipment		563,879		563,840
Amortization expense		7,594		8,106
Depreciation of right-of-use assets		59,789		40,503
Post-employment benefits		47,523		42,527
Reversal of provision for impairment losses on receivables		(713)		(47)
Interest expense		158,080		182,816
Losses on foreign currency translation		10,468		15,862

² This is the exchange transaction and others with Hyundai Oilbank Co., Ltd. and presents the transaction after Hyundai Oilbank Co., Ltd. was included in the related parties.

Losses on derivative transactions		95,377		57,233
Losses on valuation of derivatives		33,577		8,160
Losses on disposal of property, plant and equipment		5,692		5,527
Reversal of losses on valuation of inventories		(26,247)		(210,430)
Share of profit of joint venture		(3,706)		(2,565)
Share of loss of associate		-) 15
Interest income		(12,351)		(13,960)
Gains on foreign currency translation		(145,713)		(73,939)
Gains on disposal of property, plant and equipment		(5,757)		(2,710)
Gains on disposal of investments in associate		-		(397)
Gains on derivative transactions		(53,759)		(29,902)
Gains on valuation of derivatives		(5,336)		(566)
Dividend income		(688)		(947)
Others		2,229		5,615
Changes in net working capital :				
Trade receivables		107,695		312,663
Other receivables		96,581		(73,335)
Other current assets		(58,375)		(170,777)
Inventories		1,029,990		20,659
Trade payables		381,456		239,242
Other payables		(173,487)		(223,776)
Other current liabilities		868,323		11,019
Net defined benefit liabilities		(67,523)		(9,908)
Provisions for other liabilities and charges		(719)		826
Contract liabilities		(933)		(1,480)
Cash generated from operations	₩	1,745,149	₩	810,225

Significant transactions not affecting cash flows for the years ended December 31, 2020 and 2019, are as follows:

	2020		2019
₩	349,704	₩	490,834
	-		132,820
	1,101,621		505,768
	8,407		9,573
	(16,816)		13,645
	-		133,027
	9,412		135,388
	₩	₩ 349,704 - 1,101,621 8,407 (16,816)	₩ 349,704 ₩ - 1,101,621 8,407 (16,816)

Changes in liabilities arising from financing activities for the years ended December 31, 2020 and 2019, are as follows:

(In millions of Korean won)				20	20			
				Changes	in non-cash tr	ansaction		
	Beginning balance	Cash flows from financing activities	Current portion	Interest expense	Increase in lease liabilities	Changes in foreign exchange rates	Reclassific- ation from retained earnings	Ending balance
Short-term borrowings in foreign currencies and banker's usance	₩ 2,319,738	₩ (343,707)	₩ -	₩ -	₩ -	₩ (100,445)	₩ -	₩ 1,875,586
Current maturities of debentures	359,813	(360,000)	739,647	331	-	-	-	739,791
Current maturities of long- term borrowings	145,561	(507,982)	361,974	447	-	-	-	-
Debentures	2,835,495	1,097,361	(739,647)	1,393	-	-	-	3,194,602
Long-term borrowings	719,310	(359,643)	(361,974)	2,307	-	-	-	-
Dividend payables	66	(11,742)	-	-	-	-	11,738	62
Current other payables (lease liabilities)	68,235	(62,975)	49,796	-	-	-	-	55,056
Other payables (lease liabilities)	244,538		(49,796)	-	22,664	(8,980)		208,426
	₩ 6,692,756	₩ (548,688)	₩ -	₩ 4,478	₩ 22,664	₩ (109,425)	₩ 11,738	₩ 6,073,523

(In millions of Korean won)	
	Changes in

		Changes in non-cash transaction						
	Beginning balance	Cash flows from financing activities	Current portion	Interest expense	Increase in lease liabilities	Changes in foreign exchange rates	Reclassific- ation from retained earnings	Ending balance
Short-term borrowings in foreign currencies and banker's usance	₩ 2,359,208	₩ 10,882	₩ -	₩ -	₩ -	₩ (50,352)	₩ -	₩ 2,319,738
Current maturities of debentures	434,861	(435,000)	359,813	139	-	-	-	359,813
Current maturities of long- term borrowings	140,701	(141,095)	145,955	-	-	-	-	145,561
Debentures	2,535,816	658,217	(359,813)	1,275	-	-	-	2,835,495
Long-term borrowings	864,811	-	(145,955)	454	-	-	-	719,310
Dividend payables	102	(29,237)	-	-	-	-	29,201	66
Current other payables	3,680	(47,310)	54,606	-	57,259	-	-	68,235
Other payables	63,992		(54,606)		234,489	663		244,538
	₩ 6,403,171	₩ 16,457	₩ -	₩ 1,868	₩ 291,748	₩ (49,689)	₩ 29,201	₩ 6,692,756

35. Leases

35.1 Amounts recognized in the consolidated statement of financial position

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

(In millions of Korean won)		2020		2019
Right-of-use assets ¹				
Vessels	₩	136,130	₩	169,343
Gas station/Charging station		21,884		18,090
Storage and other facilities		86,955		107,912
	₩	244,969	₩	295,345
(In millions of Korean won)		2020		2019
Lease liabilities ²				
Current	₩	55,056	₩	68,235
Non-current		208,426		244,538
	₩	263,482	₩	312,773
(In millions of Korean won)		2020		2019
Lease receivables ³				
Current	₩	6,943	₩	5,834
Non-current		16,550		10,323
	₩	23,493	₩	16,157

¹ Included in 'Other assets' in the consolidated statement of financial position.

² Included in 'Other payables' in the consolidated statement of financial position.

³ Included in 'Other receivables' in the consolidated statement of financial position.

35.2 Amounts recognized in the consolidated statements of comprehensive income

The consolidated statements of comprehensive income show the following amounts relating to leases:

(In millions of Korean won)		2020		2019
Depreciation of right-of-use assets				
Vessels	₩	32,402	₩	15,105
Gas station/Charging station		5,168		4,355
Storage and other facilities		22,219		21,043
	₩	59,789	₩	40,503
Interest expense relating to lease liabilities (included in finance cost)	₩	7,471	₩	6,299
Interest income relating to lease receivables (included in finance income)	₩	(425)	₩	(380)
Expense relating to short-term leases ¹	₩	39,546	₩	65,021
Expense relating to leases of low-value assets that are not short-term leases ¹	₩	816	₩	748
Expense relating to variable lease payments not included in lease liabilities ¹	₩	66,372	₩	57,883
Foreign currency translation gains and losses for lease liabilities	₩	(8,980)	₩	663

¹ Included in 'Cost of sales' and 'Selling and administrative expenses' in the consolidated statement of profit or loss.

Total cash outflow and inflow with respect to leases amount to \forall 177,180 million (2019: \forall 170,962 million) and \forall 6,945 million (2019: \forall 5,685 million), respectively in 2020.

35.3 Changes in asset and liabilities related to lease

Changes in right-of-use assets during the years ended December 31, 2020 and 2019, are as follows:

(In millions of Korean won)		2020		2019
Beginning net book amount	₩	295,345	₩	67,433
Adjustments due to changes in accounting policy		-		133,027
Additions		9,413		135,388
Depreciation		(59,789)		(40,503)
Ending net book amount	₩	244,969	₩	295,345

Changes in lease liabilities during the years ended December 31, 2020 and 2019, are as follows:

(In millions of Korean won)	2020		2019	
Beginning net book amount	₩	312,773	₩	67,672
Adjustments due to changes in accounting policy		-		146,766
Increase		22,664		138,683
Interest expenses		7,471		6,299
Foreign currency rate changes		(8,980)		663
Repayments of lease liabilities		(70,446)		(47,310)
Ending net book amount	₩	263,482	₩	312,773

Changes in lease receivables during the years ended December 31, 2020 and 2019, are as follows:

(In millions of Korean won)		2020		2019
Beginning net book amount	₩	16,157	₩	-
Adjustments due to changes in accounting policy		-		15,449
Additions		13,856		6,013
Interest income		425		380
Received		(6,945)		(5,685)
Ending net book amount	₩	23,493	₩	16,157

36. Greenhouse Gas Emission Permits and Obligations

Quantity of emission permits for the 2nd plan period (2018–2020) as at December 31, 2020, is as follows:

(In thousands of tCO2-eq)	Emission Permits ¹
2018	6,069
2019	6,522
2020	5,429
	18,020

¹ The quantity is estimated based on cancel of emission permits, additional allocation and others.

Changes in quantity of emission permits for the 2nd plan period (2018–2020) as at December 31, 2020, are as follows:

(In thousands of tCO2-eq)	2018	2019	2020
Beginning balance	8,441	8,575	6,865
Withdrawal by government ¹	(6,276)	(6,538)	(6,219)
Others ²	(112)	(600)	(150)
Carry forward	(2,053)	(1,437)	(496)
Ending balance	<u>-</u>	-	-

¹ Withdrawal by government for the year 2020 is the estimate as at December 31, 2020 and subject to change with submission to government.

Greenhouse gas emissions obligations for the year ended December 31, 2020, is measured at zero and there are no emission permits pledged as collateral.

² Disposal of emission permits driven by the government's restriction on carry forward is included.