Kakao Corp. and Subsidiaries

Consolidated Financial Statements December 31, 2019 and 2018

Kakao Corp. and Subsidiaries Index

December 31, 2019 and 2018

	Page(s)
Independent Auditor's Report	1 – 5
Consolidated Financial Statements	
Consolidated Statements of Financial Position	6 – 7
Consolidated Statements of Comprehensive Income	8
Consolidated Statements of Changes in Equity	9 – 10
Consolidated Statements of Cash Flows	11 – 12
Notes to the Consolidated Financial Statements	13 _ 144





Independent Auditor's Report

(English Translation of a Report Originally Issued in Korean)

To the Shareholders and Board of Directors of Kakao Corp.

Opinion

We have audited the accompanying consolidated financial statements of Kakao Corp. and its subsidiaries (collectively the "Company"), which comprise the consolidated statements of financial position as at December 31, 2019 and 2018, and the consolidated statements of comprehensive income, consolidated statements of changes in equity and consolidated statements of 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 Company as at December 31, 2019 and 2018, 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 (Korean IFRS).

Basis for Opinion

We conducted our audits in accordance with Korean Standards on Auditing. Our responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Consolidated Financial Statements* section of our report. We are independent of the Company in accordance with the ethical requirements of the Republic of Korea that are relevant to our audit of the 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.

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.

A. Recognition of revenue from Search and Moment advertising

Key Audit Matter

We considered its size of an amount and complexity of Search and Moment advertising amounting to ₩ 471.9 billion incurred in 2019. Revenue from Search and Moment advertising depends on the terms of the contracts with a number of advertisers and advertising agency, and the amount of revenue from Search and Moment advertising of the Company is determined and recorded in a financial system through a complex process based on large amounts of data including a number of customer information and various contract terms aggregated in the sales system (Note 2). There is a potential risk that the amount of revenue was improperly recognized due to such complex process and large amounts of data. As a result, we determined that there is a significant risk in relation to the occurrence of the revenue from Search and Moment advertising.

How our audit addressed the Key Audit Matter

We have performed the following audit procedures to assess the appropriateness of accounting for recognition of revenue from Search and Moment advertising of the Company:

- Obtained understanding of and evaluated accounting policies and controls of the Company regarding recognition of revenue from Search and Moment advertising
- Examined the appropriateness of control activity procedures for general computer control activities on the operating system (program change, security, computer operation, and other)
- Examined the appropriateness of the control for monitoring the non-charged amounts in the operating system by testing samples
- Examined the accuracy of the charged amounts in the operating system through an independent re-execution
- Examined the appropriateness of the control in relation to a pre-approval in the change of data by testing samples and investigating the relevant evidence documents
- Reconciled the amount of revenue recorded in the operating system to the amount of revenue recognized in the financial accounting system
- Examined the accuracy of recognized amount of operating income through screening of evidence documents

B. Impairment of goodwill of cash-generating units of internet portal service including other services and music service

Key Audit Matter

As at December 31, 2019, goodwill of cash-generating unit of internet portal service and other services amounts to $\mbox{$W$}$ 1,081,856 million and goodwill of cash-generating units of music service amounts to $\mbox{$W$}$ 868,551 million (Note 19). The Company performed the impairment tests on the above goodwill using value-in-use calculations based on the discounted cash flow (Note 3). We determined accounting for the above goodwill as a key audit matter due to its significant size ($\mbox{$W$}$ 1,950,407 million) and because

the value-in-use involves management's significant judgements and estimates about discount rate, growth rate and future cash flow forecasts.

How our audit addressed the Key Audit Matter

We performed the following key audit procedures for the impairment tests on the above goodwill

- Obtained an understanding of the Company's policy, procedures and internal controls in relation to accounting for impairment on goodwill
- · Evaluated the adequacy of valuation model used by management to estimate value-in-use
- · Evaluated the eligibility and independence of an external specialist hired by the company
- Evaluated internal control for the management's review and approval in relation to future cash flow estimates and evaluation for impairment tests
- Evaluated whether future cash flow is reasonably estimated based on a business plan reported to management
- · Evaluated the reasonableness of key assumptions used to estimate value-in-use
- Evaluated the results of a sensitivity analysis on the discount rates and the perpetual growth rates performed by management to assess the impact of changes in key assumptions on the impairment tests

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 Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Company or to cease operations.

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

Auditor's Responsibilities for the Audit of the 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 entity's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the 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 Company 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 Company to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the Company 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 Bum-Tak Lee, Certified Public Accountant.

Seoul, Korea March 17, 2020

This report is effective as at March 17, 2020, 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.

Kakao Corp. and Subsidiaries Consolidated Statements of Financial Position December 31, 2019 and 2018

(in millions of Korean won)	Notes		2019		2018
Assets					
Current assets					
Cash and cash equivalents	4,5,7,8,37	₩	1,918,225	₩	1,247,013
Short-term financial instruments	4,5,7,8		207,767		924,215
Financial assets at fair value through profit or loss	5,7,10		49,512		25,781
Derivative financial assets	4,5,7,10,26	i	1,112		1,174
Trade receivables	4,5,7,10		157,221		193,669
Other current financial assets	4,5,7,10		252,486		207,656
Inventories	15		49,450		35,836
Other current assets	14	-	193,921		223,605
			2,829,694		2,858,950
Non-current assets					
Long-term financial instruments	4,5,7,8		50,062		50,689
Financial assets at fair value through profit or loss	4,5,7,10		127,148		104,846
Financial assets at fair value through other comprehensive income	4,5,7,10		419,265		329,345
Investments in associates and joint venture	16		978,944		305,188
Other non-current financial assets	4,5,7,10		92,355		58,321
Property and equipment	17		349,818		314,812
Intangible assets	19		3,548,416		3,865,265
Investment property	18		2,843		-
Right-of-use assets	20,42		227,458		-
Other non-current assets	14		50,548		16,412
Deferred income tax assets	24		60,703		55,716
			5,907,561		5,100,592
Total assets		₩	8,737,256	₩	7,959,542
Liabilities					
Current Liabilities					
Trade and other payables	4,5,7,12	₩	578,567	₩	460,813
Short-term borrowings	4,5,7,21		448,596	•••	609,480
Deposits received	4,5,7,13		299,564		129,889
Other current financial liabilities	4,5,7,13		25,256		20,526
Income tax payable	.,0,.,.0		68,348		71,040
Provisions	25		7,081		3,636
Derivative financial liabilities	5,7,26		18,290		13,916
Short-term lease liabilities	4,20,42		68,077		-
Other current liabilities	14		919,543		729,896
-			2,433,322		2,039,196
			_,		_,555,.55

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

Kakao Corp. and Subsidiaries Consolidated Statements of Financial Position December 31, 2019 and 2018

(in millions of Korean won)	Notes		2019		2018
Non-current liabilities					
Non-current trade and other payables	4,5,7,12		32,872		389
Long-term borrowings	4,5,7,21		72,269		44,995
Non-current provisions	25		14,844		7,611
Non-current derivative financial liabilities	5,7,26		7,372		-
Long-term lease liabilities	4,20,42		164,989		-
Net defined benefit liabilities	22		3,555		2,822
Other long-term employee benefits liabilities	23		43,592		40,156
Deferred income tax liabilities	24		141,056		151,228
Other non-current financial liabilities	4,5,7,13		62,843		45,869
Other non-current liabilities	14		20,424		118
			563,816		293,188
Total liabilities		₩	2,997,138	₩	2,332,385
Equity					
Share capital	1,27	₩	43,161	₩	41,744
Share premium	27		5,043,199		4,647,543
Other component of equity	29		7,238		1,492
Accumulated other comprehensive loss	30		(16,393)		(7,329)
Retained earnings	31		148,154		453,400
Equity attributable to owners of the Parent Company			5,225,359		5,136,851
Non-controlling interest			514,759		490,307
Total equity			5,740,118		5,627,158
Total liabilities and equity		₩	8,737,256	₩	7,959,542

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

Kakao Corp. and Subsidiaries Consolidated Statements of Comprehensive Income Years Ended December 31, 2019 and 2018

(in millions of Korean won, except per share amounts)	Note		2019		2018
Revenue	6	₩	3,070,111	₩	2,416,992
Operating expenses Bad debt expense	32 41		2,861,514 1,811		2,340,959 3,084
Operating income			206,786		72,949
Other non-operating income Other non-operating expenses Finance income Interest income Other finance income Finance costs Share of income of associates and joint venture Share of loss of associates and joint venture	33 33 34 34 16 16		73,755 521,412 70,386 31,700 38,686 44,000 11,490 31,261		74,531 85,772 112,453 41,783 70,670 50,143 32,257 25,605
Profit (loss) before income tax	10		(234,257)		130,670
Income tax expense	24		107,668		114,781
Profit (loss) for the year			(341,925)		15,889
Profit (loss) is attributable to: Equity holders of the Parent Company Non-controlling interest			(301,003) (40,922)		47,886 (31,997)
Other comprehensive income (loss) Items not to be reclassified subsequently to profit or loss: Remeasurement of net defined benefit liabilities Gain (loss) on valuation of equity instruments at fair value through other comprehensive income Revaluation surplus Items to be reclassified subsequently to profit or loss:			(6,452) (532) 222		(2,680) 6,870
Gain on valuation of debt instruments at fair value through other comprehensive income			-		142
Share of other comprehensive loss of associates, net of tax			(3,547)		(36)
Foreign currency translation adjustments, net of tax			6,151		4,038
Other comprehensive income (loss) for the year, net of tax			(4,158)		8,334
Total comprehensive income (loss) for the year		₩	(346,082)	₩	24,223
Total comprehensive income (loss) for the year is attributable to: Equity holders of the Parent Company Non-controlling interest		₩	(304,258) (41,825)	₩	59,297 (35,074)
Earnings (loss) per share to the equity holders of the Parent Company Basic earnings (loss) per share Diluted earnings (loss) per share	35 35	₩	(3,776) (3,776)	₩	623 614

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

Kakao Corp. and Subsidiaries Consolidated Statements of Changes in Equity Years Ended December 31, 2019 and 2018

		Attributable to equity holders of the Parent Company										
(in millions of Korean won)	Note		hare ipital	Share Premium	Com	Other ponents Equity	Other	Accumulated Comprehensive acome (loss)	Retained Earnings	Total	Non- controlling Interest	Total Equity
Balance at January 1, 2018		₩	34,004	₩ 3,603,587	₩	(6,026)	₩	(4,968)	₩ 402,542	₩ 4,029,139	₩ 433,783	₩ 4,462,923
Cumulative effect of change in accounting policy			-	-		-		(13,773)	13,022	(751)	532	(219)
Balance at January 1, 2018 (adjusted)		₩	34,004	₩ 3,603,587	₩	(6,026)	₩	(18,741)	₩ 415,565	₩ 4,028,389	₩ 434,316	₩ 4,462,704
Comprehensive income :						, ,		, ,				
Profit (loss) for the year			-	-		-		-	47,886	47,886	(31,997)	15,889
Foreign currency translation adjustments, net of tax	30		-	-		-		3,817	-	3,817	221	4,038
Share of other comprehensive loss of associates, net of tax	30		-	-		-		(36)	-	(36)	-	(36)
Gain (loss) on valuation of equity instruments at fair value through other comprehensive income	30		-	-		-		9,654	-	9,654	(2,784)	6,870
Gain on valuation of debt instruments at fair value through other comprehensive income	e 30		-	-		-		142	-	142	-	142
Remeasurement of employee benefits	22,30		-	_		-		(2,165)	_	(2,165)	(515)	(2,680)
Total comprehensive income for the year	r					-		11,411	47,886	59,297	(35,074)	24,223
Transactions with equity holders:												
Exercise of stock options	27,28		50	1,053		(228)		-	-	875	3,045	3,920
Share-based compensation	28		-	-		7,983		-	-	7,983	4,189	12,172
Proceeds from issues of shares			4,131	1,046,772		-		-	-	1,050,902	-	1,050,902
Conversion of convertible bonds	21,27		13	2,976		-		-	-	2,989	-	2,989
Cash dividends and distribution of investments			-	-		-		-	(10,050)	(10,050)	(3,420)	(13,470)
Change in ownership interest over subsidiaries			-	(3,534)		-		-	-	(3,534)	30,908	27,374
Merger with subsidiary			3,546	(3,310)		(236)		-	-	-	-	-
Change in scope of consolidation						-		-			56,343	56,343
Total transactions with equity holders			7,740	1,043,957		7,518		-	(10,050)	1,049,165	91,066	1,140,231
Balance at December 31, 2018		₩	41,744	₩ 4,647,543	₩	1,492	₩	(7,329)	₩ 453,400	₩ 5,136,851	₩ 490,307	₩ 5,627,158

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

Kakao Corp. and Subsidiaries Consolidated Statements of Changes in Equity Years Ended December 31, 2019 and 2018

		Attributable to equity holders of the Parent Company							
(in millions of Korean won)	Note	Share Capital	Share Premium	Other Components of Equity	Accumulated Other Comprehensive Income (loss)	Retained Earnings	Total	Non- controlling Interest	Total Equity
Balance at January 1, 2019		₩ 41,744	₩ 4,647,543	₩ 1,492	₩ (7,329)	₩ 453,400	₩ 5,136,851	₩ 490,307	₩ 5,627,158
Comprehensive income :						(204 002)	(204 002)	(40,022)	(244.025)
Loss for the year Foreign currency translation		-	-	-	-	(301,003)	(301,003)	(40,922)	(341,925)
adjustments, net of tax	30	-	-	-	5,409	-	5,409	742	6,151
Share of other comprehensive loss of associates, net of tax	30	-	-	-	(3,600)	-	(3,600)	53	(3,547)
Changes in revaluation surplus	30	-	-	-	222	-	222	-	222
Gain (loss) on valuation of financial									
instruments at fair value through other	30	-	-	-	217	-	217	(749)	(532)
comprehensive income Reclassification of gain on valuation of									
financial instruments at fair value through	30	-	-	-	(5,809)	5,809	-	-	-
other comprehensive income Remeasurement of employee benefits	22,30				(5,502)		(5,502)	(950)	(6,452)
Total comprehensive income for the year					(9,064)	(295,194)	(304,258)	(41,825)	(346,082)
Total comprehensive income for the year			· —		(3,004)	(233,134)	(304,230)	(+1,020)	(3+0,002)
Transactions with equity holders:									
Exercise of stock options	27,28	192	34,788	(4,615)	-	-	30,364	745	31,108
Share-based compensation	28	-	-	10,361	-	-	10,361	11,083	21,444
Proceeds from issues of shares	27	1,089	298,847	-	-	-	299,936	-	299,936
Conversion of convertible bonds	21,27	137	32,399	-	-	- (40.070)	32,536	-	32,536
Cash dividends	36	-	-	-	-	(10,053)	(10,053)	(200)	(10,253)
Change in ownership interest over subsidiaries		-	29,622	-	-	-	29,622	94,400	124,021
Change in scope of consolidation								(39,750)	(39,750)
Total transactions with equity holders		1,417	395,655	5,746		(10,053)	392,766	66,277	459,043
Balance at December 31, 2019		₩ 43,161	₩ 5,043,199	₩ 7,238	₩ (16,393)	₩ 148,154	₩ 5,225,359	₩ 514,759	₩ 5,740,118

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

Kakao Corp. and Subsidiaries Consolidated Statements of Cash Flows Years Ended December 31, 2019 and 2018

Cash flows from operating activities 37 W 831,143 W 608,033,838 Interest paid (11,381) (15,322) 33,817 33,898 Increst paid (11,381) (11,532) 33,818 Income tax paid (110,595) (141,310) Net cash inflow from operating activities 52,329 491,470 Decrease (increase) in short-term financial instruments 593,555 (514,098) Decrease (increase) in short-term financial instruments 593,555 (514,098) Decrease (increase) in long-term financial instruments 70,19 11,926 Purchase of property and equipment 7,09 11,926 Purchase of intangible assets (62,337) (49,094) Disposal of intangible assets at fair value through profit or loss 168,679 12,016 Acquisition of financial assets at fair value through other comprehensive income 3,316,889 (220,039) Disposal of infancial assets at fair value through other comprehensive income 4(53,986) (155,618) Acquisition of subsidiaries and in scope of consolidation, net of cash acquired (27,227) (5,659) Disposal of	(in millions of Korean won)	Note		2019		2018
Cash generated from operations 18	Cash flows from operating activities					
Interest received 1,1,32,1		37	₩	831.143	₩	608.033
Dividend received 1,331 1,1532 3,321 3,321 3,322 3,321 3,322	·	•				
Dividend received 1,325 1,310 1,250 1,211,310 1,250 1,211,310 1,250						
Income tax paid	•					• •
Net cash inflow from operating activities 752,667 491,470 Cash flows from investing activities 593,555 (514,089) Decrease (increase) in short-term financial instruments 1 (38,432) Purchase of property and equipment (106,364) (97,197) Disposal of property and equipment 7,109 (19,084) Purchase of intangible assets (62,337) (49,084) Disposal of intangible assets at fair value through profit or loss (88,679) (20,016) Disposal of infancial assets at fair value through profit or loss (88,679) (20,018) Acquisition of financial assets at fair value through other comprehensive income (331,689) (240,039) Disposal of financial assets at fair value through other comprehensive income (453,986) (155,618) Acquisition of associates and joint ventures (453,986) (155,618) Acquisition of subsidiaries and in scope of consolidation, net of cash acquired (27,227) (5,659) Increase in other financial assets (23,716) (2,419) Decrease in other financial assets (34,34) (2,419) Decrease in other financial assets (34,64) (
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Decrease (increase) in long-term financial instruments 1 (38,432) Purchase of property and equipment (106,364) (97,197) Disposal of property and equipment 7,109 11,926 Purchase of intangible assets (62,337) (49,084) Disposal of inangible assets at fair value through profit or loss (88,952) (60,769) Disposal of financial assets at fair value through orbit or loss 168,679 12,016 Acquisition of financial assets at fair value through other comprehensive income (331,689) (240,039) Disposal of financial assets at fair value through other comprehensive income 3,910 1,486 Acquisition of associates and joint ventures (453,986) (155,618) Disposal of associates and joint ventures (453,986) (155,618) Acquisition of subsidiaries and in scope of consolidation, net of cash acquired (27,227) (5,659) Disposal of subsidiaries and in scope of consolidation, net of cash acquired (27,227) (5,659) Increase in other financial assets (23,716) (2,419) Decrease in other financial assets (35,430) (114,997) Decrease in other mon-current financial assets </td <td>Cash flows from investing activities</td> <td></td> <td></td> <td></td> <td></td> <td></td>	Cash flows from investing activities					
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			₩		₩	
,		conjunc				

Kakao Corp. and Subsidiaries Consolidated Statements of Cash Flows Years Ended December 31, 2019 and 2018

(in millions of Korean won)	Note	2019	2018
Net increase in cash and cash equivalents	₩	660,684 ₩	121,265
Effect of exchange rate changes on cash and cash equivalents		10,528	8,955
Cash and cash equivalents at the beginning of year		1,247,013	1,116,793
Cash and cash equivalents at the end of year	₩	1,918,225	1,247,013

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

1. General Information

Kakao Corp. (the "Parent Company") has prepared the consolidated financial statements in accordance with International Financial Reporting Standards as adopted by the Republic of Korea ("Korean IFRS") 1110, Consolidated Financial Statements, and its consolidated subsidiaries include Daum Global Holdings and 101 entities.

1.1 The Company

General information about Kakao Corp. and its subsidiaries (collectively, the "Company") is as follows:

The Parent Company was incorporated in February 1995 and provides advertising services, contents offerings including Emoticons, games and music, and other online services through its online platforms.

The Parent Company was listed on the KOSDAQ market in Korea on November 9, 1999 and was transferred to the KOSPI market in Korea on July 10, 2017.

The Parent Company's headquarter is located in Youngpyong-dong, Jeju City, in Jeju Province, Korea. As at December 31, 2019, the Parent Company's share capital amounted to ₩ 43,161 million and the Parent Company's shareholders are as follows:

	Number of shares	Percentage of ownership (%)
Kim Bum Soo	12,514,461	14.5
K Cube Holdings Co., Ltd.	9,939,467	11.5
National Pension Service	7,907,180	9.2
MAXIMO PTE. LTD.	5,599,849	6.5
Other related parties	221,981	0.3
Others	45,806,206	53.1
	81,989,144	95.1
Treasury shares	4,233,492	4.9
	86,222,636	100.0

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

(in millions of Korean won, except number of shares) Subsidiaries	Share Capital	Primary Business	Location	Fiscal Year End	Number of shares	Percentage of ownership (%)
Daum Global Holdings	₩ 2,554	Holding company	Korea	December 31	510,810	100.0
PATH MOBILE INC. PTE. LTD.	59,734	Service operations	Singapore	December 31	82,284,405	100.0
PT. Path Mobile Indonesia ¹⁶	11,214	Service operations	Indonesia	December 31	9,903,818	100.0
KnWorks Co., Ltd.	511	Service operations	Korea	December 31	102,136	100.0
(formerly, DK Service) ²⁹		•			,	
DK Techin	1,500	Service operations	Korea	December 31	300,000	100.0
DK CHINA Co., Ltd	1,093	Service operations	China	December 31	1	100.0
DK CHINA Sanhe Co., Ltd ²	175	Service operations	China	December 31	1	100.0
Buzzpia Company	194	Mobile services	Korea	December 31	38,878	100.0
Beijing KAKAO Co., Ltd.	20,483	Software development and services	China	December 31	18,839,700	99.9
Acciio Inc.	198	Software development and services	Korea	December 31	200,323	50.5
KIWI PLUS	1,907	Software development and sales	Korea	December 31	2,113,526	53.1
Kakao Commerce Corp.	2,425	Wholesale and retail sales and services	Korea	December 31	24,188,513	99.7
LOC&ALL. INC.	611	Software development and services	Korea	December 31	122,231	100.0
LINKAGE LAB Co., Ltd.	149	Services	Korea	December 31	29,851	100.0
KAKAO_CCVC Jeju Creative Economy Innovative Fund	2,000	Investment/Holding company	Korea	December 31	190	95.0
KAKAO BRAIN Corp.	213	Software development	Korea	December 31	400,000	93.9
KAKAO JAPAN Corp.	51,984	Software development and services	Japan	December 31	876,620	99.4
DK CORPORATION ³	30	Telemarketing and information service and others Electronic publication design,	Japan	December 31	300	100.0
Piccomics corp.(formerly, ZUBON Inc.) ³	618	manufactures and sales and others	Japan	December 31	11,000	100.0
Kakao Investment Co., Ltd.	22,016	Investment/Holding company	Korea	December 31	2,201,614	100.0
K Venture Group CO., LTD. ⁴	100	Investment/Holding company	Korea	December 31	10,000	100.0
Kids Note Co., Ltd. ⁴	117	Software development and services	Korea	December 31	30,069	88.1
TNK Factory ⁴	1,180	Mobile advertisement platform operations	Korea	December 31	2,360,390	71.5
KI SG PTE. LTD ⁴	1,313	Holding company	Singapore	December 31	1,100,000	100.0
STAGEFIVE CO., LTD. (formerly, Pinplay) ⁴	4,375	Software development and services	Korea	December 31	468,172	53.5
Kakao Ventures Corp.	18,511	Holding company	Korea	December 31	3,702,216	100.0
K Cube Venture Fund no.1 6	2,312	Investment/Holding company	Korea	December 31	140	60.6
KAKAO Venture Fund 6,27	27,000	Investment/Holding company	Korea	December 31	102	36.7
Kakao digital contents Fund 6,27	34,874	Investment/Holding company	Korea	December 31	150	40.4
Kakao Game Growth Share Fund ⁶	30,000	Investment/Holding company	Korea	December 31	300	100.0
KAKAO IX Corp.	1,600	Contents sales	Korea	December 31	160,000	100.0
KAKAO IX JAPAN Corp. ⁷	5,214	Wholesale and retail sales	Japan	December 31	100,000	100.0
KAKAO IX CHINA Co.,LTD. ⁷	5,152	Wholesale and retail sales	China	December 31	4,500,000	100.0
Kakao Page Corp. ²⁸	9,724	Software development and services	Korea	December 31	12,355,363	63.6
Kakao PAGE PTE. LTD. 8	825	Mobile marketing service	Singapore	December 31	985,443	100.0
SamyangCNC Co.,Ltd.8	50	Publishing and e-commerce	Korea	December 31	7,000	70.0
NeoBazar Inc. ⁸	892	Software development and services	Korea	December 31	160,082	87.5
PT. Neo Bazar Indonesia ⁹	1,814	Software development and services	Indonesia	December 31	1,597	99.8

(in millions of Korean won, except number of shares)						Percentage of
Subsidiaries	Share Capital	Primary Business	Location	Fiscal Year End	Number of shares	ownership (%)
Daon Creative inc ⁸	283	Publishing, video production, broadcasting communication and information service	Korea	December 31	39,748	70.2
Beijing Da Yun cultural Communication Co.,LTD. ¹⁰	173	Electronic publication and services	China	December 31	200,000	100.0
Kakao Games Corp. ²⁸	5,583	Game development and services	Korea	December 31	33,730,000	60.6
NGLE CORPORATION 12	205	Game development and services	Korea	December 31	210,000	51.2
Friendsgames Co.,Ltd. ¹¹	795	Game development and services	Korea	December 31	6,937,430	82.4
SONNORI CORP. ¹²	280	Services	Korea	December 31	525,410	66.7
Toonnori Corp. ¹³	510	Services	Korea	December 31	52,000	51.0
Kakao Games Europe B.V. ¹¹	1,296	Game development and services	Netherlands	December 31	1,000,000	100.0
Kakao Games USA. Inc. ¹⁴	2,305	Game development and services	USA	December 31	500,000	100.0
Kakao Games Japan Corp. ¹¹	2,024	Game development and services	Japan	December 31	2,000,000	100.0
Kakao VX ¹¹	9,427	Service operations	Korea	December 31	1,885,333	89.7
TAESIK MAUMGOLF CO.,LTD. ¹⁵	578	Service operations	China	December 31	1	100.0
GSWING SPORTING GOODS CO., LTD. 15	574	Service operations	China	December 31	1	100.0
Kakao M Corp.	3,857	Manufactures and services	Korea	December 31	6,927,740	89.8
STARSHIP ENTERTAINMENT CORP. 16,28	62	Entertainment management	Korea	December 31	7,464	59.7
HIGHLINE ENTERTAINMENT 17	100	Entertainment management	Korea	December 31	154,000	77.0
Play M Entertainment Corp. (formerly, PLAN A ENTERTAINMENT) 16	50	Entertainment management	Korea	December 31	10,000	100.0
E&T Story Entertainment 16	25	Entertainment management	Korea	December 31	30,000	60.0
Cre.ker Entertainment Co., Ltd. ¹⁶	200	Entertainment management	Korea	December 31	32,000	80.0
GRAYGO (formerly, Krispy Studio Corporation) ¹⁶	425	Mobile video contents production	Korea	December 31	850,000	100.0
Mega Monster Corporations ¹⁶	13,700	Software development and services	Korea	December 31	24,400,000	89.1
J,WIDE-COMPANY ¹⁶	53	Services	Korea	December 31	105,883	100.0
READY ENTERTAINMENT ¹⁶	450	Services	Korea	December 31	90,000	100.0
READY ENTERTAINMENT (Shanghai) CO., LTD. ¹⁹	83	Entertainment	China	December 31	500,000	100.0
BH Entertainment ¹⁶	574	Services	Korea	December 31	114,815	100.0
SOOP ENTERTAINMENT CO., LTD ^{16,30}	1,410	Entertainment	Korea	December 31	280,200	99.4
Kakao Mobility Corp. ²⁸	2,394	Software development and services	Korea	December 31	16,590,000	69.3
Parking Square Inc. ²⁰	50	Software development and services	Korea	December 31	162,502	100.0
Kakaopay Corp. ²⁸	9,494	Software development and services	Korea	December 31	11,563,447	60.9
Kakao G Corp.	10,065	Software development and services	Japan	December 31	10,000,000	100.0
Ground X Corp. ²³	6,063	Software development	Japan	December 31	9,278,662	92.8
Ground1 Corp. ²⁴	4,967	Wholesale and retail sales and e-commerce	Korea	December 31	10,000,000	100.0
Panzea Pte. Ltd. ²³	1,143	Software development	Singapore	December 31	1,026,000	100.0
Klaytn Pte. Ltd. ²⁵	1,033	Software development	Singapore	December 31	100,000	100.0
KAKAO IX UK, LTD. ^{1,7}	997	Retail sales	UK	December 31	660,000	100.0
KAKAO IX USA, LTD. ^{1,7}	1,182	Retail sales	USA	December 31	1,000,000	100.0
KAKAO IX HK, LTD. 1,7	53	Retail sales	Hong Kong	December 31	350,000	100.0
Life MMO Corp. ^{1,31}	1,000	Services	Korea	December 31	199,999	100.0

(in millions of Korean won, except number of shares)						Percentage of
Subsidiaries	Share Capital	Primary Business	Location	Fiscal Year End	Number of shares	ownership (%)
Add Page Corp. 1,32	5,000	Software development and services	Korea	December 31	1,000,000	100.0
AWINS 5	136	Wholesale toys and hobbies and playthings	Korea	December 31	20,000	73.3
Partner Co.,Ltd. ²⁶	32	Software development and services	Korea	December 31	322,816	100.0
AWESOMEENT CO. LTD 16	500	Management service Movies, videos, and	Korea	December 31	100,000	100.0
moonlight film 16,27	1	broadcast programs production Movies, videos, and	Korea	December 31	820	41.0
sanai pictures ¹⁶	2	broadcast programs production	Korea	December 31	1,620	81.0
VAST.CO.,Ltd. 16	50	Management service	Korea	December 31	10,000	100.0
FLEX M Corp 1,16	50	Management service	Korea	December 31	100,000	100.0
SHOWNOTE Inc. 17	324	Performance planning	Korea	December 31	64,883	100.0
Mezondbaha Corp. 18	10	Management service	Korea	December 31	2,000	100.0
CMNP Corp. 1,20	559	Software development and services	Korea	December 31	1,117,000	100.0
TJ Partners Corp. 1,20	762	Taxi service	Korea	December 31	1,524,000	100.0
KM Solution Corp. (formerly, Tago Solutions Corp) 20	25	Commodity brokerage	Korea	December 31	5,067	100.0
Jinhwa Corp. ²¹	693	Taxi service	Korea	December 31	138,671	100.0
KM ONE Corp. 1,21	69	Taxi service	Korea	December 31	138,000	100.0
KM Two Corp. 1,21	82	Taxi service	Korea	December 31	164,000	100.0
KM Three Corp. 1,21	80	Taxi service	Korea	December 31	160,000	100.0
KM Four Corp. 1,21	71	Taxi service	Korea	December 31	142,000	100.0
KM Five Corp. 1,21	71	Taxi service	Korea	December 31	142,000	100.0
KM SIX Corp. 1,21	93	Taxi service	Korea	December 31	186,000	100.0
KM Seven Corp. 1,21	61	Taxi service	Korea	December 31	122,000	100.0
Donggo Taxi Corp. 21	103	Taxi service	Korea	December 31	20,696	100.0
INBYU ²²	350	Insurance and pension service	Korea	December 31	38,980	52.5
RS MEDIA Co., Ltd. ⁸	325	Business and intangible property rights brokerage	Korea	December 31	46,625	71.8
Soundist Entertainment.Co.,Ltd. ⁸	3,060	Production and distribution of video and audio records	Korea	December 31	367,219	60.0
Kakao Enterprise Corp. ¹	6,762	Software development and services	Korea	December 31	13,524,223	100.0

¹ Newly established in 2019.

² As a subsidiary of Daum Service CHINA Co., Ltd., the number of shares and the percentage of ownership represent Daum Service CHINA Co., Ltd.'s ownership as at December 31, 2019.

³ As a subsidiary of KAKAO JAPAN Corp., the number of shares and the percentage of ownership represent KAKAO JAPAN Corp.'s ownership as at December 31, 2019.

⁴ As a subsidiary of Kakao Investment Co., Ltd., the number of shares and the percentage of ownership represent Kakao Investment Co., Ltd.'s ownership as at December 31, 2019.

⁵ As a subsidiary of Kids Note Co., Ltd., the number of shares and the percentage of ownership represent Kids Note Co., Ltd.'s ownership as at December 31, 2019.

⁶ As a subsidiary of Kakao Ventures Corp., the number of shares and the percentage of ownership represent Kakao Ventures Corp.'s ownership as at December 31, 2019.

⁷ As a subsidiary of KAKAO IX Corp., the number of shares and the percentage of ownership represent KAKAO IX Corp.'s ownership as at December 31, 2019.

- ⁸ As a subsidiary of Kakao Page Corp., the number of shares and the percentage of ownership represent Kakao Page Corp.'s ownership as at December 31, 2019.
- ⁹ As a subsidiary of NeoBazar Inc., the number of shares and the percentage of ownership represent NeoBazar Inc.'s ownership as at December 31, 2019.
- ¹⁰ As a subsidiary of DA'ON CREATIVE, the number of shares and the percentage of ownership represent DA'ON CREATIVE's ownership as at December 31, 2019.
- ¹¹ As a subsidiary of Kakao Games Corp., the number of shares and the percentage of ownership represent Kakao Games Corp.'s ownership as at December 31, 2019.
- ¹² As a subsidiary of Friendsgames Co., Ltd., the number of shares and the percentage of ownership represent Friendsgames Co.,Ltd.'s ownership as at December 31, 2019.
- ¹³ As a subsidiary of SONNORI CORP., the number of shares and the percentage of ownership represent SONNORI CORP.'s ownership as at December 31, 2019.
- ¹⁴ As a subsidiary of Kakao Games Europe B.V., the number of shares and the percentage of ownership represent Kakao Games Europe B.V.'s ownership as at December 31, 2019.
- ¹⁵ As a subsidiary of Kakao VX, the number of shares and the percentage of ownership represent Kakao VX's ownership as at December 31, 2019.
- ¹⁶ As a subsidiary of Kakao M Corp., the number of shares and the percentage of ownership represent Kakao M Corp.'s ownership as at December 31, 2019.
- ¹⁷ As a subsidiary of STARSHIP ENTERTAINMENT CORP., the number of shares and the percentage of ownership represent STARSHIP ENTERTAINMENT CORP.'s ownership as at December 31, 2019.
- ¹⁸ As a subsidiary of GRAYGO (formerly, Krispy Studio Corporation), the number of shares and the percentage of ownership represent GRAYGO (formerly, Krispy Studio Corporation)'s ownership as at December 31, 2019.
- ¹⁹ As a subsidiary of READY ENTERTAINMENT, the number of shares and the percentage of ownership represent READY ENTERTAINMENT's ownership as at December 31, 2019.
- ²⁰ As a subsidiary of Kakao Mobility Corp., the number of shares and the percentage of ownership represent Krispy Kakao Mobility Corp.'s ownership as at December 31, 2019.
- ²¹ As a subsidiary of TJ Partners Corp., the number of shares and the percentage of ownership represent TJ Partners Corp.'s ownership as at December 31, 2019.
- ²² As a subsidiary of Kakaopay Corp., the number of shares and the percentage of ownership represent Kakaopay Corp.'s ownership as at December 31, 2019.
- 23 As a subsidiary of Kakao G Corp., the number of shares and the percentage of ownership represent Kakao G Corp.'s ownership as at December 31, 2019.
- 24 As a subsidiary of Ground X Corp., the number of shares and the percentage of ownership represent Ground X Corp.'s ownership as at December 31, 2019.
- ²⁵ As a subsidiary of PANZEA PTE. LTD., the number of shares and the percentage of ownership represent PANZEA PTE. LTD.'s ownership as at December 31, 2019.
- ²⁶ As a subsidiary of Kakao Enterprise Corp., the number of shares and the percentage of ownership represent Kakao Enterprise Corp.'s ownership as at December 31, 2019.
- ²⁷ Classified as a subsidiary although the ownership is less than 50% as the Company is considered to have a control over the investees.

Subsidiaries newly included in the consolidation for the year ended December 31, 2019:

Subsidiaries	Reason
KAKAO IX UK, LTD.	Newly established
KAKAO IX USA, LTD.	Newly established
KAKAO IX HK, LTD.	Newly established
Life MMO Corp.	Newly established
Add Page Corp.	Newly established
AWINS	Included to a subsidiary through acquisition of control
Partner Co.,Ltd. AWESOMEENT CO. LTD Moonlight film Sanai pictures VAST.CO.,Ltd. FLEX M Corp SHOWNOTE Inc. Mezondbaha Corp. CMNP Corp. TJ Partners Corp. KM Solution Corp. (formerly, Tago Solutions Co., Ltd) Jinhwa Corp. KM ONE Corp. KM Two Corp. KM Two Corp. KM Tree Corp. KM Four Corp. KM Four Corp. KM Five Corp. KM SIX Corp. KM Seven Corp. Donggo Taxi Corp. INBYU	Included to a subsidiary through acquisition of control Newly established Included to a subsidiary through acquisition of control Included to a subsidiary through acquisition of control Newly established Newly established Included to a subsidiary from an associate through additional acquisition Included to a subsidiary through acquisition of control Newly established Included to a subsidiary through acquisition of control
RS MEDIA Co., Ltd. Soundist Entertainment.Co.,Ltd.	Included to a subsidiary through acquisition of control Included to a subsidiary through acquisition of control
Kakao Enterprise Corp.	Newly established

²⁸ In accordance with the agreements with non-controlling interests of some of the above subsidiaries, the Company should obtain a pre-approval from investors, when the Company wants to dispose of the investments in subsidiaries within the period specified in the agreements through a transfer to the third party or others methods not determined in the agreements such as exercise of tag-along right.

²⁹ During 2019, it merged with DK Service, as an existing corporation and changed name to KnWorks Co., Ltd.

³⁰ The Parent Company's ownership in subsidiary may change depending on the outcome of the lawsuit in which SOOP ENTERTAINMENT CO., LTD is involved, a subsidiary, as a defendant.

³¹ As a subsidiary of Kakao Games Corp. and Kakao Mobility Corp., the number of shares and the percentage of ownership represent Kakao Games Corp. and Kakao Mobility Corp.'s ownership as at December 31, 2019.

³² As a subsidiary of Kakao Games Corp. and Kakao Page Corp., the number of shares and the percentage of ownership represent Kakao Games Corp. and Kakao Page Corp.,'s ownership as at December 31, 2019.

Subsidiaries excluded from the consolidation for the year ended December 31, 2019:

Company	Reason			
CASTING BOM	Merged with READY ENTERTAINMENT, a subsidiary			
K-Style CORPORATION	Merged with DK CORPORATION, a subsidiary			
Web Assist CORPORATION	Merged with DK CORPORATION, a subsidiary			
Fave Entertainment Co., Ltd.	Merged with Play M Entertainment Corp. (formerly, PLAN A ENTERTAINMENT), a subsidiary			
Nylon korea media	Disposal of investments			
WIDE-S COMPANY	Disposal of investments			
MOVILL Co,Ltd	Included to an associate from a subsidiary due to the designation as a special company under Financial Law			
Tide Square Co., Ltd.	Included to an associate from a subsidiary due to loss of control			
Polarium CO., LTD.	Included to an associate from a subsidiary due to loss of control			
SQAURE LAB	Included to an associate from a subsidiary due to loss of control			
CC Partners	Included to an associate from a subsidiary due to loss of control			
NEXT INTERNATIONAL CO., LTD.	Included to an associate from a subsidiary due to loss of control			
Playwings	Included to an associate from a subsidiary due to loss of control			
Ultra Caption Corp.	Liquidation			
About-time	Liquidation			
Mun Hwa In Co., Ltd.	Disposal of investments			
J Comics	Merged with DA'ON CREATIVE, a subsidiary			
Kakao Makers Corp.	Merged with Kakao Commerce Corp., a subsidiary			
DK Business	Merged with KnWorks Co., Ltd. (formerly, DK Service), a subsidiary			
ImageOn Corp.	Merged with KnWorks Co., Ltd. (formerly, DK Service), a subsidiary			
MTECHCREW, INC.	Merged with KnWorks Co., Ltd. (formerly, DK Service), a subsidiary			

The summarized financial information for consolidated subsidiaries as at and for the year ended December 31, 2019, is as follows:

(in millions of Korean won)	2019					
	Assets	Liabilities	Equity	Revenue	Profit (loss) for the year	Comprehensive income (loss)
Kakao Commerce Corp.	₩ 1,037,006	₩ 683,282	₩ 353,723	₩ 296,154	₩ 57,505	₩ 57,209
Kakao M Corp.	701,175	164,358	536,817			•
Kakaopay Corp.	525,804	476,754	49,050	141,069	(62,479)	(62,689)
Kakao Games Corp.	520,512	95,493	425,019	322,392	33,361	22,529
Kakao Page Corp.	381,300	43,654	337,646	248,054	6,001	5,169
Kakao Mobility Corp.	252,690	37,842	214,848	97,306	(26,437)	(26,881)
Kakao Investment Co., Ltd.	251,707	8,129	243,578	85	30,047	23,921
KAKAO IX Corp.	134,927	49,098	85,829	145,005	2,692	2,925
KAKAO JAPAN Corp.	103,822	26,040	77,782	71,664	(10,185)	(5,948)
Kakao Enterprise Corp. 1	78,120	20,047	58,073	4,779	(4,796)	(4,839)
TJ Partners Corp. ¹	76,087	159	75,928	-	(238)	(238)
STARSHIP ENTERTAINMENT CORP.	67,400	37,330	30,070	52,241	4,018	4,018
Kakao Games Europe B.V.	61,793	25,871	35,921	82,934	(3,472)	(2,899)
Kakao VX	53,372	40,788	12,585	40,806	(7,100)	(7,595)
Klaytn Pte. Ltd.	36,827	63,197	(26,370)	-	(26,658)	(26,635)
K Cube Venture Fund no.1	32,368	254	32,114	-	10,850	10,932
Friendsgames Co.,Ltd.	27,703	9,837	17,866	7,261	(2,601)	(2,877)
Kakao Ventures Corp.	26,268	1,387	24,881	5,511	2,553	2,553
	₩ 4,368,881	₩ 1,783,520	₩ 2,585,361	₩ 1,728,129	₩ 12,022	₩ (2,374)

¹ The above table represents financial information since the acquisition date.

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

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

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

The 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 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 financial statements requires the use of critical accounting estimates. Management also needs to exercise judgement in applying the Company's accounting policies. The areas involving a higher degree of judgment or complexity, or areas where assumptions and estimates are significant to the consolidated financial statements are disclosed in Note 3.

2.2 Changes in Accounting Policy and Disclosures

(a) New and amended standards adopted by the Company

The Company has applied the following standards and amendments for the first time for their annual reporting period commencing January 1, 2019.

- Enactment of Korean IFRS 1116 Leases

Korean IFRS 1116 *Leases* replaces Korean IFRS 1017 *Leases*. Under the new standard, with implementation of a single lease model, lessee is required to recognize assets and liabilities for all lease which lease term is over 12 months and underlying assets are not low value assets. A lessee is required to recognize a right-of-use asset and a lease liability representing its obligation to make lease payments.

With implementation of Korean IFRS 1116 *Lease*, the Company has changed accounting policy. The Company has adopted Korean IFRS 1116 retrospectively, as permitted under the specific transitional provisions in the standard, and recognized the cumulative impact of initially applying the standard as at January 1, 2019, the date of initial application. The Company has not restated comparatives for the 2018 reporting period. The impact of the adoption of the leasing standard and the new accounting policies are disclosed in Note 42.

- Amendment to Korean IFRS 1109 Financial Instruments – Prepayment Features with Negative Compensation

The narrow-scope amendments made to Korean IFRS 1109 Financial Instruments enable entities to measure certain prepayable financial assets with negative compensation at amortized cost. When a modification of a financial liability measured at amortized cost that does not result in the derecognition, a modification gain or loss shall be recognized in profit or loss. The amendment does not have a significant impact on the financial statements.

- Amendments to Korean IFRS 1019 Employee Benefits – Amendment, Curtailment or Settlement of the Plan

The amendments require that an entity shall calculate current service cost and net interest for the remainder of the reporting period after a plan amendment, curtailment or settlement based on updated actuarial assumptions from the date of the change. The amendments also require that a reduction in a surplus must be recognized in profit or loss even if that surplus was not previously recognized because of the impact of the asset ceiling. The amendment does not have a significant impact on the financial statements.

- Amendments to Korean IFRS 1028 Investments in Associates and Joint Ventures – Long-term Interests in Associates and Joint Ventures

The amendments clarify that an entity shall apply Korean IFRS 1109 to financial instruments in an associate or joint venture to which the equity method is not applied The amendments also clarify that Korean IFRS 1109 requirements are applied to long-term interests that form part of the entity's net investment in an associate or joint venture before applying the impairment requirements of Korean IFRS 1028. The amendment does not have a significant impact on the financial statements.

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

The interpretation explains how to recognize and measure deferred and current income tax assets and liabilities where there is uncertainty over a tax treatment, and includes guidance on how to determine whether each uncertain tax treatment is considered separately or together. It also presents examples of circumstances where a judgement or estimate is required to be reassessed. The enactment does not have a significant impact on the financial statements.

- Annual Improvements to Korean IFRS 2015 2017 Cycle:
 - · Amendments to Korean IFRS 1103 Business Combination

The amendments clarify that when a party to a joint arrangement obtains control of a business that is a joint operation, and had rights to the assets and obligations for the liabilities relating to that joint operation immediately before the acquisition date, the transaction is a business

combination achieved in stages. In such cases, the acquirer shall remeasure its entire previously held interest in the joint operation. The amendment does not have a significant impact on the financial statements.

· Amendments to Korean IFRS 1111 Joint Agreements

The amendments clarify that when a party that participates in, but does not have joint control of, a joint operation might obtain joint control of the joint operation in which the activity of the joint operation constitutes a business. In such cases, previously held interests in the joint operation are not remeasured. The amendment does not have a significant impact on the financial statements.

· Amendments to Paragraph 57A of Korean IFRS 1012 Income Tax

The amendment is applied to all the income tax consequences of dividends and requires an entity to recognize the income tax consequences of dividends in profit or loss, other comprehensive income or equity according to where the entity originally recognized those past transactions or events. The amendment does not have a significant impact on the financial statements.

· Korean IFRS 1023 Borrowing Costs

The amendments clarify that if a specific borrowing remains outstanding after the related qualifying asset is ready for its intended use (or sale), it becomes part of general borrowings. The amendment does not have a significant impact on the financial statements.

2.2.2 New standards and interpretations not yet adopted by the Company

The following new accounting standards and interpretations have been published that are not mandatory for December 31, 2019 reporting periods and have not been early adopted by the Company.

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

The amendments clarify the explanation of the definition of material and amended Korean IFRS 1001 and Korean IFRS 1008 in accordance with the clarified definitions. Materiality is assessed by reference to omission or misstatement of material information as well as effects of immaterial information, and to the nature of the users when determining the information to be disclosed by the Company. These amendments should be applied for annual periods beginning on or after January 1, 2020, and earlier application is permitted. The Company does not expect that these amendments have a significant impact on the financial statements.

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

To consider the integration of the required activities and assets as a business, the amended definition of a business requires an acquisition to include an input and a substantive process that together significantly contribute to the ability to create outputs and excludes economic benefits from the lower costs. An entity can apply a concentration test, an optional test, where substantially all of the fair value of gross assets acquired is concentrated in a single asset or a group of similar assets, the assets acquired would not represent a business. These amendments should be applied for annual periods beginning on or after January 1, 2020, and earlier application is permitted. The Company does not expect that these amendments have a significant impact on the financial statements.

- IFRS Interpretations Committee (IFRS IC) Agenda Decision - Lease Period

The International Financial Reporting interpretations Commission (IFRIC) announced an interpretation of the "lease term and useful life of leasehold improvements" on December 16, 2019 that economic penalty resulting from the termination of a lease is considered when determining the enforceable period if the lessee and the lessor each has the right to terminate the lease without permission from the other party. The Company is analyzing the effect of changes in accounting policies on the consolidated financial statements for enforceable periods in accordance with the decision and will reflect the effect in the consolidated financial statements after the analysis is completed.

2.3 Consolidation

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

(a) Subsidiaries

Subsidiaries are all entities over which the Parent Company has control. The Company controls the corresponding investee when it is exposed, or has rights, to variable returns from its involvement with the investee and has the ability to affect those returns through its power over the investee. Consolidation of a subsidiary begins from the date the Company obtains control of a subsidiary and ceases when the Company loses control of the subsidiary.

The Company applies the acquisition method to account for business combinations. 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 initially measured at their fair values at the acquisition date. The Company recognizes any non-controlling interest in the acquiree on an acquisition-by-acquisition basis in the event of liquidation, either at fair value or at the non-controlling interest's proportionate share of the recognized amounts of acquiree's identifiable net assets. All other non-controlling interests are measured at their acquisition-date fair values, unless another measurement basis is required by standards.

Acquisition-related costs are expensed as incurred.

Goodwill is recognized as the excess of the aggregate of the consideration transferred, the amount of any non-controlling interest in the acquiree, and the acquisition-date fair value of the acquirer's previously held equity interest in the acquiree over the identifiable net assets acquired. If this consideration is lower than the fair value of the net assets of the subsidiary acquired, the difference is recognized in profit or loss.

Balances of receivables and payables, income and expenses and unrealized gains on transactions between the Parent Company and its subsidiaries are eliminated during the consolidation. Accounting policies of subsidiaries have been changed where necessary to ensure consistency with the policies adopted by the Company.

In transactions with non-controlling interest, which do not result in loss of control, the Company recognizes directly in equity any difference between the amount of the non-controlling interests and the fair value of the consideration paid or received, and attributes it to the owners of the Parent Company.

When the Company ceases to consolidate for a subsidiary because of a loss of control, any retained interest in the subsidiary is remeasured to its fair value and the different between its fair value and carrying amount is recognized in profit or loss.

(b) Associates

Associates are entities over which the Company 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 Company and its associates are eliminated to the extent of the Company's interest in the associates. If the Company'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 Company's net investment in the associate), the Company discontinues recognizing its share of further losses. After the Company's interest is reduced to zero, additional losses are provided for, and a liability is recognized, only to the extent that the Company 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 Company 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 Company 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 Company when the associate's financial statements are used by the company in applying the equity method.

(c) 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 has rights to the assets, and obligations for the

liabilities, relating to the joint operation and recognizes the assets, liabilities, revenues and expenses relating to its interest in a joint operation. A joint venturer has rights to the net assets relating to the joint venture and accounts for that investment using the equity method.

2.4 Segment Reporting

Information of each operating segment is reported in a manner consistent with the business segment reporting provided to the chief operating decision maker (Note 6). The chief operating decision maker is responsible for allocating resources and assessing performance of the operating segments.

2.5 Foreign Currency Translation

(a) Functional and presentation currency

Items included in the financial statements of each of the Company's entities are measured using the currency of the primary economic environment in which the 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.

(b) Transactions and balances

Foreign currency transactions are translated into the functional currency using the exchange rates at the dates of the transactions. Foreign exchange gains and losses resulting from the settlement of such transactions and from the translation of monetary assets and liabilities denominated in foreign currencies at year end exchange rates are generally recognized in profit or loss. They are deferred in other comprehensive income if they relate to qualifying cash flow hedges and qualifying effective portion of net investment hedges, or are attributable to monetary part of the net investment in a foreign operation.

Foreign exchange gains and losses that relate to borrowings are presented in the statement of profit or loss, within finance costs. All other foreign exchange gains and losses are presented in the statement of profit or loss within 'other income or other expenses'.

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.

(c) Translation into the presentation currency

The results of operations and financial position of the Company's entities that have a functional currency different from the presentation currency are translated into the presentation currency 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 comprehensive income are translated at average rates; and
- Equity is translated at the historical exchange rate; and
- All resulting exchange differences are recognized in other comprehensive income.

2.6 Cash and Cash Equivalents

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

2.7 Financial Assets

(a) Classification

The Company 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 Company'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 Company 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 Company 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 the investments in equity instruments that are not accounted for as other comprehensive income are recognized in profit or loss.

(b) Measurement

At initial recognition, the Company 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 Company's business model for managing the asset and the cash flow characteristics of the asset. The Company classifies its debt instruments into one of the following three measurement categories:

- Amortized cost: Assets that are held for collection of contractual cash flows where those
 cash flows represent solely payments of principal and interest are measured at amortized
 cost. A gain or loss on a debt investment that is subsequently measured at amortized cost
 and is not part of a hedging relationship is recognized in profit or loss when the asset is
 derecognized or impaired. Interest income from these financial assets 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 non-operating income or expenses' and impairment losses are presented in 'other non-operating expenses'.
- Fair value through profit or loss: Assets that do not meet the criteria for amortized cost or
 fair value through other comprehensive income are measured at fair value through profit
 or loss. A gain or loss on a debt investment that is subsequently measured at fair value
 through profit or loss and is not part of a hedging relationship is recognized in profit or loss
 and presented net in the statement of profit or loss within 'finance income and costs in the
 year in which it arises.

B. Equity instruments

The Company subsequently measures all equity investments at fair value. Where the Company'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 'finance 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 'finance income and costs' 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.

(c) Impairment

The Company 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 Company applies the simplified approach, which requires expected lifetime credit losses to be recognized from initial recognition of the receivables.

(d) Recognition and Derecognition

Regular way purchases and sales of financial assets are recognized or derecognized on tradedate, the date on which the Company 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 Company has transferred substantially all the risks and rewards of ownership.

If a transfer does not result in derecognition because the Company has retained substantially all the risks and rewards of ownership of the transferred asset, the Company continues to recognize the transferred asset in its entirety and recognizes a financial liability for the consideration received. The Company classified the financial liability as "borrowings" in the consolidated statement of financial position (Note 21).

(e) 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 Company

or the counterparty.

2.8 Derivative Instruments

Derivatives are initially recognized at fair value on the date when a derivative contract is entered into and are subsequently re-measured at their fair value. Changes in the fair value of the derivatives that are not qualified for hedge accounting are recognized in the consolidated statement of comprehensive income as 'finance income (costs)' according to the nature of transactions.

2.9 Trade Receivables

Trade receivables are recognized initially at the amount of consideration that is unconditional, unless they contain significant financing components when they are recognized at fair value. Trade receivables are subsequently measured at amortized cost using the effective interest method, less loss allowance. See Notes 10 and 41 for further information about the Company's accounting for trade receivables.

2.10 Inventories

Inventories are stated at the lower of cost and net realizable value. Cost is determined using the average method.

2.11 Property and Equipment

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

Depreciation on property and equipment, except land, is calculated using the straight-line method to allocate the difference between their cost and their residual values over their estimated useful lives, as follows:

Estimated useful lives

Buildings	20 – 40 years
Structures	20 years
Machinery and equipment	4 – 6 years
Vehicles	4 – 6 years
Furniture	2 – 5 years

The depreciation method, residual values and useful lives of property and equipment are reviewed and adjusted at each financial year-end, if appropriate, accounted for as changes in accounting estimates.

2.12 Government Grants

Government grants are recognized at their fair values when there is reasonable assurance that the grant will be received and the Company will comply with the conditions attached to it. Government grants related to assets are presented by deducting the grants in arriving at the carrying amount of the assets, and grants recognized as income are deferred and presented by deducting the expenses related to the purpose of the government grants.

2.13 Intangible Assets

(a) Goodwill

Goodwill arises on the acquisition of subsidiaries, associates and business combination are included in intangible assets. Goodwill represents the excess of the cost of an acquisition over the fair value of the Company's share of the net identifiable assets of the acquired subsidiary, associates, joint ventures and businesses at the date of acquisition. If this consideration is lower than the fair value of the net assets of the subsidiary acquired, the difference is recognized in profit or loss.

Goodwill is tested annually for impairment and carried at cost less accumulated impairment losses. Any impairment is recognized immediately as an expense and is not subsequently reversed.

For the purpose of impairment testing, goodwill acquired in a business combination is allocated to each of the CGUs, or group of CGUs, that is expected to benefit from the synergies of the combination. Goodwill is monitored at the operating segment level. Goodwill impairment reviews are undertaken annually or more frequently if events or changes in circumstances indicate a potential impairment. The carrying amount of goodwill is compared to the recoverable amount, which is the higher of value in use and the fair value less costs to sell.

(b) Membership and brand

Membership and brand are regarded as intangible assets with indefinite useful life and not amortized because there is no foreseeable limit to the period over which the asset is expected to be utilized.

(c) Other intangible assets

Other intangible assets such as development costs and industrial property rights are initially recognized at its historical costs and amortized using the straight-line method over their estimated useful lives. Other intangible assets have definite useful life and are carried at cost less accumulated amortization.

Their estimated useful lives of other Intangible assets are as follows:

Estimated useful lives

Industrial property rights5-10 yearsOthers2-15 yearsDevelopment costs5 yearsExclusive rightsContractual period

The Company recognizes the cryptocurrency at fair value of the consideration at the acquisition date as it is satisfied in the definition and recognition criteria of the asset. If there is a market in which the asset is traded at a frequency and a size sufficient to provide pricing information continuously, the cryptocurrency is evaluated at prices available in such market at the end of each reporting period, and gain on valuation is presented within 'other comprehensive income' and loss on valuation is recognized within 'other non-operating expenses'. In addition, non-marketable cryptocurrency is recognized at its acquisition cost.

2.14 Investment Property

Investment property is property held to earn rentals or for capital appreciation or both. An investment property is measured initially at its cost. An investment property is measured after initial measurement at depreciated cost (less any accumulated impairment losses). After recognition as an asset, investment property is carried at cost less accumulated depreciation and impairment losses. The Company depreciates investment properties, except for land, using the straight-line method over their useful lives of 40 years.

2.15 Impairment of Non-financial Assets

Goodwill or intangible assets with indefinite useful lives are not subject to amortization and are tested annually for impairment. Assets that are subject to amortization are reviewed 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 to sell and value in use. Non-financial assets, other than goodwill, that suffered impairment are reviewed for possible reversal of the impairment at each reporting date.

2.16 Trade and Other Payables

These amounts represent liabilities for goods and services provided to the Company prior to the end of reporting period which are unpaid. The amounts are unsecured and are usually paid within 30 days of recognition. Trade and other payables are presented as current liabilities, unless payment is not due within 12 months after the reporting period. They are recognized initially at their fair value and subsequently measured at amortized cost using the effective interest method.

2.17 Financial Liabilities

(a) Classification and measurement

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

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

Preferred shares that require mandatory redemption at a particular date are classified as liabilities. Interest expenses on these preferred shares using the effective interest method are recognized in the statement of profit or loss as 'finance costs', together with interest expenses recognized from other financial liabilities.

(b) Derecognition

Financial liabilities are removed from the statement of financial position when it is extinguished; for example, when the obligation specified in the contract is discharged or cancelled or expired or when the terms of an existing financial liability are substantially modified. The difference between the carrying amount of a financial liability extinguished or transferred to another party and the consideration paid (including any non-cash assets transferred or liabilities assumed) is recognized in profit or loss.

2.18 Provisions

Provisions for service warranties, make good obligation, and legal claims are recognized when the Company has a present legal or constructive obligation as a result of past events, it is probable that an outflow of resources will be required to settle the obligation and the amount can be reliably estimated. 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.

2.19 Current and Deferred Income Tax

Income tax expense for the period consists of current and deferred tax. Income tax is recognized as income or expense for the period in the consolidated statement of comprehensive income, except to the extent that it relates to items recognized in other comprehensive income or directly in equity. In this case, income tax is also recognized in other comprehensive income or directly in

equity, respectively. Income tax expense is calculated on the basis of the tax laws enacted or substantively enacted at the end of the reporting period.

Deferred tax is recognized for temporary differences arising between the tax bases of assets and liabilities and their carrying amounts as expected tax consequences at the recovery or settlement of the carrying amounts of the assets and liabilities. However, deferred tax assets and liabilities are not recognized if they arise 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 profit nor taxable profit (loss).

Deferred tax assets are recognized only to the extent that it is probable that future taxable profit will be available against which the deductible temporary differences can be utilized.

Deferred tax liability is recognized for taxable temporary differences associated with investments in subsidiaries, associates, and interests in joint ventures, except to the extent that the Company is able to control the timing of the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future. In addition, deferred tax assets are recognized for 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 when the Company has a legally enforceable right to offset and intends either to settle on a net basis, or to realize the assets and settle the liability simultaneously.

2.20 Employee Benefits

(a) Post-employment benefits

The Company operates pension plans. The Company has both defined contribution plans and defined benefit plans.

A defined contribution plan is a pension plan under which the Company pays fixed contributions into a separate entity. The contributions are recognized as employee benefit expenses when an employee has rendered service.

A defined benefit plan is a pension plan that is not a defined contribution plan. Typically defined benefit plans define an amount of pension benefit that an employee will receive on retirement, usually dependent on one or more factors such as age, years of service and compensation. The liability recognized in the statement of financial position in respect of defined benefit pension plans is the present value of the defined benefit obligation at the end of the reporting period less the fair value of plan assets. The defined benefit obligation is calculated annually by independent

actuaries using the projected unit credit method. The present value of the defined benefit obligation is determined by discounting the estimated future cash outflows using interest rates of high-quality corporate bonds and that have terms to maturity approximating to the terms of the related pension obligation. The remeasurement of the net defined benefit liability are recognized in other comprehensive income.

If any plan amendments, curtailments, or settlements occur, past service costs or any gains or losses on settlement are recognized as profit or loss for the year.

(b) Share-based payments

Equity-settled share-based payments granted to employees are estimated at fair value of equity instruments at the grant date and recognized as employee benefit expenses over the vesting period. The number of equity instruments expected to vest is remeasured with consideration to non-market vesting conditions at the end of the reporting period, with any changes from the original measurement recognized in profit or loss for the year and equity.

When the options are exercised, the Company issues new shares. The proceeds received, net of any directly attributable transaction costs, are recognized as capital stock (nominal value) and capital surplus.

Under cash-settled share-based payment plan, the Company compensates the difference of the fair value and exercise price of option as the consideration for employee services received. Total expense that will be recognized over the vesting period is determined by reference to the fair value of the option grated. Until the liability is settled, the Company is required to remeasure the fair value of the liability at the end of each reporting period and at the date of settlement, with any changes in value recognized in profit or loss for the year.

(c) Other long-term employee benefits

The Parent Company and certain subsidiaries provide long-term employee benefits, which are entitled to employees with service period for at least three years. The expected costs of these benefits are accrued over the period of employment using the same accounting methodology as used for defined benefit pension plans. The Company recognizes service cost, net interest on other long-term employee benefits and remeasurement as profit or loss for the year. These liabilities are valued annually by independent and qualified actuaries.

2.21 Treasury shares

Where the Company purchases its own equity share capital (treasury shares), the consideration paid, including any directly attributable incremental costs is deducted from equity attributable to the Company's equity until the shares are cancelled or reissued. Where such treasury shares are subsequently reissued, any consideration received is recognized in equity attributable to the Company's shareholders.

2.22 Revenue Recognition

From January 1, 2018, the Company has applied Korean IFRS 1115 Revenue from Contracts with Customers. The operating revenue are mainly comprised of advertisement, content and others.

(a) Advertising revenue

The Company generally provides advertising services to a customer during the period of a contract and recognizes the allocated transaction price for a performance obligation over the period of service as revenue. However, in the case of a contract in which advertising services are settled based on the sum of the total number of advertising services provided other than the contracted period, the Company recognizes revenue when it satisfies its performance obligation.

(b) Contents revenue and others

The Company provides a variety of contents to a customer. Transaction prices of contents are immediately paid when a customer purchases contents online. The Company recognizes revenue at the time when contents are used as considered that the right to use contents are transferred and provided to a customer and there are no unfulfilled obligations of a customer that may affect the use of contents. For contents that have significant impacts on contents over the life of contents provided to a customer, revenue is recognized over the period over which contents are provided.

The Company pays the commission fees when a customer pays for the game service provided by the Company. The incremental costs are those commission fees that the Company incurs to acquire a contract with a customer that would not have been incurred if the contract had not been acquired. The Company recognizes the incremental costs as an asset and amortizes it over the certain period in accordance with the application of Korean IFRS 1115.

(c) Commerce revenue and goods sales

The Company sells goods or provides services as a principal or agent through KakaoTalk platforms and recognizes revenue when the performance obligation is completed.

(d) Other revenue

In relation to fintech business and cryptocurrency, the Company identifies the services provided by the Company as a distinct performance obligation and recognizes revenue when each performance obligation is completed in accordance with the application of Korean IFRS 1115.

For the costs incurred in relation to the sale contract of cryptocurrency and others that would not have been incurred if the contract had not been acquired, the Company recognizes the incremental costs as an asset and amortizes it over the certain period in accordance with the application of IFRS 1115.

2.23 Dividend

Dividend to the Company's shareholders is recognized as a liability in the consolidated financial statements in the year in which the dividends are approved by the Company's shareholders.

2.24 Lease

As explained in Note 2.2 above, the Company has changed its accounting policy for leases. The impact of the new accounting policies is disclosed in Note 42.

As at December 31, 2018, leases of property and equipment where the Company, as lessee, had substantially all the risks and rewards of ownership were classified as finance leases. Finance leases were capitalized at the lease's inception at the fair value of the leased property or, if lower, the present value of the minimum lease payments. The corresponding lease payments, net of finance charges, were included in other short-term or long-term payables. Each lease payment was allocated between the liability and finance cost. The finance cost was 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. The property and equipment acquired under finance leases was depreciated over the asset's useful life, or over the shorter of the asset's useful life and the lease term if there is no reasonable certainty that the Company will obtain ownership at the end of the lease term.

Leases in which a significant portion of the risks and rewards of ownership were not transferred to the Company as lessee were classified as operating leases. Payments made under operating leases (net of any incentives received from the lessor) were charged to profit or loss on a straight-line basis over the period of the lease.

From January 1, 2019, leases are recognized as a right-of-use asset and a corresponding liability at the date at which the leased asset is available for use by the Company.

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
- Amounts expected to be payable by the Company (the lessee) under residual value guarantees
- The exercise price of a purchase option if the Company (the lessee) is reasonably certain to exercise that option, and

 Payments of penalties for terminating the lease, if the lease term reflects the Company (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.

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 Company is reasonably certain to exercise a purchase option, the right-of-use asset is depreciated over the underlying asset's useful life.

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 small items of office furniture.

(a) Variable lease payments

Some machinery leases contain variable payment terms that are linked to usage. Variable payment terms are used for a variety of reasons, including minimizing the fixed costs base for machinery. Variable lease payments that depend on usage are recognized in profit or loss when machinery is used and when the usage is confirmed by the settlement.

(b) Extension and termination options

Extension and termination options are included in a number of property and infra leases across the Company. These terms are used to maximize operational flexibility in terms of managing contracts.

2.25 Earnings per share

Basic earnings per share is calculated by dividing net profit for the year available to ordinary shareholders by the weighted-average number of ordinary shares outstanding during the year. Diluted earnings per share are calculated using the weighted-average number of ordinary shares outstanding adjusted to include the potentially dilutive effect of ordinary equivalent shares outstanding.

2.26 Business Combinations between entities under a Common Control

Book value method applies to a business combination under a common control. Related assets and liabilities are measured at book value of the consolidated financial statements. In addition, the difference between the sum of book values of the assets and liabilities transferred and the consideration paid is recognized as share premium.

2.27 Compound Financial Instruments

Compound financial instruments are convertible bonds that can be converted into equity instruments of the Parent Company at the option of the holder and exchangeable bond that can be converted into equity instruments of the subsidiary at the option of the holder.

The liability component of a compound financial instrument is recognized initially at the fair value of a similar liability that does not have equity conversion rights and exchange rights. The equity component is recognized initially on the difference between the fair value of the compound financial instrument as a whole and the fair value of the liability component. Any directly attributable transaction costs are allocated to the liability and equity components in proportion to their initial carrying amounts.

In accordance with the Interpretation Statements No.00094 issued by the Financial Supervisory Service in Korea, the Company recognized conversion rights and exchange rights (pre-emptive rights) as equity. This accounting treatment is applicable within Korean IFRS as defined in item1 of paragraph1 of Article 13 of Acts on External Audit for Stock Companies.

2.28 Approval of Issuance of the Financial Statements

The issuance of the financial statements 2019, of the Company was approved by the Board of Directors on February 25, 2020, which is subject to change with approval at the annual shareholders' meeting.

3. Critical Accounting Estimates and Assumptions

The preparation of financial statements requires the Company to make estimates and assumptions concerning the future. Management also needs to exercise judgement in applying the Company's accounting policies. Estimates and assumptions are continually evaluated and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances. As the resulting accounting estimates will, by definition, seldom equal the related actual results, it can contain a significant risk of causing a material adjustment.

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. Additional information of significant judgement and assumptions of certain items are included in relevant notes.

(a) Estimated impairment of goodwill

The Company tests annually whether goodwill has suffered any impairment. The recoverable amounts of cash-generating units are determined based on value-in-use calculations (Note 19).

(b) Income taxes

The Company'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 24).

If certain portion of the taxable income is not used for investments or increase in wages or dividends in accordance with the *Tax System for Recirculation of Corporate Income*, the Company is liable to pay additional income tax calculated based on the tax laws. Accordingly, the measurement of current and deferred income tax is affected by the tax effects from the new tax system. As the Company's income tax is dependent on the investments, increase in wages and dividends, there is an uncertainty measuring the final tax effects.

(c) Fair value of financial instruments

The fair value of financial instruments that are not traded in an active market is determined by using valuation techniques. The Company uses its judgment to select a variety of methods and make assumptions that are mainly based on market conditions existing at the end of each reporting period (Note 5).

(d) Impairment of financial assets

The provision for impairment for financial assets are based on assumptions about risk of default and expected loss rates. The Company uses judgement in making these assumptions and selecting the inputs to the impairment calculation based on the Company's past history, existing

market conditions as well as forward looking estimates at the end of each reporting period (Note 41).

(e) Provisions

As at December 31, 2019, the Company recognizes provisions as explained in Notes 2.18. These provisions are estimated based on past experience.

(f) Net defined benefit liabilities

The present value of net defined benefit liabilities depends on a number of factors that are determined on an actuarial basis using a number of assumptions including the discount rate (Note 22).

(g) Other long-term employee benefits liabilities

The present value of other long-term employee benefits liabilities depends on a number of factors that are determined on an actuarial basis using a number of assumptions including the discount rate (Note 23).

(h) 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).

For leases of office, vehicles and equipment, the following factors are normally the most relevant:

- If there are significant penalties to terminate (or not extend), the Company is typically reasonably certain to extend (or not terminate).
- If any leasehold improvements are expected to have a significant remaining value, the Company is typically reasonably certain to extend (or not terminate).
- Otherwise, the Company considers other factors including historical lease durations and the costs and business disruption required to replace the leased asset.

Most extension options in offices and vehicles leases have not been included in the lease liability, because the Company 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 Company 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.

4. Financial Risk Management

4.1 Financial Risk Factors

The Company's activities expose it to a variety of financial risks: market risk (including currency risk, fair value interest rate risk, cash flow interest rate risk and price risk), credit risk and liquidity risk. The Company's overall risk management program focuses on the unpredictability of financial markets and seeks to minimize potential adverse effects on the Company's financial performance.

4.1.1 Market risk

i) Interest rate risk

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

As at December 31, 2019, if the market interest rate of floating rate deposits had increased/decreased by 100bp with other variables held constant, the effect on profit before income tax for the year ended December 31, 2019, would have been increased/decreased by \forall 4,887 million (2018: \forall 9,090 million) due to increased/decreased interest income of floating rate deposits.

ii) Price risk

The Company invests in debt and equity securities for managing liquidity, operational needs and others. The Company's investment portfolio consists of direct and indirect investments in listed and non-listed securities.

As at December 31, 2019, if all other variables were constant and the value of marketable equity had increased or decreased by 5.0%, gain and loss on valuation of equity securities at fair value (before income tax) and other comprehensive income (before income tax) would have been increased or decreased by $\frac{1}{6}$ 1,640 million (2018: $\frac{1}{6}$ 1,909 million).

Impacts of investment financial instruments of the Company on profit or loss and other comprehensive income are described in Note 10.

iii) Foreign exchange risk

Foreign exchange risk is defined as the risk that the fair value of financial instruments or future cash flows fluctuate because of changes in foreign exchange rates. Foreign exchange risk arises from financial instruments presented in currencies other than functional currency. Therefore, foreign exchange risk does not arise from non-monetary financial instruments or financial

instruments presented in functional currency.

The Company's exposure to foreign currency risk at the end of the reporting period, expressed in Korean won, was as follows:

(in	millions	of Korean
W	on)	

					2019				
	USD		JPY		CNY		EUR		GBP
\A/	422.040	14/	0.000	14/	202	14/		١٨/	
₩	433,018	₩	6,029	₩	282	₩	-	₩	-
	17,626		-		-		-		-
	8,519		5,164		1,777		65		190
₩	459,163	₩	11,193	₩	2,059	₩	65	₩	190
₩	11,692	₩	3,623	₩	1,564	₩	11	₩	-
	3,176		-		-		-		-
₩	14,868	₩	3,623	₩	1,564	₩	11	₩	_
	₩	 ₩ 433,018 17,626 8,519 ₩ 459,163 ₩ 11,692 3,176 	 ₩ 433,018 ₩ 17,626 8,519 ₩ 459,163 ₩ ₩ 11,692 ₩ 3,176 	₩ 433,018 ₩ 6,029 17,626 - 8,519 5,164 ₩ 459,163 ₩ 11,193 ₩ 11,692 ₩ 3,623 3,176 -	₩ 433,018 ₩ 6,029 ₩ 17,626 - - - 8,519 5,164 - - ₩ 459,163 ₩ 11,193 ₩ ₩ 11,692 ₩ 3,623 ₩ 3,176 - -	USD JPY CNY ₩ 433,018 ₩ 6,029 ₩ 282 17,626 - - - 8,519 5,164 1,777 ₩ 459,163 ₩ 11,193 ₩ 2,059 ₩ 11,692 ₩ 3,623 ₩ 1,564 3,176 - - -	USD JPY CNY ₩ 433,018 ₩ 6,029 ₩ 282 ₩ 17,626 - - - - 8,519 5,164 1,777 ₩ 459,163 ₩ 11,193 ₩ 2,059 ₩ ₩ 11,692 ₩ 3,623 ₩ 1,564 ₩ 3,176 - - - -	USD JPY CNY EUR ₩ 433,018 ₩ 6,029 ₩ 282 ₩ - - - - 17,626 - - - - 8,519 5,164 1,777 65 55 ₩ 459,163 ₩ 11,193 ₩ 2,059 ₩ 65 ₩ 11,692 ₩ 3,623 ₩ 1,564 ₩ 11 3,176 - - -	USD JPY CNY EUR ₩ 433,018 ₩ 6,029 ₩ 282 ₩ - ₩ 17,626 - - - - - - 8,519 5,164 1,777 65 - ₩ 459,163 ₩ 11,193 ₩ 2,059 ₩ 65 ₩ ₩ 11,692 ₩ 3,623 ₩ 1,564 ₩ 11 ₩ 3,176 - - - - - -

If the Korean won has weakened/strengthened by 5% with all other variables held constant, the effect on profit before income tax for the year ended December 31, 2019, would have been increased/decreased by $\mbox{$\forall$}$ 22,630 million (2018: $\mbox{$\forall$}$ 19,908 million).

4.1.2 Credit risk

Credit risk arises from cash and cash equivalents, derivative financial instruments and deposits with banks or financial institutions, as well as credit exposures to customers, including outstanding receivables (Note 41).

Details of the Company's level of maximum exposure to credit risk as at December 31, 2019 and 2018, are as follows:

(in millions of Korean won)		2019	2018		
Cash and cash equivalents	₩	1,918,225	₩	1,247,013	
Short-term financial instruments		207,767		924,215	
Trade receivables		157,221		193,669	
Derivative financial assets		1,112		1,174	
Financial assets at fair value through profit or loss		74,226		36,812	
Other current financial assets		252,486		207,656	
Long-term financial instruments		50,062		50,689	
Other non-current financial assets		92,355		58,321	
	₩	2,753,454	₩	2,719,549	

4.1.3 Liquidity risk

Cash flow forecasting is performed by the Company finance department. The Company finance department monitors rolling forecasts of the Company's liquidity requirements to ensure it has sufficient cash to meet operational needs while maintaining sufficient headroom on its undrawn committed borrowing facilities at all times so that the Company does not breach borrowing limits or covenants (where applicable) on any of its borrowing facilities. Such forecasting takes into consideration the Company's debt financing plans, covenant compliance, compliance with internal statement of financial position ratio targets and, if applicable external regulatory or legal requirements.

Details of the Company's liquidity risk analysis as at December 31, 2019 and 2018, are as follows:

(in millions of Korean won)		2019								
	L	Less than		Between						
		1 year	1 a	nd 2 years	Ove	r 2 years		Total		
Trade and other payables	₩	578,573	₩	-	₩	-	₩	578,573		
Short-term and long-term borrowings ¹		448,929		68,520		30,261		547,710		
Other current financial liabilities		25,256		-		-		25,256		
Deposits received		299,564		-		-		299,564		
Short-term lease liabilities		69,139		-		-		69,139		
Non-current trade and other payables		-		13,344		20,397		33,740		
Other non-current financial liabilities		-		62,507		336		62,843		
Long-term lease liabilities		-		62,552		117,443		179,994		
	₩	1,421,462	₩	206,922	₩	168,437	₩	1,796,820		

¹ For convertible bonds and exchangeable bonds, total cash flow is disclosed with the contractual early repayment date as maturity.

(in millions of Korean won)	n millions of Korean won)			2018							
	Less than		Between								
		1 year	1 an	d 2 years	Ove	r 2 years		Total			
Trade and other payables	₩	460,813	₩	-	₩	-	₩	460,813			
Short-term and long-term borrowings ¹		611,849		3,900		43,661		659,410			
Other current financial liabilities		20,526		-		-		20,526			
Deposits received		129,889		-		-		129,889			
Non-current trade and other payables		-		-		389		389			
Other non-current financial liabilities		-		-		45,869		45,869			
	₩	1,223,077	₩	3,900	₩	89,919	₩	1,316,896			

¹ For convertible bonds and exchangeable bonds, total cash flow is disclosed with the contractual early repayment date as maturity.

The table above analyses the Company's non-derivative financial liabilities into relevant maturity. The amounts disclosed in the table are the contractual undiscounted cash flows including interest.

4.2. Capital Risk Management

The Company's objectives when managing capital are to maintain an optimal capital structure. The Company monitors financial ratios such as debt-to-capital ratio, which is calculated by dividing total liabilities by total equity.

The debt-to-capital ratios as at December 31, 2019 and 2018, are as follows:

(in millions of Korean won)		2019	2018		
Total liabilities (A)	₩	2,997,138	2,332,385		
Total equity (B)		5,740,118	5,627,158		
Debt-to-capital ratio (A/B)		52.21%	41.45%		

4.3. Offsetting Financial Assets and Financial Liabilities

Details of the Company's recognized financial assets subject to offsetting, enforceable master netting arrangements or similar agreements as at December 31, 2019 and 2018, are as follows:

(in millions of Korean won)	Gross liabilities assets offset			ilities		2019 ounts presented in tement of financial position	Amounts not offset	Net amount	
Trade receivables ¹ Non-trade receivables ²	₩	46,714 41,207	₩	6,393 4,279	₩	40,321 36,928	₩ -	₩	40,321 36,928
(in millions of Korean won)		Gross bilities	as	ross sets ffset		2019 ounts presented in tement of financial position	Amounts not offset	ar	Net nount
Non-trade payables ¹	₩	4,025	₩	3,177	₩	848	₩ -	₩	848

¹ The amount presented includes the amount after offsetting trade receivables from media reps and agency fee.

² The amount presented includes the amount after offsetting settlement amounts from the transfer of the contract and non-trade receivables from the change of exclusive contract.

		2018												
(in millions of Korean won)	Gross assets		Gross liabilities offset			ounts presented in tement of financial position	Amounts not offset		Net amount					
Trade receivables ¹	₩	45,258	₩	6,776	₩	38,481	₩	-	₩	38,481				

¹ The amount presented includes the amount after offsetting trade receivables from media reps and agency fee.

5. Fair Value

5.1 Fair Value of Financial Instruments

Carrying amount and fair value of financial instruments as at December 31, 2019 and 2018, are as follows:

Short-term financial instruments 207,767 207,767 924,215 924,27 Long-term financial instruments 50,062 50,062 50,689 50,68 Financial assets at fair value through profit or loss 176,661 176,661 130,627 130,627 Financial assets at fair value through other comprehensive income 419,265 419,265 329,345 329,345 Trade receivables 157,221 157,221 193,669 193,669	(in millions of Korean won)		201		2018				
Cash and cash equivalents ₩ 1,918,225 ₩ 1,918,225 ₩ 1,247,013 ₩ 1,247,07 Short-term financial instruments 207,767 207,767 924,215 924,27 Long-term financial instruments 50,062 50,062 50,689 50,689 Financial assets at fair value through other comprehensive income 176,661 176,661 130,627 130,627 Trade receivables 157,221 157,221 193,669 193,669				F	air value			F	air value
Short-term financial instruments 207,767 207,767 924,215 924,215 Long-term financial instruments 50,062 50,062 50,689 50,689 Financial assets at fair value through profit or loss 176,661 176,661 130,627 130,627 Financial assets at fair value through other comprehensive income 419,265 419,265 329,345 329,345 Trade receivables 157,221 157,221 193,669 193,669	ıcial assets								
Long-term financial instruments 50,062 50,062 50,689 50,689 Financial assets at fair value through profit or loss 176,661 176,661 130,627 130,627 Financial assets at fair value through other comprehensive income 419,265 419,265 329,345 329,345 Trade receivables 157,221 157,221 193,669 193,669	and cash equivalents	₩	1,918,225	₩	1,918,225	₩	1,247,013	₩	1,247,013
Financial assets at fair value through profit or loss Financial assets at fair value through other comprehensive income Trade receivables 176,661 176,661 176,661 130,627 13	-term financial instruments		207,767		207,767		924,215		924,215
profit or loss Financial assets at fair value through other comprehensive income Trade receivables 176,661 176,661 130,627 1			50,062		50,062		50,689		50,689
other comprehensive income Trade receivables 157,221 157,221 193,669 193,669	fit or loss		176,661		176,661		130,627		130,627
Trade receivables			419,265		419,265		329,345		329,345
Derivative financial assets 1,112 1,112 1,174 1,174	receivables		157,221		157,221		193,669		193,669
	ative financial assets		1,112		1,112		1,174		1,174
Other current financial assets 252,486 252,486 207,656 207,656	current financial assets		252,486		252,486		207,656		207,656
Other non-current financial assets 92,355 92,355 58,321 58,321	non-current financial assets		92,355		92,355		58,321		58,321
₩ 3,275,154 ₩ 3,275,154 ₩ 3,142,709 ₩ 3,142,70		₩	3,275,154	₩	3,275,154	₩	3,142,709	₩	3,142,709
Financial liabilities	icial liabilities								
Trade and other payables ₩ 578,567 ₩ 578,567 ₩ 460,813 ₩ 460,813	and other payables	₩	578,567	₩	578,567	₩	460,813	₩	460,813
Non-current trade and other payables 32,872 32,872 389 38	current trade and other payables		32,872		32,872		389		389
Short-term borrowings 448,596 452,290 609,480 605,03	-term borrowings		448,596		452,290		609,480		605,039
Long-term borrowings 72,269 72,269 44,995 44,995	term borrowings		72,269		72,269		44,995		44,995
Current derivative financial liabilities 18,290 18,290 13,916 13,91	nt derivative financial liabilities		18,290		18,290		13,916		13,916
Non-current derivative financial 7,372 7,372 -			7,372		7,372		-		-
Deposits received 299,564 299,564 129,889 129,88	sits received		299,564		299,564		129,889		129,889
Other current financial liabilities 25,256 25,256 20,526 20,526	current financial liabilities		25,256		25,256		20,526		20,526
Other non-current financial liabilities 62,843 62,843 45,869 45,869	non-current financial liabilities		62,843		62,843		45,869		45,869
₩ 1,545,630 ₩ 1,549,324 ₩ 1,325,878 ₩ 1,321,43		\ \	1 545 630	\ A/	1 5/10 32/	W	1 225 070	14/	1 201 126

5.2 Fair Value Hierarchy

The Company classifies fair value measurements using a fair value hierarchy that reflects the significance of the inputs used in measurements.

- 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 assets and liabilities that are measured at fair value as at December 31, 2019 and 2018:

(in millions of Korean won)	2019								
,		Level 1		Level 2		_evel 3	Total		
Financial assets at fair value through profit or loss	₩	21,357	₩	-	₩	155,303	₩	176,661	
Financial assets at fair value through other comprehensive income ^{1,2}		331,441		-		87,825		419,265	
Derivative financial assets		-		-		1,112		1,112	
	₩	352,798	₩	-	₩	244,240	₩	597,038	
Derivative financial liabilities	₩	-	₩	_	₩	25,662	₩	25,662	

¹ KakaoBank of Korea Corp., which was classified as financial assets at fair value through other comprehensive income as at December 31, 2018, was reclassified as investments in associates exercising a call option that gives the right to acquire interests up to 34% of the total number of shares in 2019(Note 16).

(in millions of Korean won)	2018									
,	Level 1		Level 2		Level 3	Total				
Financial assets at fair value through profit or loss	₩	32,069	₩	-	₩ 98,558	₩ 130,627				
Financial assets at fair value through other comprehensive income		6,111		-	323,234	329,345				
Derivative financial assets		-		-	1,174	1,174				
	₩	38,180	₩	_	₩ 422,966	₩ 461,146				
Derivative financial liabilities	₩	-	₩	-	₩ 13,916	₩ 13,916				

² During 2019, the Company acquired shares of SK TELECOM CO.,,LTD and HANJINKAL, and categorized them within Level 1.

5.3 Valuation Technique and Inputs

The fair value of financial instruments traded in active markets is based on quoted market prices at the statement of financial position date. A market is regarded as active if quoted prices are readily and regularly available from an exchange, dealer, broker, a company in the same industry, pricing service, or regulatory agency, and those prices represent actual and regularly occurring market transactions on an arm's length basis. The quoted market price used for financial assets held by the Company is the current bid price. These instruments are included in Level 1. Instruments included in Level 1 consist primarily of KOSPI and KOSDAQ equity investments classified as trading securities or available-for-sale.

The fair value of financial instruments that are not traded in an active market (for example, over-the-counter derivatives) is determined by using valuation techniques. These valuation techniques maximize the use of observable market data where it is available and rely as little as possible on entity specific estimates. If all significant inputs required to fair value an instrument are observable, the instrument is included in Level 2.

If one or more of the significant inputs is not based on observable market data, the instrument is included in Level 3.

As at December 31, 2019, valuation technique and the inputs used for recurring and non-recurring fair value measurements and disclosed fair value that are categorized within Level 3 of the fair value hierarchy are as follows:

(in millions of Korean won)		r value	Level	Valuation technique	Inputs
Financial assets at fair value through profit or loss					
NEPTUNE Corp. (convertible bond)	₩	16,170	3	Binomial tree model	Discount rate, dividend rate, increase and decrease rate
Lionheart Studio (redeemable convertible preferred shares)		4,385	3	Binomial tree model	Discount rate, dividend rate, increase and decrease rate
Daeheung Co., Ltd. (convertible bond)		3,938	3	Binomial tree model	Discount rate, dividend rate, increase and decrease rate
TransLink Capital Partners II, L.P.		2,969	3	Net asset value method	Net asset value
TransLink Capital Partners III, L.P		6,665	3	Net asset value method	Net asset value
Collaborative Fund II, L.P.		3,901	3	Net asset value method	Net asset value
Altos Korea opportunity Fund		25,683	3	Net asset value method	Net asset value
KDBC FP Tech Next Fund		2,318	3	Net asset value method	Net asset value
ATU e-sports Growth PE Fund I		2,500	3	Net asset value method	Net asset value
KJ. & Game Investment Fund I		2,500	3	Net asset value method	Net asset value
Pathfinder8 Inc		2,850	3	Net asset value method	Net asset value
Others		9,834	3	Net asset value method	Net asset value
Compound financial instruments		43,698	3	Market value method Acquisition cost,	Price of the underlying asset Discount rate, dividend rate,
Others ¹		27,892	3	binominal tree method, DCF and others	increase and decrease rate and others
	₩	155,303	_		

(in millions of Korean won)	Fai	r value	Level	Valuation technique	Inputs
Financial assets at fair value through other comprehensive income					
SBS M&C	₩	3,773	3	DCF	Estimated cash flow, discount rate
KRAFTON, Inc.		50,633	3	DCF	Estimated cash flow, discount rate
XLGAMES Inc.		6,820	3	DCF	Estimated cash flow, discount rate
JapanTaxi Co.,Ltd.		15,083	3	DCF	Estimated cash flow, discount rate
Others (binominal tree method and others) ¹		11,516	3	Acquisition cost, DCF and others	Discount rate, increase and decrease rate, estimated cash flow and others
	₩	87,825	- -		
Derivative financial assets					Drobobility of right poutral
Call option (Tide Square Co., Ltd.)	₩	894	3	Binominal tree method and others	Probability of risk neutral, increase in risk neutral, decrease in risk neutral
Others		217	3	Binominal tree method and others	Probability of risk neutral, increase in risk neutral, decrease in risk neutral
Derivative financial liabilities	₩	1,112	- -		
Conversion right (Kakao VX)	₩	6,876	3	Binominal tree method, DCF	Discount rate, increase and decrease rate, estimated cash flow
Right for convertible redemption (Friendsgames Co., Ltd.)		7,537	3	Binominal tree method, DCF	Discount rate, increase and decrease rate, estimated cash flow
Conversion right (TNK Factory)		3,877	3	Binominal tree method, DCF	Discount rate, increase and decrease rate, estimated cash flow
Put option (NeoBazar Inc.)		24	3	Binominal tree method, DCF	cash flow
Right for convertible redemption (stagefive Co., Ltd. (formerly,Pinplay))		7,347	3	Binominal tree method, DCF	Discount rate, increase and decrease rate, estimated cash flow
	₩	25,662	- -		

¹ For some investees, the acquisition cost was measured at fair value in accordance with the 'Guidelines for fair value assessment of unlisted equity securities' because no sufficient information for fair value measurement was available and there is no clear evidence of value changes in the previous or current period.

5.4 Valuation Processes for Fair Value Measurements Categorized Within Level 3

The financial division of the Company performs the fair value measurements required for financial reporting purposes, including level 3 fair values. This division reports to the Chief Financial Officer ("CFO") and the Audit Committee, and discusses valuation processes and results with CFO and Audit Committee at least once every year depending on the materiality.

The results of the sensitivity analysis for the effect on profit or loss (before income tax) or other comprehensive income (before income tax) from changes in fair value (1%) for each financial instrument for the year ended December 31, 2019, are as follows:

019			
	vorable anges		
₩	(1,553)		
	(878)		
	(11)		
	(2,442)		
	(257)		
₩	(2,699)		
	Unfa ch ₩		

6. Segment Information

The Company is operated as single operating segment. The financial information reported to the chief operating decision-maker is consistent with the disclosed financial statements.

Breakdown of the Company's revenue for the years ended December 31, 2019 and 2018, is as follows:

(in millions of Korean won)				2019 ¹		
		Platform		Contents		Total
Revenue	₩	1,682,122	₩	1,913,138	₩	3,595,260
Inter-company revenue		(247,373)		(277,775)		(525,148)
Net revenue	₩	1,434,749	₩	1,635,363	₩	3,070,111

¹ The Company classified the type of revenue as advertising, contents, and others until 2018, but the Company changed the classification of operating revenue in consideration of future business growth and market understanding during 2019. Most of the platform revenue consist of advertising and other revenue as of the previous year.

(in millions of Korean won)				2018		
	Platform		Platform Contents			Total
Revenue	₩	1,192,588	₩	1,647,078	₩	2,839,666
Inter-company revenue		(153,273)		(269,400)		(422,673)
Net revenue	₩	1,039,315	₩	1,377,678	₩	2,416,992

For the years ended December 31, 2019 and 2018, the Company's most of the revenue arise in Korea, and most of non-current assets held by the Company as December 31, 2019 and 2018 are located in Korea.

There was no external customer contributing more than 10% of the total revenue for the years ended December 31, 2019 and 2018.

7. Financial Instruments by Category

Carrying amounts of financial assets and liabilities by category as at December 31, 2019 and 2018, are as follows:

(in millions of Korean won)		2019		2018
Financial assets at fair value through profit or loss	₩	176,661	₩	130,627
Financial assets at fair value through other		419,265		329,345
comprehensive income		419,203		329,343
Financial assets at amortized costs				
Cash and cash equivalents		1,918,225		1,247,013
Trade receivables, net		157,221		193,669
Short-term financial instruments		207,767		924,215
Long-term financial instruments		50,062		50,689
Other current financial assets		252,486		207,656
Other non-current financial assets		92,355		58,321
		2,678,116		2,681,563
Derivative financial assets		1,112		1,174
	₩	3,275,154	₩	3,142,709
(in millions of Korean won)		2019		2018
(in millions of Korean won) Financial liabilities at amortized costs		2019		2018
	₩	2019 578,567	₩	2018 460,813
Financial liabilities at amortized costs	₩		₩	
Financial liabilities at amortized costs Trade and other payables	₩	578,567	₩	460,813
Financial liabilities at amortized costs Trade and other payables Short-term borrowings	₩	578,567 448,596	₩	460,813 609,480
Financial liabilities at amortized costs Trade and other payables Short-term borrowings Deposits received	₩	578,567 448,596 299,564	₩	460,813 609,480 129,889
Financial liabilities at amortized costs Trade and other payables Short-term borrowings Deposits received Other current financial liabilities	₩	578,567 448,596 299,564 25,256	₩	460,813 609,480 129,889 20,526
Financial liabilities at amortized costs Trade and other payables Short-term borrowings Deposits received Other current financial liabilities Non-current trade and other payables	₩	578,567 448,596 299,564 25,256 32,872	₩	460,813 609,480 129,889 20,526 389
Financial liabilities at amortized costs Trade and other payables Short-term borrowings Deposits received Other current financial liabilities Non-current trade and other payables Long-term borrowings	₩	578,567 448,596 299,564 25,256 32,872 72,269	₩	460,813 609,480 129,889 20,526 389 44,995
Financial liabilities at amortized costs Trade and other payables Short-term borrowings Deposits received Other current financial liabilities Non-current trade and other payables Long-term borrowings	₩ 	578,567 448,596 299,564 25,256 32,872 72,269 62,843	₩	460,813 609,480 129,889 20,526 389 44,995 45,869
Financial liabilities at amortized costs Trade and other payables Short-term borrowings Deposits received Other current financial liabilities Non-current trade and other payables Long-term borrowings Other non-current financial liabilities ¹	₩	578,567 448,596 299,564 25,256 32,872 72,269 62,843	₩	460,813 609,480 129,889 20,526 389 44,995 45,869
Financial liabilities at amortized costs Trade and other payables Short-term borrowings Deposits received Other current financial liabilities Non-current trade and other payables Long-term borrowings Other non-current financial liabilities Derivative financial Liabilities	₩ 	578,567 448,596 299,564 25,256 32,872 72,269 62,843 1,519,968	₩	460,813 609,480 129,889 20,526 389 44,995 45,869 1,311,961
Financial liabilities at amortized costs Trade and other payables Short-term borrowings Deposits received Other current financial liabilities Non-current trade and other payables Long-term borrowings Other non-current financial liabilities Derivative financial Liabilities Current derivative financial liabilities	₩ 	578,567 448,596 299,564 25,256 32,872 72,269 62,843 1,519,968	₩	460,813 609,480 129,889 20,526 389 44,995 45,869 1,311,961
Financial liabilities at amortized costs Trade and other payables Short-term borrowings Deposits received Other current financial liabilities Non-current trade and other payables Long-term borrowings Other non-current financial liabilities Derivative financial Liabilities Current derivative financial liabilities	₩	578,567 448,596 299,564 25,256 32,872 72,269 62,843 1,519,968 18,290 7,372	₩	460,813 609,480 129,889 20,526 389 44,995 45,869 1,311,961

¹ As at December 31, 2019, the Company recognized non-controlling interests in fund with maturity as financial liabilities amounting to ₩ 46,236 million (2018: ₩ 43,046 million).

Gains or losses of financial instruments by category for the years ended December 31, 2019 and 2018 are as follows:

(in millions of Korean won)					2	2019						
	Gain (lo valuation compreh income	other ensive	valı dis	(loss) on lation / sposal t or loss)	Interes income (expense	•		dend ome	Impairm Ioss	ent	Gain (lo on forei currend translati	gn cy
Financial assets												
Financial assets at fair value through profit or loss	₩	-	₩	(3,262)	₩	-	₩	1,287	₩	-	₩	-
Financial assets at fair value through other comprehensive income		(702)		-		-		-		-		-
Financial assets at amortized costs and other financial assets		-		-	31,	700		-	(1,	811)	13	,447
Derivative financial assets		-		(2,667)		-		-		-		-
Financial liabilities												
Financial liabilities at amortized		_		_	(4,0)30)		_		_	C	208)
costs and other financial liabilities					(. , .	,,,,					\-	_00,
Derivative financial liabilities		-		622		-		-		-		-
(in millions of Korean won)					2	2018						
	Gain (lo valuation compreh income	other ensive	valu dis	(loss) on lation / sposal t or loss)	Interes income	•		dend ome	Impairm Ioss	ent	Gain (lo on forei currend translati	gn
Financial assets				,								
Financial assets at fair value through profit or loss	₩	-	₩	7,401	₩	-	₩	381	₩	-	₩	-
Financial assets at fair value through								_		_		1
other comprehensive income		9,251		(272)		-		_		_		
3		9,251		(272)	41,	- 783		-	(6,	641)	22,	,628
other comprehensive income		9,251 - -		(272) - 988	41,	- 783 -		-	(6,	- 641) -	22	,628 -
other comprehensive income Loans and receivables		9,251		-	,	783 - 202)		-	(6,	- 641) - -		,628 - 205)
other comprehensive income Loans and receivables Derivative financial assets Financial liabilities Financial liabilities at amortized		9,251		-	,	-		-	(6,	- 641) - -		-

8. Cash and Cash Equivalents, Short-term and Long-term Financial Instruments and Restricted Financial Instruments

Cash and cash equivalents comprise cash on hand, demand deposits and short-term, highly liquid investments that are readily convertible to known amounts of cash which are subject to an insignificant risk of changes in value.

Details of cash and cash equivalents and short-term and long-term financial instruments as at December 31, 2019 and 2018, are as follows:

(in millions of Korean won)		2019		2018
Bank deposits and cash on hand and others Short-term financial instruments ¹	₩	1,918,225 207,767	₩	1,247,013 924,215
Long-term financial instruments – time deposits and others		50,062		50,689
	₩	2,176,054	₩	2,221,917

¹ See Note 38 for information about restricted deposits and payment guarantees.

As at December 31, 2019, the Company has received payment guarantees from KB Kookmin Bank for the exchangeable bonds (old). In connection with the said payment guarantees, the stock return rights for the remaining shares subject to exchange were provided as collateral. 1,793,755 treasury shares required for the exchange are deposited at Korea Securities Depository.

In addition, the Company's deposits of \forall 6,191 million are pledged as collateral in relation to employees' bank loans (Note 38).

9. Credit Quality of Financial Assets

The credit quality of financial assets that are neither past due nor impaired can be assessed by reference to external credit ratings (if available) or to historical information about counterparty default rates.

Cash and cash equivalents are all deposited in the financial institutions with high credit ratings.

10. Financial Assets

(a) Financial assets at fair value through profit or loss and derivative financial assets

Financial assets mandatorily measured at fair value through profit or loss and derivative financial assets include the following classes of financial assets:

(in millions of Korean won)		2019	2	2018
Financial assets at fair value through profit or loss				
Non-current				
Beneficiary securities and fund	₩	60,943	₩	36,925
Listed shares		20,925		31,637
NEPTUNE Corp.		20,925		31,552
Mr. Blue Corporation		-		52
SHOWBOX Corp.		-		33
Compound financial instruments		45,280		36,285
		127,148	•	104,846
Current	-	<u> </u>		·
Beneficiary securities		6,527		1,073
Listed shares		433		432
Compound financial instruments		42,553		24,276
- 1		49,512	-	25,781
	₩	176,660	₩	130,627
Derivative financial assets				
Derivative financial assets	₩	1,112	₩	1,174
The amounts recognized in profit or loss are a	s follows:			
(in millions of Korean won)		2019	2	2018
Gain (loss) on financial assets at fair value	₩	(1,975)	₩	7,401
through profit or loss		, ,		
Gain (loss) on derivative financial assets		(2,667)		-

(b) Financial Assets at Fair Value through Other Comprehensive Income

Equity investments at fair value through other comprehensive income comprise the following individual investments:

(in millions of Korean won)	2019		2018		
Non-current					
Listed equity securities	₩	331,441	₩	6,111	
YD ONLINE CORP.		-		982	
FNC ENTERTAINMENT		5,473		5,129	
SK TELECOM CO., LTD. 2		301,456		-	
HANJINKAL.		24,511		-	
Action Square Co., Ltd.		1		-	
Unlisted equity securities ^{1,3}		87,825		323,234	
	₩	419,265	₩	329,345	

¹ See Note 5 for details of unlisted equity securities.

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.

(c) Trade Receivables, Other Current Financial Assets and Other Non-current Financial Assets

Trade receivables and allowance for doubtful accounts as at December 31, 2019 and 2018, are as follows:

(in millions of Korean won)		2019	2018		
Trade receivables	₩	162,404	₩	201,238	
Less: allowance for doubtful accounts (Note 41)		(5,184)		(7,568)	
Trade receivables, net	₩	157,221	₩	193,669	

There is no collateral held by the Company.

² The Company acquired 1,266,620 shares of SK TELECOM CO., LTD. by issuing 2,177,401 new shares through a capital increase by allotment to a third party to enter into a strategic partnership with SK TELECOM CO., LTD. during the year ended December 31, 2019.

³ During the year ended December 31, 2019, the Company acquired shares of KakaoBank of Korea Corp. through a call option exercise and reclassified the financial assets as investments in associates due to changes in interests (Note 16).

Details of other current financial assets and other non-current financial assets as at December 31, 2019 and 2018, are as follows:

(in millions of Korean won)		2019		2018
Other current financial assets				
Non-trade receivables	₩	239,438	₩	204,271
Accrued revenues		2,132		9,132
Short-term loans receivable		21,709		3,142
Short-term loans to employees		177		134
Others		33		-
		263,488		216,680
Other non-current financial assets				
Long-term non-trade receivables		39,832		32,332
Long-term accrued revenues		209		-
Long-term loans receivable		19,359		2,521
Leasehold deposits		65,343		56,183
Long-term loans to employees		203		17
Others		63		17
		125,010		91,071
		388,498		307,751
Less: allowance for doubtful accounts(Note 41)		(43,657)		(41,774)
Other current financial assets and other non- current financial assets, net	₩	344,841	₩	265,976

See Note 41 for the impairment of trade receivables, other current financial assets and other non-current financial assets at amortized cost and the Company's exposure to credit risk.

11. Contract Assets and Liabilities

Details of incremental costs (other current assets and other non-current assets), costs to fulfil a contract (other non-current assets), contract assets (other current assets) and contract liabilities (other current liabilities), recognized in relation to contracts with customers, as at December 31, 2019 and 2018, are as follows:

(in millions of Korean won)	2019		2018		
Contract assets					
Contract assets – platform	₩	2,851	₩	-	
Contract assets – contents		281		612	
	₩	3,133	₩	612	
Incremental costs					
Incremental costs – platform	₩	376	₩	-	
Incremental costs – contents		6,841		3,819	
	₩	7,217	₩	3,819	
Costs to fulfil a contract				_	
Costs to fulfil a contract - platform	₩	6,543	₩	-	
Contract liabilities					
Contract liabilities – platform	₩	116,753	₩	44,337	
Contract liabilities – contents		167,017		156,013	
	₩	283,770	₩	200,350	

Significant changes in incremental costs and contract liabilities

Contract liabilities of the Company consist of deferred income from the settlement amount for paid game goods that were not used, permanent items and paid platform goods and cryptocurrency (Klaytn) as at the end of the reporting period, and costs to fulfil a contract are the capitalized those fees. Incremental costs are the capitalized fees paid to the open market (app market) in connection with the aforementioned settlement amount for paid game goods and transaction fees in connection with sales of cryptocurrency.

Compared to the beginning of the current period, incremental costs and contract liabilities as at December 31, 2019, have increased due to the increase in the amount of payments made for unused game goods, permanent items and paid platform goods, but it does not increase significantly.

Expenses and revenue recognized in relation to contract assets and contract liabilities

The following table shows how much of the revenue and expenses recognized in the current reporting period relates to carried-forward contract assets and contract liabilities.

(in millions of Korean won)		2019		2018
Expenses recognized that was included in the contract liability balance at the beginning of the year				
Incremental costs - contents	₩	3,819	₩	2,747
Revenue recognized that was included in the contract liability balance at the beginning of the year				
Contract liabilities - platform		44,308		39,835
Contract liabilities – contents		117,908		48,831
	₩	162,216	₩	88,666
Classification of revenue from contracts with customers				
(in millions of Korean won)		2019		2018
Timing of revenue recognition				
At a point in time	₩	1,947,450	₩	1,731,483
Over a period		1,122,662		685,509
	₩	3,070,111	₩	2,416,992

12. Trade and Other payables

Trade and other payables as at December 31, 2019 and 2018, are as follows:

(in millions of Korean won)		2019	2018		
Trade and other payables					
Trade payables	₩	28,950	₩	29,359	
Non-trade payables		546,630		431,454	
Withhold deposits received		2,987		-	
		578,567		460,813	
Non-current trade and other payables					
Long-term non-trade payables		32,849		389	
Withhold deposits received		23		-	
		32,872		389	
	₩	611,439	₩	461,202	

13. Other Financial Liabilities

Other financial liabilities as at December 31, 2019 and 2018, are as follows:

	2019		2018
₩	25,256	₩	20,526
	299,565		129,889
	62,843		45,869
₩	387,664	₩	196,284
		₩ 25,256 299,565 62,843	₩ 25,256 ₩ 299,565 62,843

14. Other Assets and Liabilities

Other assets as at December 31, 2019 and 2018, are as follows:

(in millions of Korean won)	2	019	2	2018
Other current assets				
Advance payments	₩	151,586	₩	107,872
Prepaid expenses		32,378		37,119
Prepaid value added tax		7,836		75,901
Corporate tax refund receivable		1,994		1,883
Others		127		830
		193,921		223,605
Other non-current assets				
Long-term advance payments		36,529		8,499
Long-term prepaid expenses		13,765		7,813
Other investments		100		100
Others		154		-
		50,548		16,412
	₩	244,469	₩	240,017

Other liabilities as at December 31, 2019 and 2018, are as follows:

(in millions of Korean won)	2	2019	2	2018		
Other current liabilities						
Advances from customers	₩	613,860	₩	505,403		
Deferred revenues		167,722		68,437		
Withholdings		32,374		32,793		
Value added tax payable		41,035		98,801		
Government grants		565		565		
Accrued expenses – short-term employee benefits liabilities		63,987		23,898		
		919,543		729,896		
Other non-current liabilities		<u> </u>				
Deferred revenues		19,623		-		
Long-term employee benefits liabilities		801		118		
		20,424		118		
	₩	939,967	₩	730,014		

15. Inventories

(in millions of Korean won)		2019	2018		
Merchandise	₩	53,690	₩	34,250	
(Valuation allowance for merchandise)		(5,777)		(727)	
Finished goods		922		799	
(Valuation allowance for finished goods)		(456)		(451)	
Raw materials		409		1,485	
(Valuation allowance for raw materials)		(102)		(105)	
Others		763		586	
	₩	49,450	₩	35,836	

Inventories recognized as an expense during the year ended December 31, 2019, amounted to ₩ 288,646 million (2018: ₩ 205,734 million). These were included in 'operating expenses'.

Loss on valuation of inventories to net realizable value amounted to ₩ 13,165 million (2018: ₩ 285 million). These were recognized as an expense during the year ended December 31, 2019, and included in 'operating expenses' in profit or loss.

16. Investments in Associates and Joint Venture

Investments in associates and joint venture as at December 31, 2019 and 2018, are as follows:

(in millions of Korean won)			2018			
		Percentage				
		of	Acquisition	Net assets	Book	Book
Name ¹	Location	ownership (%)	cost	value	value	value
Associates						
Addcredit Corp. ³	Korea	17.7	₩ 300	₩ 93	₩ 93	₩ 112
DMS Network, Inc. ³	USA	19.7	2,357	-	-	-
Tapas Media, Inc.	USA	20.4	2,101	1,042	1,125	177
NBT Inc. ³	Korea	10.5	1,782	1,220	1,220	2,246
DAUM Venture Fund	Korea	39.5	8,024	9,664	9,664	7,925
Dunamu Inc.	Korea	22.4	5,019	55,640	59,385	61,717
Oscar Entertainment.	Korea	20.0	1,997	(64)	-	15
CNT TECH CO., LTD. 3	Korea	18.0	5,001	3,684	5,670	6,457
Korea Credit Data	Korea	28.7	4,256	2,192	5,360	4,776
MANNACEA	Korea	23.8	10,000	3,877	3,877	5,319
Left Right Co., Ltd.	Korea	40.0	400	(30)	2	224
SCI VENTURE, INC.	Philippines	39.5	1,239	(415)	-	1,170
SHOELAB CO., LTD. ³	Korea	16.6	500	-	-	-
LUXROBO CO., LTD. 3	Korea	13.1	5,287	2,224	6,081	5,298
Deleo Korea Co., Ltd. ³	Korea	9.9	3,000	877	877	759
Skelter Labs, Inc. ³	Korea	17.0	2,501	851	1,674	2,044
TOROOC Inc.	Korea	20.9	2,500	701	845	744
Dreamcide SPC LTD.	Korea	49.0	5	(6)	_	-
DIGISONIC CO., LTD.3	Korea	12.6	100	51	52	76
D&C MEDIA CO.,LTD.3	Korea	18.2	12,614	7,494	15,026	14,475
K Cube NEO Fund ³	Korea	15.6	2,520	1,975	1,977	1,974
BUNJANG Corp. ³	Korea	9.0	203	151	280	247
Supergene Inc. ³	Korea	5.0	498	1,493	1,448	1,229
InnoSignal CO., LTD. ³	Korea	15.4	100	90	165	162
PoteNit Co., Ltd. ³	Korea	12.1	2,096	(645)	_	_
Doctorbrain SPC Ltd.	Korea	49.0	5	(14)	_	-
CLAIR, Inc. ³	Korea	2.7	500	651	586	681
KIF-Kakao Wooribank Technology Financing Fund ³	Korea	19.7	15,000	13,603	13,603	7,554
13MILE.CO.LTD	Korea	31.7	4,435	(252)	3,321	2,945
ADSOTA CORP.	Vietnam	49.0	2,260	1,330	2,413	1,419
CARDOC Inc.	Korea	27.3	6,381	3,895	3,895	4,100
Kakao Kids	Korea	44.3	2,794	8,074	8,074	8,215
Action Square Co., Ltd. ⁵	Korea	-	, -	-	-	3,807
NOWBUSKING COMPANY ³	Korea	16.2	3,000	-	2,160	2,724
LINEWALKS Inc.	Korea	35.5	3,000	602	2,869	3,002
CHEQUER Inc.	Korea	23.3	400	153	453	376
Hasys co.,ltd	Korea	47.2	17,729	2,028	15,419	17,133
mycelebs, inc ³	Korea	15.8	5,000	1,136	5,038	5,000
DAIWAON. C. I. INC ³	Korea	19.8	15,048	2,459	9,244	15,048
Haksan Publinshing Co., Ltd. ³	Korea	19.8	14,653	2,881	11,337	14,653
PEOPLEFUND COMPANY ³	Korea	9.4	3,836	(1,949)	2,636	3,836
SEOUL MEDIA.INC.	Korea	22.2	10,000	3,016	8,520	10,000
UBCARE CO., LTD. ³	Korea	18.1	37,993	18,844	40,228	45,856
GC Social Marketing Inc. ²	Korea	27.3	1,018	252	951	.0,000
LEEMITELEESYUN CULTURE INDUSTRIAL						
JEONMUNHOESA INC. ²	Korea	49.0	5	4	4	-
KM Solution Corp. (formerly, Tago Solutions Co						
Ltd) 9	' Korea	-	-	-	-	3,000
,						

(in millions of Korean won)			2019			2018
		Percentage				
		of	Acquisition	Net assets	Book	Book
Name ¹	Location	ownership (%)	cost	value	value	value
Associates						
Sixshop ²	Korea	20.0	2,000	454	1,987	-
Tide Square Co., Ltd. ⁷	Korea	28.9	26,464	12,331	18,828	-
Glohow Holdings PTE. LTE ²	Singapore	20.0	1,489	356	1,480	-
MOVILL Co.Ltd ⁶	Korea	70.0	1,400	(666)	804	-
EASYGO CO., LTD. ²	Korea	20.0	100	98	98	-
G&G ENTERPRISE CO.,LTD. 2,3	Korea	11.5	2,924	4,379	3,060	-
KakaoBank of Korea Corp. 8	Korea	33.5	621,105	560,200	615,559	-
KW Books, Inc. ²	Korea	20.0	8,000	1,089	8,000	-
325 E&C ²	Korea	40.0	2,400	250	2,400	-
UNION K-Culture Contents Investment Fund ²	Korea	33.3	2,500	2,478	2,478	-
EDAM Entertainment Corp ²	Korea	40.0	11,000	37	11,000	-
Daeyoung Chaevi CO., Ltd ^{2,3}	Korea	10.0	5,000	576	5,000	-
Ocean Drive Studio Co., Ltd. ²	Korea	22.2	10,003	2,216	10,003	-
Un7qi3 Corp.	Korea	21.7	2,831	344	2,703	468
Socialbean Co., Ltd ^{2,3}	Korea	2.9	999	128	961	-
DOZEN CO.,LTD ^{2,3}	Korea	9.9	495	50	495	-
KASA NETWORK PTE. LTD 3	Singapore	4.3	1,086	1,086	1,086	-
Others (61 companies) ⁴		2.6~35.7	43,522	13,589	30,087	34,121
			960,777	747,867	961,600	301,085
Joint Venture						
DAUM KAKAO PHILIPPINES CORP.	Philippines	50.0	5,609	4,385	4,385	4,103
Asankakao Medical Data Co., Ltd. ²	Korea	50.0	5,000	4,862	4,862	-
PINPLAY JAPAN Co., Ltd. 2	Japan	50.0	2,036	1,962	1,962	-
PHI digital healthcare Inc. ²	Korea	50.0	6,250	3,944	6,130	-
The Bridges of Madison County Co., Ltd. ²	Korea	50.0	5	(9)	5	-
			18,900	15,144	17,344	4,103
			₩ 979,678	₩ 763,012	₩ 978,944	₩ 305,188

¹ All investments in associates and joint venture are all unlisted securities excluding UBCARE CO., LTD., D&C MEDIA CO., LTD. and Action Square Co., Ltd.

² Newly acquired and established during 2019.

³ Although the Company holds less than 20% of equity shares, the Company is considered to have a significant influences as the Company holds voting power to participate in the investee's Board of Directors.

⁴ Small-sized entities invested by K Cube Venture Fund no.1, KAKAO Venture Fund, Kakao Digital Contents Fund, Kakao Game Growth Share Fund and KAKAO_CCVC Jeju Creative Economy Innovative Fund with the ownership percentage of 2.6%~35.7% and classified as associates as the Company is considered to have a significant influence.

⁵ Disposed during 2019.

⁶ Reclassified to an associate from a subsidiary due to the designation as a special company under Financial Law.

⁷ Reclassified to an associate due to loss of control from changes in option contract.

⁸ The entity is classified as an associate by exercising a call option that gives the right to acquire interests up to 34% of the total number of shares.

⁹ As the Company obtained control over the entities in 2019, the entities are reclassified as subsidiaries from investments in associates.

Changes in carrying amounts of investments in associates and joint venture for the years ended December 31, 2019 and 2018 are as follows:

(in millions of Korean won)							2019								
Name		nning ance	Changes in scope of consolidation	Acquisition		sposal and	Reclassification	Gain (Ic valuat equity-r invest	ion of nethod	Share in comprehe income (ensive (loss)	Others		End bala	
Associates	14/	440	147	144	14/		14/	144	(40)	147		147		147	00
Addcredit Corp.	₩	112	₩	- ₩	- ₩	-	₩ -	₩	(19)	₩	-	₩	-	₩	93
DMS Network, Inc.		- 177		-	-	-	-		(212)		109	1,1	-		1 105
Tapas Media, Inc. ¹				-	-	-	-		(313)			1,1	52		1,125
NBT Inc.		2,246		-	-	-	-		(1,014)		(12)		-		1,220
DAUM Venture Fund		7,925		-	-	-	-		1,749		(11)		-		9,664
Dunamu Inc. ^{1,6}		61,717		-	-	(4,484)	-		2,705		201	(75	64)		59,385
Oscar Entertainment		15		-	-	-	-		(15)		-		-		-
CNT TECH CO.,LTD.		6,457		-	-	-	-		(780)		(7)		-		5,670
Korea Credit Data 1,5		4,776		-	-	(144)	-		(2,341)			3,0	69		5,360
MANNACEA		5,319		-	-	-	-		(1,661)		220		-		3,877
Left Right Co., Ltd. ²		224		-	-	(195)	-		(27)		-		-		2
SCI VENTURE INC. ²		1,170		-	-	(524)	-		(844)		149		49		-
LUXROBO Co., Ltd.		5,298		-	-	-	-		(808)		(1)	1,5			6,081
Deleo Korea Co.,Ltd.		759		-	-	-	-		(361)		-		79		877
Skelter Labs, Inc.		2,044		-	-	-	-		(2,723)		-	2,3			1,674
TOROOC Inc.		744		-	-	-	-		(1,087)		-	1,1	88		845
Dreamcide SPC Ltd.		-		-	-	-	-		-		-		-		-
DIGISONIC Co., Ltd.		76		-	-	-	-		(42)		-		18		52
D&C MEDIA CO.,LTD. ¹		14,475		-	-	-	-		758		(83)	(12			15,026
K Cube NEO Fund ^{4,6}		1,974		- 750	0	(480)	-		(268)		2		(1)		1,977
BUNJANG Corp. 5		247		-	-	(350)	-		(171)		-	5	54		280
Supergene Inc. ⁵		1,229		-	-	(1,448)	-		1,667		-		-		1,448
InnoSignal Co.,Ltd.		162		-	-	-	-		(3)		-		7		165
CLAIR, Inc.		681		-	-	-	(65)		(29)		-		-		586
KIF-Kakao Wooribank		7,554		- 7,200	n	_	_		(1,216)		66		_		13,603
Technology Financing Fund⁴						_	_		,		00		_		
13MILE.CO.LTD ⁴		2,945		- 1,000		-	-		(624)		-		-		3,321
ADSOTA CORP⁴		1,419		- 1,180		-	-		(50)		(136)		-		2,413
CARDOC Inc. ^{1,4}		4,100		- 900	0	-	-		(1,102)		-		(3)		3,895
Kakao Kids		8,215		-	-	-	-		(142)		-		-		8,074
Action Square Co., Ltd. ⁵		3,807		-	-	(3,807)	-		-		-		-		-
NOWBUSKING COMPANY		2,724		-	-	-	-		(564)		-		-		2,160
LINEWALKS Inc.		3,002		-	-	-	-		(133)		-		-		2,869

(in millions of Korean won)					2019				
Name	Beginning balance	Changes in scope of consolidation	Acquisition	Disposal and impairment	Reclassification	Gain (loss) on valuation of equity-method investments	Share in other comprehensive income (loss) of associates	Others	Ending balance
CHEQUER Inc.	376	-	· -	· -	-	(37)	1	113	453
Hasys Co., Ltd.	17,133	-	-	-	-	(1,712)	(2)	-	15,419
mycelebs, inc 1	5,000	-	-	-	-	(1,155)	(1)	1,194	5,038
DAIWAON. C. I. INC ²	15,048	-	-	(6,121)	-	322	(5)	-	9,244
Haksan Publinshing Co., Ltd. 2	14,653	-	-	(3,237)	-	(79)	-	-	11,337
PEOPLEFUND COMPANY	3,836	-	-	` -	-	(1,487)	-	287	2,636
SEOUL MEDIA.INC.2	10,000	-	-	(1,499)	-	19	-	-	8,520
UBCARE CO., LTD. 1,5,6	45,856	-	-	(4,371)	(3,856)	2,372	188	39	40,228
GC Social Marketing Inc. 3	-	-	1,018	•	` -	(71)	4	-	951
LEEMITELEESYUN CULTURE						,			
INDUSTRIAL	-	-	5	-	-	(1)	-	-	4
JEONMUNHOESA INC ³									
KM Solution Corp. (formerly,	3,000	(814)				(635)		(1,551)	
Tago Solutions Co., Ltd)	3,000	(014)	-	-	-	(033)	-	(1,551)	-
Sixshop ³	-	-	2,000	-	-	(13)	-	-	1,987
Tide Square Co., Ltd. ^{2,7}	-	26,464	-	(4,424)	-	(3,103)	(109)	-	18,828
Glohow Holdings PTE. LTE ³	-	-	1,489	-	-	(9)	-	-	1,480
MOVILL Co.Ltd	-	1,400	-	-	-	(596)	-	-	804
EASYGO CO., LTD. 3	-	-	100	-	-	(2)	-	-	98
G&G ENTERPRISE CO.,LTD.3	-	-	2,924	-	-	136	-	-	3,060
KakaoBank of Korea Corp. 1,8	-	-	378,000	-	243,105	(714)	(3,589)	(1,243)	615,559
KW Books, Inc. ³	-	-	8,000	-	-	-	-	-	8,000
325 E&C ³	-	-	2,400	-	-	-	-	-	2,400
UNION K-Culture Contents	_	_	2,500	_		(22)		_	2,478
Investment Fund ³	_	_	•	_	_	(22)	_	_	,
EDAM Entertainment Corp ³	-	-	11,000	-	-	-	-	-	11,000
Daeyoung Chaevi CO., Ltd ³	-	-	5,000	-	-	-	-	-	5,000
Ocean Drive Studio Co., Ltd. ³	-	-	10,003	-	-	-	-	-	10,003
Un7qi3 Corp.4	468	-	2,301	-	-	(66)	-	-	2,703
Socialbean Co., Ltd ³	-	-	999	-	-	(38)	-	-	961
DOZEN CO.,LTD ³	-	-	495	-	-	-	-	-	495
KASA NETWORK PTE. LTD ³	-	-	1,086	-	-	-	-	-	1,086
Others 1,2,3,4,5 (61 companies)	34,121	-	345	(11,716)	(283)	(3,532)	(2,048)	13,201	30,087
Joint Venture									
DAUM KAKAO PHILIPPINES CORP.	4,103	-	-	-	-	(8)	291	-	4,385
Asankakao Medical Data Co., Ltd. ³	-	-	5,000	-	-	(138)	-	-	4,862

(in millions of Korean won)									2019								
Name	•	ginning Ilance	sc	anges in ope of solidation	Acquisit	ion	Disposal and impairment		assification	Gain (lo valuat equity-i invest	ion [°] of nethod	compre	in other ehensive e (loss) ociates	0	thers		nding llance
PINPLAY JAPAN Co., Ltd. 3		-		-	2	,036	-		-		(168)		94		-		1,962
PHI digital healthcare Inc ¹		-		-	6	,250	-		-		427		-		(547)		6,130
The Bridges of Madison County Co., Ltd. ³		-		-		5	-		-		-		-		-		5
	₩	305,188	₩	27,050	₩ 453	,986	₩ (42,802)	₩	238,901	₩	(19,771)	₩	(4,679)	₩	21,071	₩	978,944

¹ Others include gain or loss on disposal from changes in percentage of ownership with maintaining significant influence during 2019.

² During 2019, the Company recognized impairment loss for investments in Left Right Co., Ltd. and other nineteen associates amounting to ₩ 25,876 million as their recoverable amounts are considered less than their book values as at December 31, 2019.

³ Newly acquired and established during 2019.

⁴ Additionally acquired during 2019.

⁵ Disposed during 2019.

⁶ The Company received dividend income from Dunamu Inc., UBCARE CO., LTD. and K Cube NEO Fund amounting to ₩ 5,329 million and deducted it from the carrying amount of investments in associates.

⁷ The fair value of the call option to controlling shareholders of Tide Square Co., Ltd. held by the Company amounting to ₩ 6,748 million was reclassified to derivative assets during 2019 and the entity is reclassified to an associate due to loss of control from changes in option contract.

⁸ The entity is classified as an associate by exercising a call option that gives the right to acquire interests up to 34% of the total number of shares.

(in millions of Korean won)											
Name	Beginning balance	Changes in scope of consolidation	Acquisition	Disposal and impairment	Gain (loss) on valuation of equity-method investments	Share in other comprehensive income (loss) of associates	Others	Ending balance			
Associates AD Credits	₩ 92	₩ -	₩ -	₩ -	₩ 20	₩ -	₩ -	₩ 112			
Tapas Media, Inc. ^{2,3}	2,999		vv =	(2,344)	(738)	143	w - 117	W 112 177			
NBT Corp	2,012	_	_	(2,544)	234	-	-	2,246			
DAUM Venture Fund	8,656	_	_	(791)	3	57	_	7,925			
Dunamu Inc. ^{1,2}	33,376	_	570	(2,195)	28,883	448	635	61,717			
OSKAR Entertainment Co.,LTD.	745	-	-	(=, : = =)	(706)	-	(23)	15			
CNT TECH CO.,LTD.	5,994	-	_	_	472	(9)	-	6,457			
Korea Credit Data ²	4,658	-	-	-	(241)	-	359	4,776			
MannaCEA ²	3,835	-	-	-	(1,357)	(307)	3,148	5,319			
NeoBazar Inc. ^{1,2}	738	(3,850)	-	-	(1,382)	-	4,495	· -			
Left Right CO., LTD.	291	-	-	-	(67)	-	-	224			
SCI VENTURE INC. ²	1,293	-	-	-	(11)	(98)	(14)	1,170			
SONNORI CORP. ^{1,7}	3,767	(5,929)	-	-	(1,626)	-	3,788	-			
JOH&Company¹	8,673	(13,334)	-	-	(582)	-	5,243	-			
LUXROBO CO., LTD ^{2,3}	5,222	•	-	-	(1,193)	(2)	1,271	5,298			
Leferi Inc.	171	-	-	-	` 88	`-	-	260			
Deleo Korea Co.,Ltd. ²	807	-	-	-	(244)	-	196	759			
Skelter Labs, Inc. ²	2,658	-	-	-	(2,475)	-	1,862	2,044			
TOROOC Inc.	2,400	-	-	-	(1,655)	-	-	744			
Dreamcide SPC Ltd.	4	-	-	-	(4)	-	-	-			
DIGISONIC Co., Ltd.	83	-	-	-	(8)	-	-	76			
D&C MEDIA CO., LTD. ²	16,291	-	-	-	785	(123)	(2,478)	14,475			
K Cube NEO Fund ⁷	711	-	1,500	-	(237)	· -	-	1,974			
BUNJANG Corp.	958	-	-	(571)	(123)	(17)	-	247			
Supergene Inc.	994	-	-	-	235	-	-	1,229			
InnoSignal Co., Ltd. ²	86	-	-	-	3	-	72	162			
PoteNit Co.,Ltd. ^{2,7}	2,000	-	96	-	(1,931)	(87)	(77)	-			
Doctorbrain SPC Ltd.	2	-	-	-	(2)	-	-	-			
CLAIR, Inc. ²	500	-	-	-	75	-	106	681			
KIF-Kakao Wooribank Technology Financing Fund ⁷	3,000	-	4,800	-	(246)	-	-	7,554			
13MILE.CO., LTD⁴	-	-	3,435	-	(490)	-	-	2,945			
ADSOTA CORP.⁴	-	-	1,080	-	156	183	-	1,419			
CARDOC Inc. ^{2,5}	-	5,481	-	-	(739)	-	(642)	4,100			
Kakao Kids (formerly, BLUEPIN Inc.) ^{2,5}	-	2,794	-	-	(310)	296	5,436	8,215			

(in millions of Korean won)	2018									
Name Associates	Beginning balance	Changes in scope of consolidation	Acquisition	Disposal and impairment	Gain (loss) on valuation of equity-method investments	Share in other comprehensive income (loss) of associates	Others	Ending balance		
Action Square Co., Ltd. ^{2,3,4}			20,000	(15,168)	(002)	57	(00)	3,807		
WAY2BIT ^{4,8}	-	-	2,990	(2,990)	(992)	31	(90)	3,007		
NOWBUSKING COMPANY ⁴	-	-	3,000	(2,990)	(276)	-	-	2,724		
LINEWALKS Inc.4	-	-	3,000	-	(270)	-	-	3,002		
CHEQUER Inc. ⁴	_	_	400	_	(34)	10		376		
READY ENTERTAINMENT ⁴		(4,761)	4,761	_	467	-	(467)	570		
BH Entertainment ⁴	_	(8,100)	8,100	_	364	_	(364)	_		
J.WIDE-COMPANY ⁴	_	(2,550)	2,550	_	(174)	_	174	_		
Hasys Co., Ltd. ⁵	_	17,729	2,000	_	(598)	2	-	17,133		
mycelebs, inc ⁴	_	,.20	5,000	_	(000)	-	_	5,000		
DAIWAON. C. I. INC ⁴	_	_	15,048	_	_	_	_	15,048		
Haksan Publinshing Co.Ltd. ⁴	_	_	14,653	_	_	_	_	14,653		
easi6 Inc. ⁴	-	-	700	(700)	-	-	_	-		
PEOPLEFUND COMPANY ⁴	-	-	3,836	-	-	-	-	3,836		
SEOUL MEDIA.INC.4	-	-	10,000	-	-	-	-	10,000		
Allstay Co., LTD ⁴	-	1,424	· -	-	-	-	-	1,424		
UBCÁRE CO., LTD.	-	-	42,000	-	-	-	3,856	45,856		
Others ^{2,6} (63 companies)	44,820	1,977	8,098	(18,959)	(6,707)	(63)	6,739	35,905		
Joint Venture										
DAUM KAKAO PHILIPPINES CORP.	4,115	-	-	-	12	(25)	-	4,103		
	₩ 161,950	₩ (9,118)	₩ 155,618	₩ (43,718)	₩ 6,652	₩ 465	₩ 33,340	₩ 305,188		

¹As the Company obtained control over the entity in 2018, the entities are reclassified as subsidiaries from investments in associates.

²Others include gain or loss on disposal from changes in percentage of ownership with maintaining significant influence during 2018.

³ During 2018, the Company recognized impairment loss for investments in Action Square Co., Ltd. and other nineteen associates amounting to ₩ 36,747 million as their recoverable amounts are considered less than their book values as at December 31, 2018.

⁴ Newly acquired during 2018.

⁵ Reclassified to an associate from a subsidiary due to loss of control.

⁶ Newly acquired N42 corp. and other nine associates in 2018.

⁷ Additionally acquired during 2018.

⁸ Disposed during 2018.

Fair value of investments in associates that has a quoted market price as at December 31, 2019 and 2018, is as follows:

		2019				2018			
(in millions of Korean won)	Company	Fair value		Book value		Fair value		Book value	
Associates	D&C MEDIA CO.,LTD. UBCARE CO., LTD. Action Square Co., Ltd.	₩	43,296 54,305 -	₩	15,026 40,228	₩	31,498 45,856 4,832	₩	14,475 45,856 3,807

The tables below provide a reconciliation of the summarized financial information presented to the carrying amount of its interest in material associates and joint venture.

(in millions of Korean won)	2019								
	Net assets at the end of the year (a)		The Company's share in % (b)	The Company's share in KRW (a*b)		Goodwill and etc.		Book value	
KakaoBank of Korea Corp.	₩	1,670,973	33.5%	₩	560,200	₩ 55	,359	₩	615,559
Dunamu Inc.		248,006	22.4%		55,640	3	,745		59,385
UBCARE CO., LTD.		103,970	18.1%		18,844	21	,383		40,228
Tide Square Co., Ltd.		42,683	28.9%		12,331	6	,497		18,828
D&C MEDIA CO.,LTD.		41,135	18.2%		7,494	7	,532		15,026
Hasys Co., Ltd.		4,299	47.2%		2,028	13	,390		15,419

(in millions of Korean won)				2018			
	at th	t assets ne end of year (a)	The Company's share in % (b)	The Company's share in KRW (a*b)	Goodwill and etc.	Воо	ok value
Dunamu Inc.	₩	255,862	22.7%	₩ 58,082	₩ 3,635	₩	61,717
UBCARE CO., LTD.		103,005	20.0%	20,570	25,286		45,856
D&C MEDIA CO.,LTD.		36,904	18.5%	6,843	7,632		14,475
Hasys Co., Ltd.		5,696	47.2%	2,688	14,445		17,133

A summary of financial information on the associates and joint venture for the years ended December 31, 2019 and 2018, is as follows:

(in millions of Korean won)					2019			
							Other	
		Non-current	Current	Non-current			comprehensive	Comprehensive
	Current asset	asset	liability	liability	Revenue	Profit (loss)	income (loss)	income (loss)
KakaoBank of Korea Corp.	₩ 19,743,144	₩ 2,980,964	₩ 21,030,991	₩ 14,396	₩ 664,940	₩ 13,733	₩ 2,433	₩ 16,166
Dunamu Inc.	413,429	115,995	248,978	102,917	140,251	9,456	-	3,760
UBCARE CO., LTD.	98,050	40,786	30,182	1,400	110,808	8,802	(1,234)	7,568
Tide Square Co., Ltd.	52,631	20,807	24,222	4,952	40,057	(11,141)	503	(10,638)
D&C MEDIA CO.,LTD.	48,386	4,957	11,286	748	42,140	4,640	-	4,640
Hasys co.,ltd	7,678	1,713	2,038	3,053	12,856	(1,394)		(1,394)
	₩ 20,363,317	₩ 3,165,221	₩ 21,347,697	₩ 127,466	₩ 1,011,053	₩ 24,095	₩ 1,702	₩ 21,496

(in millions of Korean won)								2	2018							
													Othe	r		
	Curre	nt asset		current sset		urrent ability		current pility	Re	venue	Prof	t (loss)	comprehe income (•	ehensive e (loss)
Dunamu Inc. UBCARE CO., LTD. ¹ D&C MEDIA CO.,LTD. Hasys co.,ltd ¹	₩	560,455 75,808 39,228 7,615	₩	68,158 39,444 4,545 2,210	₩	362,683 9,783 6,181 1,229	₩	9,056 2,445 573 2,899	₩	479,587 63,758 32,082 9,720	₩	137,541 4,682 5,414 (399)	₩	- - - 21	₩	137,541 4,682 5,414 (378)
	₩	683,106	₩	114,357	₩	379,876	₩	14,972	₩	585,147	₩	147,239	₩	21	₩	147,259

¹ The above table represents financial information since the acquisition date.

17. Property and Equipment

Changes in property and equipment for the years ended December 31, 2019 and 2018 are as follows:

(in millions of Korean won)								2019	9							
							Mach	inery and					Cons	truction		
	L	and	Bu	ildings	Struc	tures	equ	uipment	Vel	hicles	Fu	urniture	in pr	ogress		Total
Beginning balance	₩	57,233	₩	55,268	₩	752	₩	132,372	₩	1,845	₩	61,019	₩	6,324	₩	314,812
Acquisition		7,803		1,162		32		59,949		3,974		37,406		2,693		113,018
Changes in scope of consolidation		2,219		725		-		48		3,694		981		(3,751)		3,917
Disposals		(65)		(2,471)		(11)		(1,663)		(815)		(1,259)		(140)		(6,423)
Depreciation		-		(1,580)		(274)		(53,004)		(817)		(27,317)		-		(82,992)
Impairment		-		-		_		=		-		(57)		-		(57)
Transfer		-		-		_		469		-		3,877		(2,433)		1,912
Others ¹		-		350				149				5,132				5,631
Ending balance	₩	67,191	₩	53,454	₩	499	₩	138,319	₩	7,881	₩	79,781	₩	2,693	₩	349,818
December 31, 2019																
Acquisition cost	₩	67,191	₩	61,406	₩	860	₩	336,427	₩	11,390	₩	156,720	₩	2,693	₩	636,685
Government grants		-		-		-		(44)		-		(308)		-		(352)
Accumulated depreciation		-		(7,952)		(360)		(198,006)		(3,508)		(76,573)		-		(286,400)
Accumulated impairment								(58)				(57)				(115)
Net book value	₩	67,191	₩	53,454	₩	499	₩	138,319	₩	7,881	₩	79,781	₩	2,693	₩	349,818

¹ Others include currency translation effects.

(in millions of Korean won)								2018	3							
							Mach	inery and					Cons	truction		
	L	_and	Вι	uildings	Struc	ctures	equ	uipment	Vel	hicles	F	urniture	in pr	ogress		Total
Beginning balance	₩	57,220	₩	53,771	₩	215	₩	119,162	₩	520	₩	38,423	₩	1,733	₩	271,044
Acquisition		8		1,040		567		59,707		825		35,155		3,891		101,193
Changes in scope of consolidation		(28)		10,029		18		1,285		878		3,506		3,890		19,578
Disposals		-		(9,501)		(6)		(509)		(95)		(1,224)		-		(11,335)
Depreciation		-		(1,619)		(39)		(47,279)		(52)		(18,661)		-		(67,650)
Transfer		33		1,559		-		6		(150)		3,819		(3,191)		2,077
Others ¹		-		(11)		(3)		<u> </u>		(80)						(95)
Ending balance	₩	57,233	₩	55,268	₩	752	₩	132,372	₩	1,845	₩	61,019	₩	6,324	₩	314,812
December 31, 2018																
Acquisition cost	₩	57,233	₩	61,740	₩	847	₩	300,936	₩	3,166	₩	119,165	₩	6,324	₩	549,411
Government grants		-		-		-		(28)		-		(286)		-		(314)
Accumulated depreciation				(6,473)		(95)		(168,536)		(1,321)		(57,860)				(234,285)
Net book value	₩	57,233	₩	55,268	₩	752	₩	132,372	₩	1,845	₩	61,019	₩	6,324	₩	314,812

¹ Others include currency translation effects.

Certain land and buildings are provided as collateral in relation to loans agreement (Note 38).

18. Investment Properties

Changes in investment properties for the year ended December 31, 2019, are as follows:

(in millions of Korean won)		Land		Buildings		Total
Beginning balance	₩	-	₩	-	₩	-
Changes in scope of consolidation		2,146		701		2,848
Depreciation		-		(5)		(5)
Ending balance	₩	2,146	₩	697	₩	2,843
December 31, 2019						
Acquisition cost	₩	2,146	₩	734	₩	2,880
Accumulated depreciation		-		(37)		(37)
Net book value	₩	2,146	₩	697	₩	2,843

During the year, rental income earned from operating leases of investment property is ₩ 29 million, and direct operating expenses (including repairs and maintenance) from property that generated rental income are ₩ 2 million.

19. Intangible Assets

Changes in intangible assets for the years ended December 31, 2019 and 2018 are as follows:

(in millions of Korean won)				2019			
		Development	Industrial	Exclusive	Membership	Other	
	Goodwill ¹	costs	property rights	rights	/ Brand	intangible assets ^{2,3}	Total
Beginning balance	₩ 3,175,610	₩ 8,86	₩ 39,467	₩ 7,388	₩ 356,875	₩ 277,064	₩ 3,865,265
Acquisition	-	24	2 1,242	926	3,652	56,250	62,312
Transfer	-			12,945	-	6,178	19,123
Changes in scope of consolidation	114,193		- 61	15,643	344	(7,950)	122,290
Disposal	-		- (5)	(16)	(386)	(10,883)	(11,290)
Amortization	-	(4,760	(5,767)	(9,520)	-	(59,631)	(79,679)
Impairment	(374,639)	(224	(28)	-	(56)	(65,035)	(439,982)
Other			20			10,356	10,375
Ending balance	₩ 2,915,165	₩ 4,11	₩ 34,990	₩ 27,365	₩ 360,429	₩ 206,348	₩ 3,548,416
December 31, 2019							
Acquisition cost	₩ 3,302,966	₩ 24,59	2 ₩ 41,783	₩ 37,460	₩ 360,524	₩ 382,185	₩ 4,149,509
Accumulated amortization	-	(18,274	(5,183)	(10,094)	-	(119,757)	(153,309)
Government grants	-	(5) (1)	-	-	(17)	(23)
Accumulated impairment	(387,801)	(2,195		-	(95)	(56,062)	(447,762)
Net book value	₩ 2,915,165	₩ 4,11	₩ 34,990	₩ 27,365	₩ 360,429	₩ 206,348	₩ 3,548,416

¹ The impairment loss on goodwill is recognized from cash-generating unit goodwill related to music services arising from the M&A of Kakao M Corp. (formerly, LOEN ENTERTAINMENT, INC.), a subsidiary. Due to changes in the market environment and deteriorated in profitability from changes in the regulation on collection of rights costs, the recoverable amount became less than the carrying amount at the end of the reporting period and ₩ 352.7 billion of goodwill was recognized as an impairment loss.

² The impairment loss on intangible assets is recognized from customer relationships recognized by the Company at the acquisition of Kakao M Corp. (formerly, LOEN ENTERTAINMENT, INC.). The Company estimated the recoverable amount as at December 31, 2019, and recognized the difference between the recoverable amount and its book value as impairment loss amounting to ₩ 52.4 billion as the Company determined that the recognized customer relationships and future economic benefit are less than there book value.

³ As at December 31, 2019, the Company owns marketable cryptocurrency of ₩ 182 million and non-marketable cryptocurrency of ₩ 2,768 million.

(in millions of Korean won)						2018						
		Developmen	In	dustrial	Exc	clusive	Men	nbership	(Other		_
	Goodwill ¹	costs ²	prop	erty rights ²	ri	ghts²	/ I	3rand²	intangil	ble assets ^{2,3}		Total
Beginning balance	₩ 3,020,579	₩ 16,2	31 ₩	37,187	₩	6,500	₩	350,404	₩	258,681	₩	3,689,582
Acquisition	-	5	19	442		4,328		7,493		45,400		58,183
Transfer	-		-	-		-		-		214		214
Changes in scope of consolidation	162,782	2,3	38	8,936		300		-		29,759		204,115
Disposal	(7,102)	(2,57	9)	-		(413)		(1,022)		(1,734)		(12,850)
Amortization	-	(5,76	9)	(5,261)		(3,194)		-		(53,154)		(67,379)
Impairment	(898)	(1,87	2)	(1,901)		(133)		(1)		(3,514)		(8,320)
Other	251		7)	64		-		-		1,411		1,719
Ending balance	₩ 3,175,610	₩ 8,8	61 ₩	39,467	₩	7,388	₩	356,875	₩	277,064	₩	3,865,265
December 31, 2018												
Acquisition cost	₩ 3,194,834	₩ 23,9	91 ₩	44,071	₩	8,752	₩	356,875	₩	358,336	₩	3,986,859
Accumulated amortization	-	(13,24	7)	(3,094)		(1,364)		-		(79,120)		(96,826)
Government grants	-		5)	(1)		-		-		(2)		(8)
Accumulated impairment	(19,223)	(1,87		(1,509)		-		-		(2,151)		(24,761)
Net book value	₩ 3,175,610	₩ 8,8	61 ₩	39,467	₩	7,388	₩	356,875	₩	277,064	₩	3,865,265

¹ The impairment loss on goodwill is recognized for Nylon Korea Media and certain other subsidiaries, as the recoverable amount decreased and became less than the carrying amount due to slump in sales and etc.

Management reviews operation performance based on region and type of operation, and manages goodwill at the operating segment level.

² The impairment loss on intangible assets is recognized from PATH MOBILE INC. PTE. LTD. and certain other subsidiaries. The Company estimated the recoverable amount as at December 31, 2018, and recognized the difference between the recoverable amount and its book value as impairment loss considering limited future economic benefit from the projects being developed.

³ As at December 31, 2018, the Company owns marketable cryptocurrency of ₩ 2,053 million and non-marketable cryptocurrency of ₩ 4,721 million.

The following is a summary of goodwill allocation for cash generating units ("CGU"s) operated by management for the years ended December 31, 2019 and 2018:

(in millions of Korean won)						201	9					
		eginning palance	Inci	ease ¹	sco	nges in ope of olidation	lmp	oairment	_	ther tments ²	Endi	ng balance
Internet portal service and other service	₩	1,080,385	₩	4,957	₩	-	₩	(3,485)	₩	-	₩	1,081,856
Music service		1,221,284		-		-		(352,733)		-		868,551
Other mobile service		261,858		81,170		(10,278)		(9,187)		(18, 193)		305,370
Game business		41,461		-		-		(4,322)		(729)		36,410
Commerce service		277,901		-		-		-		-		277,901
Entertainment service		292,722		76,997		_		(4,912)		(19,731)		345,077
	₩	3,175,610	₩	163,124	₩	(10,278)	₩	(374,639)	₩	(38,653)	₩	2,915,165

¹ It is the amount increased by the acquisition of shares in 14 companies including Moonlight Film and the transfer of business with 8 companies including CMNP Corp. during 2019.

² It includes the amount transferred as an identifiable asset from the purchase price allocation amount related to the business combination which was not determined and presented at a provisional amount in 2018 because the purchase price allocation amount has been determined in 2019.

(in millions of Korean won)

won)				20)18			
	Beginning balance	Increase ¹	Transfer ^{2,3}	Disposal	Changes in scope of consolidation	Impairment	Other adjustments ⁴	Ending balance
Internet portal service and other service	₩ 1,410,206	₩ -	₩ (329,821)	₩ -	₩ -	₩ -	₩ -	₩ 1,080,385
Music service	1,446,307	-	(228,714)	-	-	-	3,691	1,221,284
Other mobile service	117,287	116,305	51,920	(7,102)	(8,672)	-	(7,881)	261,858
Game business	33,668	7,793	-	-	-	-	-	41,461
Commerce service	-	-	277,901	-	-	-	-	277,901
Entertainment service	13,111	56,552	228,714				(5,655)	292,722
	₩ 3,020,579	₩ 180,650	₩ -	₩ (7,102)	₩ (8,672)	₩ -	₩ (9,845)	₩ 3,175,610

¹ It is the amount increased by the acquisition of shares in 19 companies including luxi Co., Ltd. during 2018.

² In 2018, the commerce business division was transferred to Kakao Commerce Corp., a subsidiary, through the split off and ₩ 329,821 million of goodwill of existing internet portal service, and other service was also transferred.

³ The Company invested in cash to the video / music contents business of Kakao M Corp. and also transferred ₩ 228,714 million of goodwill of existing music service.

⁴ It includes the amount transferred as an identifiable asset from the purchase price allocation amount related to the business combination which was not determined and presented at a provisional amount before the prior year because the purchase price allocation amount has been determined in 2018.

The Company annually tests impairment of its goodwill. The recoverable amounts of CGU or CGUs have been determined based on value-in-use calculations. These calculations use cash flow projections after tax based on financial budgets approved by management covering a five-year period.

The following table sets out major assumption, operating income rate, revenue growth rate, perpetual growth rate and after-tax discount rate used in the value-in-use calculations for those CGUs that have significant goodwill allocated to them.

		2019	
	Internet portal service and other service ¹	Music Service ²	Other mobile service, game business, commerce service, other contents service, entertainment service and others
Operating income rate	13.9%~ 19.3%	16.8% ~ 17.6%	(-)11.7% ~ 17.0%
Revenue growth rate	5.5%~18.5%	4.3% ~ 23.6%	(-)18.1% ~ 261.1%
Perpetual growth rate	2.0%	1.0%	1.0% ~ 2.0%
After-tax discount rate	10.4%	10.4%	8.0% ~ 18.7%
		2018	
	Internet portal service and other service	Music Service	Other mobile service, game business, commerce service, other contents service, entertainment service and others
Operating income rate Revenue growth rate Perpetual growth rate After-tax discount rate	8.8% ~ 19.8% 6.5% ~ 20.3% 2.0% 10.6%	18.7% ~ 20.3% 11.0% ~ 39.3% 2.0% 9.1%	1.5% ~22.54% 3.9% ~ 44.0% 1.0% 9.1% ~ 17.2%

These assumptions were used for each cash flow generation unit within the operating segment.

The after-tax discount rate is the discount rate that reflects the specific risk associated with the segment to which the CGUs (group) belongs.

¹ When estimating the recoverable amount, if a perpetual growth rate applied to CGU is lower than the management's estimate by 0.5%, the recoverable amount will be reduced by 3.9%.

If after-tax discount rate applied to the estimation is higher than the management's estimate by 1%, the recoverable amount will decrease by 10.7%.

² When estimating the recoverable amount, if a perpetual growth rate applied to CGU is lower than the management's estimate by 0.5%, the recoverable amount will be reduced by 3.6%.

If after-tax discount rate applied to the estimation is higher than the management's estimate by

1%, the recoverable amount will decrease by 9.5%.

20. Leases

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

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

Right-of-use assets Properties ₩ 179,781 ₩ 176,75
Properties ₩ 179,781 ₩ 176,75
1 Toperties
Machinery 42,242 18,91
Vehicles5,4364,13
₩ 227,458 ₩ 199,79
(in millions of Korean won) December 31, 2019 January 1, 2019
(in millions of Korean won) December 31, 2019 January 1, 2019 Lease liabilities
Lease liabilities

Additions to the right-of-use assets during the 2019 financial year were ₩ 83,598 million.

(b) Amounts recognized in the consolidated statement of profit or loss

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

(in millions of Korean won)		2019
Depreciation of right-of-use assets		
Properties	₩	37,994
Machinery		15,492
Vehicles		2,643
	₩	56,129
Interest expense relating to lease liabilities (included in finance cost)	₩	6,370
Expense relating to short-term leases (included in operating expenses)		11,142
Expense relating to leases of low-value assets that are not short-term leases (included in operating expenses)		927
Expense relating to variable lease payments not included in lease liabilities (included in operating expenses)		22,957
Income from subleases of right-of-use assets		69

The total cash outflow for leases in 2019 was ₩ 78,071 million.

21. Borrowings, Bonds and Lease Liabilities

Short-term borrowings and lease liabilities as at December 31, 2019 and 2018, are as follows:

(in millions of Korean won)

		Interest rate as at			
Classification	Lender	December 31, 2019	2019	2018	
	8 th non-guarantee private bonds ¹	-	₩ -	₩ 50,000	
Current portion of long-term	9-1 st non-guarantee public bonds ²	-	-	60,000	
borrowings	Discount on issuance of bonds		-	(28)	
	Net		-	109,972	
	THE KUMAMOTO DAI-ICHI SHINKIN BANK and others	0.90 ~ 4.30%	177	-	
0	10 th non-guarantee private convertible bonds	-	208,400	241,000	
Convertible bonds ^{3,5}	Discount on issuance of bonds		(269)	(552)	
	Net		208,131	240,448	
Evolungoshlo hondo ^{3,4}	11 th guaranteed private convertible bonds	-	230,000	230,000	
Exchangeable bonds ^{3,4}	Discount on issuance of bonds		(880)	(1,524)	
	Net		229,120	228,476	
	Properties and others	1.45% ~ 5.92%	69,139	-	
Short-term lease liabilities ⁶	Present value discounts		(1,062)	-	
	Net		68,077	-	

(in millions of Korean won)				
,		Interest rate as at		
Classification	Lender	December 31, 2019	2019	2018
Loans for operation capital	KB Kookmin Bank	-	-	20,000
Facility loan	Woori Bank	-	-	1,000
Facility loan	Woori Bank	-	-	4,000
Loans for operation capital	Employees of subsidiaries	-	450	190
Loans for operation capital	KB Kookmin Bank and others	2.81%~5.98%	7,079	3,937
Redeemable convertible preferred shares	Preferred shareholders	-	3,638	1,457
			₩ 516,672	₩ 609,480

- ¹ The Company repaid all of outstanding bonds (₩ 50 billion) as the 8th non-guarantee private bonds matured in 2019.
- ² The Company repaid all of outstanding bonds (₩ 60 billion) as the 9-1st non-guarantee public bonds matured in 2019.
- ³ Reclassified as short-term borrowings as the period of early redemption right is within a year as at December 31, 2019.
- ⁴ As Kakao M Corp., a subsidiary, merged with the Company during 2018, shares subject to exchange was changed from ordinary shares of Kakao M Corp. to ordinary shares of the Parent Company.
- ⁵ 274,439 private convertible bonds issued by the Company were converted into ordinary shares of the Company during 2019 (Note 27).
- ⁶ The Company recognized lease liabilities as at January 1, 2019 in accordance with the application of Korean IFRS 1116.

Long-term borrowings and long-term lease liabilities as at December 31, 2019 and 2018, are as follows:

(in millions of Korean won)

		Interest rate as at				
Classification	Lender	December 31, 2019		2019		2018
Bonds	Public offering (9-2 th non- guaranteed public bonds)	2.30%	₩	40,000	₩	40,000
Bollus	Discount on issuance of bonds			(35)		(61)
	Net			39,965		39,939
	Properties and others	1.45%~5.92%		179,994		-
Long-term lease liabilities ¹	Present value discounts			(15,005)		-
	Net			164,989		-
Long-term borrowings	THE KUMAMOTO DAI-ICHI SHINKIN BANK	0.90%~4.30%		7,418		1,672
Long-term borrowings	Shinhan Bank	-		-		500
	Industrial Bank of Korea	-		-		500
Redeemable convertible						
preferred shares and exchangeable bonds	Preferred shareholders			24,886		2,384
			₩	237,258	₩	44,995

¹ The Company recognized lease liabilities as at January 1, 2019 in accordance with the application of Korean IFRS 1116.

Movements in the borrowings for the years ended December 31, 2019 and 2018, are as follows:

(in millions of Korean won)		2019		2018
Beginning balance	₩	654,475	₩	795,180
Changes in scope of consolidation		7,374		13,147
Additions		364,214		41,040
Repayments		(455,502)		(177,161)
Conversion and others		(32,600)		(19,831)
Amortization of present value discounts		1,151		2,100
Others ¹		(18,247)		-
Ending balance	₩	520,865	₩	654,475

¹ Some ordinary shares of TNK Factory, a subsidiary, were converted to redeemable convertible preferred shares during 2019. As conversion rights and early redemption rights embedded in the above redeemable convertible preferred shares meet the terms of separation of embedded derivatives, they are separately accounted for as derivative liabilities.

Movements in the lease liabilities for the year ended December 31, 2019, are as follows:

2019		
₩	198,775	
	340	
	86,231	
	(49,851)	
	(8,800)	
	6,370	
₩	233,065	

Details of exchangeable bonds issued by the Parent Company are as follows:

		Details	
Туре		11th US dollar-settled zero coupon guaranteed exchangeable bonds denominated in Korean won	
Principal amount		₩ 230,000 million	
Interest rate	Coupon rate	0%	
Yield rate		0%	
Date of maturity		May 11, 2021	
Redemption		1) Redemption at maturity: Unless previously redeemed, repurchased and cancelled or exchanged, 100% of principal amount will be redeemed 2) Early redemption: put or call option is exercised	
	Exchange ratio	100%	
	Exchange price	₩ 128,223 (per share)	
	Exchange into	Ordinary shares of Kakao Corp.	
Exchange detail	Exchange period	From and including June 21, 2016 up to and including April 30, 2021	
	Exchange price adjustments	Subject to adjustment in certain circumstances as described in the agreement	
Redemption at th bondholders (Put Option)	e option of the	Until and unless previously redeemed, repurchased and cancelled, or exchanged, on May 11, 2019, each of the bondholders has the right, at the option of such holder, to require the Company to redeem all or a portion of principal amount. And the bondholders may claim early redemption if: - a change of control occurs with respect to Kakao corp., or - the shares officially cease to be listed or admitted for trading or are suspended for a period of at least 30 consecutive trading days.	
Redemption at th (Call Option)	e option of the issuer	The Company may, at its option at any time on or after May 11, 2019, until the 30th six business day prior to the maturity date, redeem the bonds if the closing price of a share for each of 20 trading days in the period of 30 consecutive trading days ending on the trading day immediately prior to the date of our redemption notice, is at least 130% of the prevailing exchange price. And the Company may claim early redemption if: - at least 90% of the initial principal amount of the bonds have been redeemed, repurchased and cancelled, or exchanged, or - certain changes relating to taxation in Korea that the Company becomes obliged to gross up for any payments on the bonds	

The entire amount of financial instruments was accounted for liability as the event of default of the exchangeable bonds is considered contingent settlement provisions.

As at December 31, 2019, the Company has received payment guarantees from KB Kookmin Bank for the exchangeable bonds. In connection with the said payment guarantees, the stock

return rights for the remaining shares subject to exchange were provided as collateral. 1,793,755 treasury shares required for the exchange are deposited at Korea Securities Depository.

Details of convertible bonds issued by the Parent Company are as follows:

		Detail
Туре		10 th non-guaranteed private convertible bonds
Principal amount		₩ 241,000 million
Interest rate	Coupon rate	0%
IIIICICSI IAIC	Yield rate	0%
Date of maturity		April 14, 2021
Redemption at matu	rity	The bonds to be redeemed at their principal amount with 0% of yield to maturity on the maturity date
	Conversion ratio	100%
	Conversion price	₩ 118,786 (per share)
	Conversion to	Ordinary shares of Kakao Corp.
Conversion details	Conversion period	From and including April 14, 2017 up to and including March 14, 2021
Conversion price adjustments		Adjusted in accordance with the agreement in the event of any occasions prescribed in the agreement
Investor's early rede (Put Option)	mption right	Bondholders may claim early redemption before the maturity date for either entire or partial amount of principal on every April 14th starting from 2019, three years after the issuance date.

Details of redeemable convertible preferred shares issued by subsidiaries as at December 31, 2019, are as follows:

		Issuer ¹	
	Friendsgames Co.,Ltd.	TNK Factory (Series 1)	TNK Factory (Series 2)
Date of issue	May 4, 2018	April 9, 2019	April 9, 2019
Value at issue (in millions of Korean won)	₩ 7,000	₩ 16,152	₩ 2,598
Dividend rate for preferred shares	1% of issue value	1% of standard value	1% of standard value
Guaranteed yield upon redemption	8%	5%	5%
Conversion period	From the day after issuance date to the day before 10 years from issuance date	From the issuance date to the day of 5 years from issuance date	From the issuance date to the day of 5 years from issuance date
Conversion rate	1 preferred share for 1 ordinary share : adjustable if (based on) a) IPO price	1 preferred share for 1 ordinary share : adjustable if (based on) a) IPO price b) anti-dilution	1 preferred share for 1 ordinary share : adjustable if (based on) a) anti-dilution
Redemption period	Redeemable from one year after issuance date	Redeemable during one year from four years after issuance date	Redeemable during one year from four years after issuance date
		Issuer ¹	
	stagefive Co., Ltd.	Issuer ¹ stagefive Co., Ltd.	INBYU
Date of issue	stagefive Co., Ltd. November 2, 2018		INBYU Febuary 25, 2019 / March 26, 2019
Value at issue (in millions of Korean won)		stagefive Co., Ltd.	Febuary 25, 2019 /
Value at issue (in millions of Korean won) Dividend rate for preferred shares	November 2, 2018	stagefive Co., Ltd. November 2, 2018	Febuary 25, 2019 / March 26, 2019
Value at issue (in millions of Korean won) Dividend rate for	November 2, 2018 ₩ 5,942 1% of issue value 7%	stagefive Co., Ltd. November 2, 2018 ₩ 1,808	Febuary 25, 2019 / March 26, 2019 ₩ 1,000 0.1% of issue value 6%
Value at issue (in millions of Korean won) Dividend rate for preferred shares Guaranteed yield upon	November 2, 2018 ₩ 5,942 1% of issue value	stagefive Co., Ltd. November 2, 2018 ₩ 1,808 1% of standard value	Febuary 25, 2019 / March 26, 2019 ₩ 1,000 0.1% of issue value
Value at issue (in millions of Korean won) Dividend rate for preferred shares Guaranteed yield upon redemption	November 2, 2018 ₩ 5,942 1% of issue value 7% From the day after issuance date to the day before 10 years	stagefive Co., Ltd. November 2, 2018 # 1,808 1% of standard value 3% From the issuance date to the day of 10 years from issuance	Febuary 25, 2019 / March 26, 2019 ₩ 1,000 0.1% of issue value 6% From the issuance date to the day of 10 years from issuance

¹ As at December 31, 2019, conversion rights and early redemption rights in relation to the above redeemable convertible preferred shares meet the terms of separation of embedded derivatives and are considered as the one compound embedded derivatives, separate from the main contract, and derivative liabilities of ₩ 25,662 million are separately recognized.

Other than the above redeemable convertible preferred shares, KIWI PLUS and Kids Note Co., Ltd., subsidiaries, have issued six redeemable convertible preferred shares as at December 31, 2019 and they are recognized as $\frac{1}{2}$ 4,955 million of short-term and long-term borrowings.

Details of convertible preferred shares issued by subsidiaries as at December 31, 2018, are as follows:

	Issuer ¹				
	Kakao VX	Kakao VX			
Date of issue	October 4, 2018	December 3, 2018			
Number of shares issued	107,633	107,732			
Value at issue (in millions of Korean won)	₩ 3,996	₩ 4,000			
	a) In the case of a paid-in capital	a) In the case of a paid-in capital			
Conversion price adjustments	increase at an issue price below the conversion price and others	increase at an issue price below the conversion price and others			
aujustinents	 b) May be adjusted depending on IPO offering unit price 	b) May be adjusted depending on IPO offering unit price			
Conversion rate	1 preferred share for 1 ordinary share : adjustable if (based on)	1 preferred share for 1 ordinary share : adjustable if (based on)			
	a) IPO price	a) IPO price			
Conversion period	From the issuance date to the day of 10 years from issuance date	From the issuance date to the day of 10 years from issuance date			

¹ As at December 31, 2019, conversion rights in relation to the above convertible preferred shares meet the terms of separation of embedded derivatives and are considered as the one compound embedded derivatives, separate from the main contract.

The Company has been provided the guarantee by two financial institutions including Korea Technology Finance Corporation in relation to the borrowings above (Note 38).

22. Net Defined Benefit Liabilities

Net defined benefit liabilities recognized in the consolidated statements of financial position as at December 31, 2019 and 2018, are as follows:

(in millions of Korean won)		2019		2018
Present value of funded defined benefit obligation	₩	142,558	₩	102,630
Fair value of plan assets		(139,003)		(99,808)
Liability in the consolidated statements of financial position	₩	3,555	₩	2,822

Changes in the defined benefit obligations for the years ended December 31, 2019 and 2018 are as follows:

(in millions of Korean won)		2019		2018
Beginning balance	₩	102,630	₩	85,720
Increase due to change in scope of consolidation		5,505		4,836
Current service cost		36,487		28,363
Interest cost		2,946		2,484
Remeasurement:				
Actuarial loss from change in demographic		2,420		556
Actuarial loss (gain) from change in financial		947		(2,701)
Actuarial loss from experience adjustments		5,399		4,912
Benefits paid		(13,779)		(21,542)
Others		2		4
Ending balance	₩	142,558	₩	102,630

Changes in the fair value of plan assets for the years ended December 31, 2019 and 2018 are as follows:

(in millions of Korean won)		2019		2018
Beginning balance	₩	99,808	₩	83,757
Increase due to change in scope of consolidation		205		2,793
Interest income		1,933		2,237
Contribution		48,976		29,542
Payments from plans		(11,129)		(17,755)
Remeasurement:				
Revenue from plan assets(excluding amounts included in interest income)		(791)		(769)
Others		-		3
Ending balance	₩	139,003	₩	99,808

The amounts recognized in the consolidated statements of comprehensive income for the years ended December 31, 2019 and 2018 are as follows:

(in millions of Korean won)		2019		2018
Current service cost Net interest cost	₩	36,487 1,013	₩	28,363 246
	₩	37,500	₩	28,609

Total service cost from defined benefit plan amounting to $\mbox{$W$}$ 37,500 million and $\mbox{$W$}$ 28,609 million is included in operating expenses for the years ended December 31, 2019 and 2018,

respectively. In addition, total service cost from defined contribution plan was \forall 2,217 million and \forall 1,787 million for the years ended December 31, 2019 and 2018, respectively.

Principal assumptions on actuarial valuation as at December 31, 2019 and 2018 are as follows:

	2019	2018
Discount rate	2.1% ~ 3.5%	2.3% ~ 3.9%
Salary growth rate	2.5% ~ 7.5%	4.5% ~ 7.5%

The sensitivity analysis of the defined benefit obligations as at December 31, 2019 to changes in the weighted principal assumptions is:

	Effect on defined benefit obligations						
	Changes in principal assumption	Increase in principal assumption	Decrease in principal assumption				
Discount rate Salary growth rate	1% 1%	3.3% decrease 11.6% increase	11.8% increase 3.2% decrease				

The Company is exposed to the most significant risk through changes in bond yields, which was used as a discount rate. A decrease in corporate bond yields will increase plan liabilities, although this will be partially offset by an increase in the value of the plans' bond holdings.

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

Plan assets as at December 31, 2019 and 2018 consist of the following:

(in millions of Korean won)	201	9	201	18
Equity linked bond	₩	12,448	₩	17,967
Time deposits		38,990		20,381
Debt instruments		201		372
Financial instruments with fixed rate		65,179		46,472
Interest guarantee insurance		21,567		11,068
Others		618		3,548
	₩	139,003	₩	99,808

Expected contributions to post-employment benefit plans for the year ending December 31, 2020, are # 43,039 million.

The weighted average duration of the defined benefit obligation is 4.1 ~ 12.7 years.

23. Other Long-term Employee Benefits Liabilities

Changes in other long-term employee benefits liabilities for the years ended December 31, 2019 and 2018 are as follows:

(in millions of Korean won)	2	019	2	018
Beginning balance	₩	40,156	₩	32,015
Increase due to change in scope of consolidation		36		150
Current service cost		13,049		10,354
Interest cost		787		837
Remeasurement of the benefit liabilities		(3,021)		3,056
Benefits paid		(7,415)		(6,256)
Ending balance	₩	43,592	₩	40,156

The amounts recognized on the consolidated statements of comprehensive income for the years ended December 31, 2019 and 2018 are as follows:

(in millions of Korean won)	2	019	2	018
Current service cost	₩	13,049	₩	10,354
Interest cost		787		837
Remeasurement of the benefit liabilities		(3,021)		(163)
	₩	10,815	₩	11,028

Principal assumptions on actuarial valuation in relation to other long-term employee benefits liabilities for the years ended December 31, 2019 and 2018 are as follows:

	2019	2018
Discount rate	1.8% ~ 2.8%	2.2% ~ 3.2%
Salary growth rate	4.0% ~ 7.5%	4.0% ~ 7.5%

24. Income Tax Expense and Deferred Tax

Income tax expense for the years ended December 31, 2019 and 2018 consists of:

(in millions of Korean won)	2019			2018
Current tax:				
Current tax on profit for the year	₩	99,410	₩	106,077
Adjustments due to changes in estimates related to prior years		1,846		(3,692)
		101,256		102,385
Deferred tax:				
Changes in temporary differences		(15, 159)		(29,624)
Changes in accounting policies		-		(665)
Increase (decrease) in temporary differences due to change in scope of consolidation		(209)		(4,402)
Deferred tax charged or credited directly to equity		21,780		47,087
		6,412		12,396
Income tax expense	₩	107,668	₩	114,781

Reconciliation between actual income tax expense and amount computed by applying the statutory tax rate to profit before income tax for the years ended December 31, 2019 and 2018 follows:

(in millions of Korean won)	2019	2018
Profit (loss) before income tax	₩ (234,257)	₩ 130,670
Income tax expense computed at statutory tax rate	(56,690)	31,622
Adjustments:		
Non-taxable income	(4,003)	(1,874)
Non-deductible expenses	6,892	28,880
Changes in valuation allowance of deferred income tax asset	169,418	51,467
Adjustments due to changes in estimates related to prior years	1,846	(3,692)
Effects of the tax system for recirculation of corporate income	(7,999)	11,478
Tax credits	(1,795)	(3,099)
Income tax expense	₩ 107,668	₩ 114,781

Income tax effects related to components of other comprehensive income (expenses) for the years ended December 31, 2019 and 2018 are as follows:

	2019									
(in millions of Korean won)	Before tax								_	fter tax
Other comprehensive income (expense): Gain on valuation of equity instruments at fair value through other comprehensive income	₩	(702)	₩	170	₩	(532)				
Gain on valuation of debt instruments at fair value through other comprehensive income		- (0.544)		-		- (0.450)				
Remeasurement of the net defined benefit liabilities Share of other comprehensive income of associates		(8,511) (4,679)		2,060 1,132		(6,452) (3,547)				
	₩ (13,893)	₩	3,362	₩ (10,531)				
			2	018						
(in millions of Korean won)	_	efore tax	T	018 ax fect	_	After tax				
Other comprehensive income (expense):	_		T	ax	_					
Other comprehensive income (expense): Gain on valuation of equity instruments at fair value through other comprehensive income	_		T ef	ax	_					
Other comprehensive income (expense): Gain on valuation of equity instruments at fair value		tax	T ef	ax fect	-	tax				
Other comprehensive income (expense): Gain on valuation of equity instruments at fair value through other comprehensive income Gain on valuation of debt instruments at fair value		9,064	T ef	fax fect (2,193)	-	6,870				

The aggregate current and deferred tax relating to items that are reflected directly to equity for the years ended December 31, 2019 and 2018, is as follows:

		2019			
(in millions of Korean won)	Before tax	Tax effect			
Other reserves:					
Goodwill (investment in kind)	₩ 83,720	₩ (18,418)	₩ 65,302		
		2018			
(in millions of Korean won)	Before tax	Tax effect	After tax		
Other reserves:					
Goodwill (investment in kind)	₩ 220,270	₩ (48,459)	₩ 171,811		

Deferred tax assets (liabilities) recognized in the consolidated statements of financial position as at December 31, 2019 and 2018, are as follows:

(in millions of Korean won) Deferred tax assets		2019		2018
Deferred tax assets to be recovered after more than 12 months Deferred tax assets to be recovered within 12 months	₩	152,477 28,056	₩	119,614 30,490
	-	180,533		150,104
Deferred tax liabilities				
Deferred tax liabilities to be settled after more than 12 months		(257,222)		(235,077)
Deferred tax liabilities to be settled within 12 months		(3,664)		(10,540)
		(260,886)		(245,617)
Deferred tax liabilities, net	₩	(80,353)	₩	(95,513)

The gross movement in the deferred tax assets (liabilities) for the years ended December 31, 2019 and 2018 are as follows:

(in millions of Korean won)		2019		2018
Beginning balance	₩	(95,513)	₩	(125, 136)
Changes in accounting policies		-		(665)
Changes in scope of consolidation		(209)		(4,402)
Deferred income tax charged to profit or loss		(6,412)		(12,396)
Deferred income tax charged to other comprehensive income		3,362		(1,372)
Deferred income tax charged to other equity		18,418		48,459
Ending balance	₩	(80,353)	₩	(95,513)

Changes in deferred income tax assets and liabilities for the years ended December 31, 2019 and 2018 without taking into consideration the offsetting of balances within the same tax jurisdiction are as follows:

(in millions of Korean won)	2019										
		ginning Ilance	Changes of conso			ement of t or loss	Othe comprehe incom	ensive	Other equity		Ending balance
Deferred tax liabilities					-						-
Accrued revenue	₩	(2,074)	₩	-	₩	1,629	₩	-	₩	-	₩ (446
Property and equipment		(6,502)		-		(1,028)		-		-	(7,530
Intangible assets		(168,760)		(209)		19,367		-		-	(149,602
Non-trade receivables		(4,408)		-		4,408		-		-	
Financial assets at fair value through profit or loss		(6,533)		-		(10,186)		-		-	(16,719
Financial assets at fair value through other comprehensive income		(3,258)		-		-		(50)		-	(3,307
Plan assets		(24,434)		-		1,699		-		-	(22,735
Non-refundable tax		(8,466)		-		8,466		-		-	
Derivative instruments		-		-		(3,219)		-		-	(3,219
Lease		-		-		(28,106)		-		-	(28,106
Investments in subsidiaries and associates		10,188		-		(20,028)		1,132		-	(8,707
Others		(21,184)		<u> </u>		669		<u>-</u> .			(20,514
		(235,429)		(209)		(26,331)		1,083			(260,886
Deferred tax assets											
Property and equipment		3,055		-		(391)		-		-	2,663
Advances from customers		6,352		-		4,965		-		-	11,317
Intangible assets		3,451		-		(472)		-		-	2,979
Allowance for doubtful accounts		6,936		-		(2,404)		-		-	4,532
Other payables		14,945		-		(5,619)		-		-	9,32
Provisions		1,602		-		5,924		-		-	7,526
Government grants		171		-		(34)		-		-	137
Defined benefit liabilities		23,188		-		(1,838)		2,060		-	23,409
Other long-term employee benefits liabilities		15,447		-		1,297		-		-	16,745

(in millions of Korean won)	2019											
	Beginning balance	Changes in scope of consolidation	Statement of profit or loss	Other comprehensive income	Other equity	Ending balance						
Financial assets at fair value through profit or loss	1,188	-	23	-	-	1,210						
Financial assets at fair value through other comprehensive income	1,180	-	-	219	-	1,399						
Derivative instruments	2,257	-	489	-	-	2,746						
Lease	-	-	30,411	-	-	30,411						
Goodwill	48,459	-	(9,692)	-	18,418	57,186						
Others	11,686	-	(2,737)	-	-	8,949						
	139,916		19,919	2,279	18,418	180,533						
Deferred tax assets (liabilities), net	₩ (95,513)	₩ (209)	₩ (6,412)	₩ 3,362	₩ 18,418	₩ (80,353)						

(in millions of Korean won)	2018											
	Beginning balance	Changes in accounting policies	Changes in scope of consolidation	Statement of profit or loss	Other comprehensive income	Other equity	Ending balance					
Deferred tax liabilities		•		•			-					
Accrued revenue	₩ (614)	₩ -	₩ -	₩ (1,461)	₩ -	₩ -	₩ (2,074)					
Property and equipment	(5,824)	-	-	(678)	-	-	(6,502)					
Intangible assets	(154,345)	-	(3,370)	(11,045)	-	-	(168,760)					
Non-trade receivables	(4,408)	-	-	-	-	-	(4,408)					
Available-for-sale securities	(2,107)	2,107	-	-	-	-	-					
Financial assets at fair value through profit or loss	-	(1,088)	-	(5,445)	-	-	(6,533)					
Financial assets at fair value through other comprehensive income	-	(1,019)	(1,032)	-	(1,206)	-	(3,258)					
Plan assets	(18,527)	-	-	(5,907)	-	-	(24,434)					
Treasury shares	(85)	-	-	85	-	-	-					
Tax system for recirculation of corporate income	(7,644)	-	-	(822)	-	-	(8,466)					
Others	(12,421)	(665)		(8,098)			(21,184)					

(in millions of Korean won)				2018			
	Beginning balance	Changes in accounting policies	Changes in scope of consolidation	Statement of profit or loss	Other comprehensive income	Other equity	Ending balance
	(205,973	(665)	(4,402)	(33,371)	(1,206)		(245,617)
Deferred tax assets							
Property and equipment	3,10	-	-	(48)	-	-	3,055
Advances from customers	1,79	1 -	-	4,558	-	-	6,352
Intangible assets	1,91) -	-	1,541	-	-	3,451
Allowance for doubtful accounts	3,16	1 -	-	3,772	-	-	6,936
Investments in subsidiaries and associates	10,85	-	-	(674)	12	-	10,188
Other payables	11,07	2 -	-	3,872	-	-	14,945
Provisions	1,043	-	-	559	-	-	1,602
Government grants	5	2 -	-	119	-	-	171
Defined benefit liabilities	17,86	-	-	4,469	856	-	23,188
Other long-term employee benefits liabilities	6,98	-	-	8,460	-	-	15,447
Available-for-sale securities	4,57	5 (4,575)	-	-	-	-	-
Financial assets at fair value through profit or loss		- 2,363	-	(1,175)	-	-	1,188
Financial assets at fair value through other comprehensive income		- 2,212	-	-	(1,032)	-	1,180
Derivative instruments	5,85	1 -	-	(3,597)	-	-	2,257
Goodwill (investment in kind)			-	-	-	48,459	48,459
Others	12,56	7 -	-	(882)	-	-	11,686
	80,830	6 -		20,974	(165)	48,459	150,104
Deferred tax assets (liabilities), net	₩ (125,136) ₩ (665)	₩ (4,402)	₩ (12,396)	₩ (1,372)	₩ 48,459	₩ (95,513)

25. Provisions

Changes in provisions for the years ended December 31, 2019 and 2018 are as follows:

(in millions of	2019										
Korean won)	Beginning balance		Changes in scope of consolidation Increase			D	ecrease		Ending balance		
Current	147	400	144		147	744	147	(500)	147	507	
Provision for mileage	₩	406	₩	-	₩	711	₩	(530)	₩	587	
Provision for restoration		73		-		53		(73)		53	
Provision for returns		1,571		-		(657)		(133)		781	
Provision for litigation ¹		-		-		2,649		-		2,649	
Other provisions		1,586				1,632		(207)		3,011	
		3,636				4,388		(943)		7,081	
Non-current											
Provision for restoration	-	7,611	(1	00)		7,362		(28)		14,844	
	₩	11,246	₩ (1	00)	₩	11,750	₩	(972)	₩	21,924	

¹ Kakao VX, a subsidiary, was sued for patent infringement in May 2016, and was sentenced to the first trial by the Seoul Central District Court in September 2019. Based on the judgment, the Company recognized indemnification payable of ₩ 2,649 million as a provision for litigation.

(in millions of	2018										
Korean won)	Beginning balance		Changes in scope of consolidation Ir			Increase	Decrease	Ending balance			
Current											
Provision for mileage	₩	151	₩	-	₩	722	₩	(467)	₩	406	
Provision for restoration		-		73		-		-		73	
Provision for returns		1,783		93		441		(746)		1,571	
Other provisions		-		107		3,916		(2,437)		1,586	
Non-current											
Provision for restoration		4,211		138		3,261		-		7,611	
	₩	6,145	₩	412	₩	8,339	₩	(3,650)	₩	11,246	

26. Derivative Financial Instruments

The carrying amounts of derivative financial assets, liabilities and commitments as at December 31, 2019 and 2018, are as follows:

(a) Derivative financial assets

(in millions of Korean won)	20	19	2	2018
Call option (Tide Square Co., Ltd.)	₩	894	₩	-
Option (KakaoBank of Korea Corp.)		-		957
Others		217		217
	₩	1,112	₩	1,174

(b) Derivative financial liabilities

2	2019		2018
₩	6,876	₩	7,601
	7,537		6,315
	3,877		-
	24		-
	7,347		-
₩	25,662	₩	13,916
	₩	7,537 3,877 24 7,347	₩ 6,876 ₩ 7,537 3,877 24 7,347

¹ Conversion right granted to Kakao VX (Note 21).

² Redemption right and conversion right granted to Friendsgames Co.,Ltd. (Note 21).

³ Redemption right and conversion right granted to TNK Factory (Note 21).

⁴ Redemption right and conversion right granted to stagefive Co., Ltd. (formerly, Pinplay) (Note 21).

27. Share Capital and Share Premium

As at December 31, 2019, the Parent Company's total number of authorized shares is 150 million and the total number of issued and outstanding ordinary shares are 86,322,636 and 86,222,636, respectively.

The Parent Company may grant stock options to its employees and directors of the Parent Company and its affiliates who contribute or have capabilities to contribute to the establishment, management, overseas business and technical innovation of the Company, with the resolution of special shareholders meeting or board of directors up to 15% of total number of issued stocks. As at December 31, 2019, the number of outstanding stock options among granted is 1,960,405 shares (Note 28).

The Parent Company is authorized to issue convertible bonds and bonds with warrants into registered ordinary shares for up to the total par value of \forall 500 billion to investors other than current shareholders, with the resolution of the board of directors. As at December 31, 2019, the Parent Company has issued convertible bonds amounting to \forall 208,400 million (Note 21).

The Parent Company may issue various classes of shares which are different in respect of their particulars as to the dividend, voting rights, conversion and redemption rights up to 50% of the total number of shares issued. The Parent Company has only issued ordinary shares and no other classes having the above conditions as at December 31, 2019.

Changes in share capital and additional paid-in capital during the years ended December 31, 2019 and 2018 are as follows:

(in millions of Korean won, except number of shares)		Number of ordinary	,	Share	Α	dditional	
except number of snares)	Description	shares		apital	pai	d-in capital	Total
At January 1, 2018	Beginning balance	68,008,527	₩	34,004	₩	3,046,516	₩ 3,080,520
At January 11, 2018	Exercise of stock options	52,832		26		445	472
At January 24, 2018	Issuance of global depository receipt (GDR)	8,261,731		4,131		1,046,772	1,050,902
At January 31, 2018	Exercise of conversion right	25,255		13		2,976	2,989
At February 12, 2018	Exercise of stock options	21,677		11		189	200
At March 5, 2018	Exercise of stock options	3,500		2		5	7
At April 12, 2018	Exercise of stock options	6,600		3		140	143
At May 8, 2018	Exercise of stock options	5,500		3		155	158
At July 6, 2018	Exercise of stock options	500		-		6	6
At August 13, 2018	Exercise of stock options	5,667		3		77	80
At September 3, 2018	Issuance of new shares1	7,092,884		3,546		883,064	886,611
At September 11, 2018	Exercise of stock options	1,000		1		8	8
At October 11, 2018	Exercise of stock options	600		-		4	4
At November 9, 2018	Exercise of stock options	1,500		1		24	25
At December 31, 2018	Ending balance	83,487,773	_₩	41,744	₩	4,980,381	₩ 5,022,125
At January 1, 2019	Beginning balance	83,487,773	₩	41,744	₩	4,980,381	₩ 5,022,125
At March 22, 2019	Exercise of stock options	10,100		5		1,009	1,014
At April 22, 2019	Exercise of stock options	4,000		2		399	401
At May 23, 2019	Exercise of stock options	40,500		20		3,837	3,857
At June 21, 2019	Exercise of stock options	16,400		8		1,571	1,580

(in millions of Korean won, except number of shares)	Description	Number of ordinary shares	Share capital	Additional paid-in capital	Total
At July 2, 2019	Exercise of conversion right	16,837	8	1,988	1,996
At July 17, 2019	Exercise of conversion right	8,418	4	994	998
At July 22, 2019	Exercise of conversion right	42,092	21	4,970	4,991
At July 19, 2019	Exercise of stock options	49,488	25	3,320	3,344
At August 2, 2019	Exercise of conversion right	126,277	63	14,907	14,970
At August 13, 2019	Exercise of conversion right	8,418	4	994	998
At August 19, 2019	Exercise of stock options	92,410	46	8,698	8,744
At September 5, 2019	Exercise of conversion right	1,683	1	193	194
At September 20, 2019	Exercise of stock options	65,550	33	6,399	6,432
At October 14, 2019	Exercise of conversion right	8,418	4	994	998
At October 22, 2019	Exercise of stock options	18,305	9	1,715	1,724
At November 6, 2019	Third party capital increase	2,177,401	1,089	298,847	299,936
At November 7, 2019	Exercise of conversion right	3,367	2	398	399
At November 15, 2019	Exercise of conversion right	16,837	8	1,989	1,997
At November 22, 2019	Exercise of conversion right	42,092	21	4,969	4,990
At November 25, 2019	Exercise of stock options	77,360	39	7,056	7,095
At December 23, 2019	Exercise of stock options	8,910	4	786	790
At December 31, 2019	Ending balance	86,322,636	₩ 43,161	₩ 5,346,415	₩ 5,389,576

The Parent Company retired its treasury shares of 100,000 shares by appropriating retained earnings. Therefore, the total par value of capital stocks issued differs from the total par value of capital stocks outstanding.

(In millions of Korean won, except for number of shares and par value)

Capital stocks outstanding

Par value								
Stocks issued	(in Kore	an won)	Total p	oar value	са	pital	Dif	ference
86,222,636	₩	500	₩	43,111	₩	43,161	₩	50

In 2018, the Parent Company merged with Kakao M Corp. and issued new 4,228,304 shares for some shares owned by the Parent Company and treasury shares held by Kakao M Corp. and, as a result, treasury shares of the Company increased from 5,188 shares to 4,233,492 shares. As at December 31, 2019, the number of treasury shares of the Parent Company did not change compared to the previous period.

28. Share-based compensation

Details of the Parent Company's stock options as at December 31, 2019, are as follows:

(a) Equity-settled stock option

- Type of shares issued through exercise of stock option: registered ordinary shares
- · Grant method: Issuance of new ordinary shares
- Vesting period:

10th, 12th, 14th, 16th tranches [:] The requisite service period is two years, exercisable from two to seven years after grant date.

9th, 11th, 13th tranches: The requisite service period is two or three years, exercisable from two or three years to seven or eight years after grant date.

(b) Cash-settled stock option

Vesting period:

 $3^{nd} - 5^{th}$ tranches: The requisite service period is two years, exercisable from two years to seven years after grant date limited to 50% of granted quantity. The requisite service period of remaining 50% of granted quantity is three years, exercisable from three years to seven years after grant date.

6th tranches: The requisite service period is two years, exercisable from two years to seven years after grant date limited to 50% of granted quantity. The requisite service period of remaining 50% of granted quantity is three years, exercisable from three years to seven years after grant date. It is exercisable only when it happens the average price of the shares calculated at the end of each month within two years to seven years from grant date exceeds 150% of exercise price.

7th tranches: The requisite service period is two years, exercisable from two years to seven years after grant date limited to 30% of granted quantity. The requisite service period of remaining 30% of granted quantity is three years, exercisable from three years to seven years after grant date. The requisite service period of remaining 40% of granted quantity is four years, exercisable from four years to seven years after grant date.

8th tranches: The requisite service period is two years, exercisable from two years to seven years after grant date limited to 30% of granted quantity. The requisite service period of remaining 30% of granted quantity is three years, exercisable from three years to seven years after grant date. The requisite service period of remaining 40% of granted quantity is four years, exercisable from four years to seven years after grant date. It is exercisable only when it happens the average price of the shares calculated at the end of each month within two years to seven years from grant date exceeds 150% of exercise price.

- (c) Share-based payment transactions with cash alternatives
 - Grant method: Issuance of new ordinary shares, treasury shares or payment of cash.
 The Company will determine in its discretion grant method at the time of exercise and accounted as equity-settled stock option based on the assumption that it will be granted based on the issuance of new stock or grant of treasury shares in the future.
 - Vesting period:

18th, 21th-22th, 24th tranches: The requisite service period is two years, exercisable from two years to seven years after grant date limited to 50% of granted quantity. The requisite service period of remaining 50% of granted quantity is three years, exercisable from three years to seven years after grant date.

19th-20th, 23th, 25th-26th tranches: The requisite service period is two years, exercisable from two years to seven years after grant date limited to 50% of granted quantity. The requisite service period of remaining 50% of granted quantity is three years, exercisable from three years to seven years after grant date. It is exercisable only when it happens the average price of the shares calculated at the end of each month within two years to four years from grant date exceeds 150% of exercise price. If the average price of the shares calculated at the end of each month within two years to four years from grant date exceeds 200% of exercise price, all of granted quantity could be exercisable.

27th tranches: The requisite service period is two years, exercisable from two years to seven years after grant date limited to 30% of granted quantity. The requisite service period of remaining 30% of granted quantity is three years, exercisable from three years to seven years after grant date. The requisite service period of remaining 40% of granted quantity is four years, exercisable from four years to seven years after grant date. It is exercisable only when it happens the average price of the shares calculated at the end of each month within two years to seven years from grant date exceeds 150% of exercise price. If the average price of the shares calculated at the end of each month within two years to seven years from grant date exceeds 200% of exercise price, all of granted quantity could be exercisable.

28th tranches: The requisite service period is two years, exercisable from two years to seven years after grant date limited to 30% of granted quantity. The requisite service period of remaining 30% of granted quantity is three years, exercisable from three years to seven years after grant date. The requisite service period of remaining 40% of granted quantity is four years, exercisable from four years to seven years after grant date.

Details of the Parent Company's equity-settled stock options outstanding as at December 31, 2019, are as follows:

				Number of shares						
Tranche	Grant date		se price ean won)	Outstanding as at January 1, 2019	Granted	Forfeited	Exercised	Outstanding as at December 31, 2019	Exercisable as at December 31, 2019	
9 th	January 20, 2012	₩	7,714	10,000	-	-	10,000	-	-	
10 th	March 30, 2012		10,285	2,000	-	2,000	-	-	-	
11 th	March 30, 2012		10,285	500	-	-	500	-	-	
12 th	August 31, 2012		12,857	6,054	-	-	6,054	-	-	
13 th	August 31, 2012		12,857	2,000	-	-	1,000	1,000	1,000	
14 th	December 14, 2012		12,857	11,432	-	-	11,432	-	-	
16 th	March 28, 2013		32,143	19,942	-	-	8,777	11,165	11,165	
18 th	March 2, 2017		85,350	302,500	-	4,000	228,950	69,550	34,775	
19 th	March 2, 2017		85,350	506,000	-	20,000	77,100	408,900	204,450	
20 th	March 17, 2017		84,650	100,000	-	-	36,460	63,540	31,770	
21 st	May 2, 2017		88,600	297,000	-	28,000	2,750	266,250	133,125	
22 nd	September 28, 2017		131,500	43,000	-	4,000	-	39,000	19,500	
23 rd	September 28, 2017		131,500	15,000	-	-	-	15,000	-	
24 th	August 31, 2018		123,380	311,000	-	40,000	-	271,000	-	
25 th	August 31, 2018		123,380	190,000	-	-	-	190,000	-	
26 th	October 31, 2018		100,580	120,000	-	-	-	120,000	-	
27 th	May 16, 2019		124,400	-	135,000	10,000	-	125,000	-	
28 th	May 16, 2019		124,400	<u> </u>	392,000	12,000	<u>-</u>	380,000		
				1,936,428	527,000	120,000	383,023	1,960,405	435,785	

In addition to the aforementioned stock options, the Company granted equity-settled stock options in relation to the shares of its subsidiaries such as Kakao Page Corp., Kakao Games Corp., TNK Factory, Kakao Investment Co., Ltd., Kakao Mobility Corp, Kakao M Corp., Kakao Commerce Corp., KIWI PLUS, kidsnote, inc, and Kakaopay Corp.

Compensation costs of the Parent Company's equity-settled stock options are calculated by applying a fair value approach using Black-Scholes model, Binomial model and LSMC (Least Square Monte-Carlo) model. The related assumptions are as follows:

Tranche	Fair value of o grant da (in Korean	ate	at grai	price nt date an won)	Expected volatility ¹	Expected dividends	Expected maturity	Risk free Interest rate
9 th	₩	3,981	₩	12,000	44%	0%	3 years	3.40%
10 th		3,984		16,000	40%	0%	2 years	3.52%
11 th		5,055		16,000	41%	0%	3 years	3.55%
12 th		4,991		20,000	41%	0%	2 years	2.77%
13 th		6,090		20,000	40%	0%	3 years	2.76%
14 th		5,188		20,000	43%	0%	2 years	2.86%
16 th		12,719		50,000	42%	0%	2 years	2.46%
18 th		15,086		85,300	11%	0%	2~3 years	2.14%
19 th		8,696		85,300	11%	0.17%	2~3 years	2.14%
20 th		7,931		84,000	11%	0.17%	2~3 years	2.09%
21 st		19,153		92,600	11%	0.16%	2~3 years	2.13%
22 nd		30,997		139,500	11%	0.11%	2~3 years	2.30%
23 rd		4,631		139,500	11%	0.11%	2~3 years	2.30%
24 th		27,259		125,000	14%	0.12%	2~3 years	2.25%
25 th		5,289		125,000	14%	0.12%	2~3 years	2.25%
26 th		14,052		91,600	13%	0.00%	2~3 years	2.18%
27 th		10,745		133,500	12%	0.00%	2~4 years	1.80%
28 th		29,998		133,500	12%	0.00%	2~4 years	1.80%

¹ The volatility measured at the standard deviation of continuously compounded share returns for 1st - 17th tranches granted prior to the Parent Company's listing in Korean stock market is based on statistical analysis of weekly share prices of listed corporations in the similar line of industry over expected maturity period.

Details of the Parent Company's cash-settled stock options outstanding as at December 31, 2019, are as follows:

(In Korean	n won, except number of	Number of shares						
Tranche	Grant date	Exercise price	Outstanding as at January 1, 2019	Granted	Cancelled	Exercised	Outstanding as at December 31, 2019	Exercisable as at December 31, 2019
3^{rd}	May 2, 2017	₩ 88,600	7,000	-	500	-	6,500	3,250
4 th	September 28, 2017	131,500	500	-	-	-	500	250
5 th	August 31, 2018	123,380	5,000	-	-	-	5,000	-
6 th	August 31, 2018	123,380	14,500	-	-	-	14,500	-
7^{th}	May 16, 2019	124,400	-	3,000	-	-	3,000	-
8 th	May 16, 2019	124,400	-	10,000	-	-	10,000	-
			27,000	13,000	500	-	39,500	3,500

In addition to the aforementioned stock options, the Company granted cash-settled stock options on shares of Kakaopay Corp. and Kakao Games Corp., its subsidiaries.

The fair value of the Company's cash-settled stock options was determined using LSMC (Least Square Monte-Carlo) option pricing model.

Share-based compensation recognized as expenses for the years ended December 31, 2019 and 2018 are as follows:

(in millions of Korean won)	2	019	2	2018
Equity-settled stock option ¹	₩	21,444	₩	12,172
Cash-settled stock option ²		(740)		1,970
	₩	20,704	₩	14,142

¹ Amounts for 2019 include ₩ 11,083 million (2018: ₩ 4,189 million) of share-based compensation recognized as expenses for the shares of subsidiaries.

29. Other Components of Equity

Other components of equity as at December 31, 2019 and 2018, are as follows:

(in millions of Korean won)	2	2019	2018		
Other capital adjustments	₩	(5,430)	₩	(5,430)	
Treasury shares		(1,034)		(1,034)	
Losses on disposal of treasury shares		(5,941)		(5,941)	
Stock options		19,643		13,897	
	₩	7,238	₩	1,492	

² Amounts for 2019 include $\mbox{$\mbox{$$\seta$}$}$ (1,440) million (2018: $\mbox{$\mbox{$$\%$}$}$ 1,962 million) of share-based compensation recognized as expenses for the shares of subsidiaries.

30. Accumulated Other Comprehensive Income

Accumulated other comprehensive income as at December 31, 2019 and 2018, consists of:

(in millions of Korean won)		2019		2018
Translation adjustments, net of tax	₩	6,637	₩	1,228
Shares of other comprehensive income (loss) of associates, net of tax		(3,810)		(210)
Equity instruments at fair value through accumulated other comprehensive income, net of tax		(9,283)		(3,690)
Remeasurement of defined benefit obligation, net of tax		(10,463)		(4,961)
Revaluation surplus		526		304
	₩	(16,393)	₩	(7,329)

Changes in accumulated other comprehensive income for the year ended December 31, 2019 and 2018, are as follows:

(in millions of Korean won)	J	anuary 1, 2019	(Increase Decrease)		classification to retained earnings	De	cember 31, 2019
Translation adjustments, net of tax	₩	1,228	₩	5,409	₩	-	₩	6,637
Shares of other comprehensive income (loss) of associates, net of tax		(210)		(3,600)		-		(3,810)
Equity instruments at fair value through accumulated other comprehensive income, net of tax		(3,690)		217		(5,809)		(9,283)
Remeasurement of defined benefit obligation, net of tax		(4,961)		(5,502)		-		(10,463)
Revaluation surplus		304		222		-		526
	₩	(7,329)	₩	(3,255)	₩	(5,809)	₩	(16,393)

Other comprehensive income in the table above represent amount net of tax.

(in millions of Korean won)	J	anuary 1, 2018	Changes in accounting policies			Increase Decrease)	Dec	cember 31, 2018
Gain on valuation of available-for-sale securities, net of tax	₩	591	₩	(591)	₩	-	₩	-
Translation adjustments, net of tax		(2,585)		-		3,813		1,228
Shares of other comprehensive income (loss) of associates, net of tax		(174)		-		(36)		(210)
Equity instruments at fair value through accumulated other comprehensive income, net of tax		-		(8,551)		4,861		(3,690)
Debt instruments at fair value through accumulated other comprehensive income		-		(142)		142		-
Equity instruments at fair value through Profit or loss		-		-		-		-
Remeasurement of defined benefit obligation, net of tax		(2,800)		-		(2,161)		(4,961)
Revaluation surplus		-		-		304		304
	₩	(4,968)	₩	(9,283)	₩	6,922	₩	(7,329)

Other comprehensive income in the table above represent amount net of tax.

31. Retained Earnings

Retained earnings as at December 31, 2019 and 2018, are as follows:

(in millions of Korean won)		2019		2018
Legal reserve ¹ Retained earnings before appropriation	₩	8,432 139,722	₩	7,427 445,973
	₩	148,154	₩	453,400

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

32. Operating Expenses

Operating expenses for the years ended December 31, 2019 and 2018, are as follows:

(in millions of Korean won)		2019		2018
Salaries	₩	538,486	₩	420,326
Retirement benefit expense		39,717		30,396
Compensation cost of share-based payments		20,704		14,142
Welfare		88,776		66,997
Travel and transportation expense		12,106		8,522
Taxes and dues		6,667		4,786
Rental expense		9,363		37,390
Commission		360,117		314,379
Sales-related expenses		1,079,324		873,754
Cost of goods sold		288,646		205,734
Advertising expense		146,176		183,827
Depreciation		139,125		67,650
Amortization		79,679		67,379
Expenses for events		5,073		3,487
Others		47,556		42,189
	₩	2,861,514	₩	2,340,959

33. Other Non-Operating Income and Expenses

Details of other non-operating income and expenses for the years ended December 31, 2019 and 2018 are as follows:

(in millions of Korean won)		2019		2018	
Other non-operating income					
Gain on disposal of property and equipment	₩	2,688	₩	584	
Gain on disposal of intangible assets		7,882		1,904	
Gain on disposal of investment property		-		178	
Gain on disposal of equity method investments		50,973		38,650	
Gain on disposal of investments in subsidiaries		612		14,746	
Gain on foreign currency transactions		1,523		2,398	
Gain on foreign currency translation		861		123	
Miscellaneous income		7,796		15,436	
Rent income		293		10	
Gain on disposal of other assets		-		295	
Reversal of allowance for doubtful accounts (non- operating income)		62		204	
Reversal of impairment loss on intangible assets		341		-	
Gains on bargain purchase		694		-	
Reversal of provision for restoration		28		-	
Others		-		3	
	₩	73,755	₩	74,531	
Other non-operating expenses					
Loss on disposal of property and equipment	₩	1,245	₩	355	
Loss on disposal of intangible assets		1,836		324	
Loss on abandonment of property and equipment		578		623	
Impairment losses on property and equipment		57		-	
Impairment losses on intangible assets		440,323		8,320	
Impairment losses on other assets		1,378		2,871	
Impairment losses on equity method investments		25,876		36,747	
Loss on disposal of equity method investments		4,678		2,165	
Loss on disposal of investments in subsidiaries		32		565	
Donations		4,651		6,493	
Service fees		5,188		5,978	
Loss on foreign currency transactions		1,804		1,607	
Loss on foreign currency translation		924		81	
Miscellaneous losses		28,004		15,831	
Other bad debt expenses		2,073		3,761	
Loss on disposal of trade receivables		3		-	
Others		2,763		50	
	₩	521,412	₩	85,772	

34. Finance Income and Costs

Finance income and costs for the years ended December 31, 2019 and 2018 are as follows:

(in millions of Korean won)	:	2019		2018	
Finance income					
Interest income	₩	31,700	₩	41,783	
Dividend income		1,287		381	
Gain on valuation of derivatives		5,625		988	
Gain on valuation of financial assets at fair value through profit or loss		11,489		23,830	
Gain on disposal of financial assets at fair value through profit or loss		566		7,443	
Gain on foreign currency transactions		5,102		15,138	
Gain on foreign currency translation		14,616		16,645	
Other finance income		<u>-</u>		6,245	
	₩	70,386	₩	112,453	
Finance costs					
Interest expense	₩	12,808	₩	9,356	
Loss on valuation of derivative financial instruments		7,671		732	
Loss on foreign currency transactions		2,116		2,502	
Loss on foreign currency translation		4,021		7,690	
Loss on valuation of financial assets at fair value through profit or loss		14,990		23,602	
Loss on disposal of financial assets at fair value through profit or loss		328		269	
Loss on disposal of financial assets at fair value through other comprehensive income		-		272	
Other finance costs		2,068		5,720	
	₩	44,000	₩	50,143	

35. Earnings per Share

Basic earnings per share is calculated by dividing the profit attributable to equity holders of the Parent Company by the weighted average number of ordinary shares outstanding, excluding the treasury shares during the year.

Basic earnings per share for the years ended December 31, 2019 and 2018 is calculated as follows:

(in millions of Korean won, except per share data)	2019	2018
Profit (loss) attributable to equity holders of the Parent Company	₩ (301,003)	₩ 47,886
Weighted average number of ordinary shares outstanding	79,715,891	76,863,184
Basic earnings (loss) per share	₩ (3,776)	₩ 623

Diluted earnings per share is calculated by adjusting the weighted average number of ordinary shares outstanding to assume conversion of all dilutive potential ordinary shares. The Company has stock options, exchangeable bonds and convertible bonds as dilutive potential ordinary shares. For the share options, a calculation is done to determine the number of shares that could have been acquired at fair value (determined as the average annual market share price of the Company's shares) based on the monetary value of the subscription rights attached to outstanding share options. The number of shares calculated as above is compared with the number of shares that would have been issued assuming the share options are exercised. The convertible bond and exchangeable bond are assumed to have been converted into ordinary shares, and the net profit is adjusted to eliminate the interest expense less the tax effect.

Diluted earnings per share for the years ended December 31, 2019 and 2018, is calculated as follows:

(in millions of Korean won, except per share data)	2019	2018
Profit (loss) attributable to equity holders of the Parent Company Interest cost for convertible bonds (net of tax)	₩ (301,003) - (301,003)	₩ 47,886 1,788 49,673
Weighted average number of ordinary shares outstanding Adjustment for:	79,715,891	76,863,184
Stock options Convertible bonds	-	193,396 3,820,325
Weighted average number of diluted potential ordinary shares Weighted average number of ordinary shares	-	4,013,721
for diluted earnings per share	79,715,891	80,876,905
Diluted earnings (loss) per share	₩ (3,776)	₩ 614

Details of the potential ordinary share that may have a dilution effect in the future although it was not considered when calculating the diluted earnings per share due to the anti-dilution effect as at December 31, 2019, is as follows:

(in millions of Korean won, except per share data)	Interest expense, net of tax		Number of ordinary shares to be issued	
Convertible bonds and exchangeable bonds	₩	661	3,548,171	
Stock option		-	352,125	

36. Dividends

The dividend to the shareholders of the Parent Company in respect of the year ended December 31, 2019, of \forall 127 per share, amounting to total dividends of \forall 10,413 million, is to be proposed at the annual general shareholders' meeting on March 25, 2020. The Company's consolidated financial statements as at December 31, 2019, do not reflect this dividend payable.

37. Cash Generated from Operations

Details of cash generated from operations for the years ended December 31, 2019 and 2018 are as follows:

(in millions of Korean won) Profit (loss) before income tax	2019 ₩ (234,257)	2018 ₩ 130,670
Adjustments:	W (234,231)	vv 130,070
Bad debt expense	1,811	3,084
Depreciation	139,125	67,650
Amortization	79,679	67,379
Impairment losses on intangible assets	439,982	8,320
Gain on disposal of property and equipment	(1,443)	(229)
Loss on abandonment of property and equipment	` 57 8	`623
Gain (loss) on disposal of intangible assets	(6,046)	(1,580)
Retirement benefit expense	37,500	28,609
Compensation cost of share-based payments	20,704	14,142
Interest income	(31,700)	(41,783)
Interest expense	12,808	9,356
Dividend income	(1,287)	(381)
Share of net loss (profit) of associates	19,771	(6,652)
Loss on disposal of equity method investments	-	2,165
Gain on disposal of equity method investments	(50,973)	(38,650)
Impairment losses on equity method investments	25,876	36,747
Gain on disposal of financial assets at fair value through profit or loss	(566)	(7,443)
Loss on disposal of financial assets at fair value through profit or loss	328	269
Gain on valuation of financial assets at fair value through profit or loss	(11,489)	(23,830)
Loss on valuation of financial assets at fair value through profit or loss	14,990	23,602
Loss on disposal of financial assets at fair value through other comprehensive income	-	272
Impairment losses on other assets	1,378	2,871
Gain on valuation of derivative financial instruments	(5,625)	(988)
Loss on valuation of derivative financial instruments	7,671	732
Other bad debt expenses	2,073	3,761
Others	(580)	-
Changes in operating assets and liabilities		
Trade receivables	39,192	(1,482)

(in millions of Korean won)	2019	2018
Inventories	(19,188)	(8,951)
Other current financial assets	(40,544)	(63,994)
Other current assets	24,541	(91,627)
Other non-current assets	(43,181)	(6,758)
Trade payables and other payables	100,465	154,417
Other current liabilities	132,779	393,992
Other current financial liabilities and deposits received	205,815	(782)
Other non-current liabilities	8,916	882
Other non-current financial liabilities	16,892	(2,441)
Net defined benefit liabilities	(51,627)	(33,329)
Other long-term employee benefit liabilities	(1,656)	(2,887)
Other provisions	-	882
Others	(1,566)	(8,605)
Cash generated from operations	₩ 831,143	₩ 608,033

Significant transactions not affecting cash flows for the years ended December 31, 2019 and 2018 are as follows:

(in millions of Korean won)	2019	2018
Provision for restoration to specific property and equipment account Write-offs of trade receivables	₩ 5,117 1,650	₩ 2,258 336
Change of other payables related to acquisition of property and equipment	6,655	5,628
Change of non-trade receivables related to disposal of property and equipment	179	-
Change of other payables related to acquisition of intangible assets	515	540
Change of advanced payments related to acquisition of intangible assets	4,336	8,636
Change of deferred revenues related to disposal of intangible assets	-	10,325
Transfer from advanced payments and long-term advanced payments to property and equipment	3,794	-
Transfer from advanced payments and long-term advanced payments to intangible assets	4,300	-
Conversion of convertible bonds	32,600	2,990
Conversion of redeemable convertible preferred shares	-	4,456
Transfer to current portion of long-term borrowings	1,054	575,931
Increase in right-of-use assets due to changes in accounting policies	198,775	-
Increase in lease liabilities due to changes in accounting policies	199,792	-
Change of non-trade receivables related to payment of lease liabilities	8,800	-
Transfer from financial assets at fair value through other comprehensive income to investments in associates	243,105	1,977

Changes in net liabilities arising from financial activities for the years ended December 31, 2019 and 2018, are as follows:

(in millions of	Other assets Liabilities from financing activities									
Korean won)	Cash and cash equivalents	cash financial		Short-term Long-term corrowings		Non-current lease liabilities	Total			
At December 31, 2018 Changes in	₩ 1,247,013	₩ 924,215	₩ (609,480)	₩ (44,995)	₩ - (42,514)	₩ - (156,261)	₩ 1,516,753 (198,775)			
accounting policies At January 1, 2019	1,247,013	924,215	(609,480)	(44,995)	(42,514)	(156,261)	1,317,978			
Acquisition - lease	-	-	-	-	(4,044)	(82,187)	(86,231)			
Cash flows	799,132	(593,555)	128,208	(36,919)	43,045	-	339,911			
Exchange differences	10,528	(194)	(142)	(79)	-	-	10,112			
Changes in consolidation scope	(138,448)	1,194	(4,128)	(3,246)	(340)	-	(144,967)			
Transfer from/to current portion	-	-	(1,054)	1,054	(73,459)	73,459	-			
Unwind of discount	-	-	(956)	(196)	-	-	(1,151)			
Transfer	-	(124,322)	-	12,229	8,800	-	(103,293)			
Conversion of convertible bond	-	-	32,600	-	-	-	32,600			
Others		429	6,357	(117)	435		7,104			
At December 31, 2019	₩ 1,918,225	₩ 207,767	₩ (448,596)	₩ (72,269)	₩ (68,077)	₩ (164,989)	₩ 1,372,062			

(in millions of Korean won)		Other a	isse	ts	Liabilities from financing activities					
		Cash and cash equivalents		Short-term financial assets		Short-term borrowings		Long-term borrowings		Total
At January 1, 2018	₩	1,116,793	₩	394,152	₩	(174,372)	₩	(620,808)	₩	715,765
Cash flows		9,747		514,098		139,350		(3,229)		659,966
Exchange differences		30,483		8,305		(2)		-		38,786
Changes in consolidation scope		89,990		7,661		(5,309)		(7,838)		84,503
Transfer from/to current portion		-		-		(575,931)		575,931		-
Unwind of discount		-		-		(1,788)		(312)		(2,100)
Others (conversion of convertible bond, etc.)		-		-		8,572		11,261		19,833
At December 31, 2018	₩	1,247,013	₩	924,215	₩	(609,480)	₩	(44,995)	₩	1,516,753
						·		·		

38. Commitments and Contingencies

The Company has provided the following guarantees as at December 31, 2019 and 2018:

(in millions of Korean won)

Beneficiary	Guarantor		Ame	ount		Guaranteed item		
			2019		2018			
Employees ¹	Woori Bank	₩	245	₩	292	Employee loans		
Customers ²	Korea Investment Savings Bank, etc.		15,151		4,922	Guarantee for sales installment		
Credit guarantee	Intercontinental Hongkong, etc.		-		1,144	Credit guarantee for LC		
Housing loans to employees ³	Executives of associates		440		-	Housing loans to employees		
		₩	15,836	₩	6,358			

¹ The Company provided its employees payment guarantee with banks for the employees' bank loans related to their welfare and the Company's deposits of ₩ 6,191 million are pledged as collateral.

The Company has been provided the following guarantees by others as at December 31, 2019 and 2018:

(in millions of Korean won)

Guarantor	Details		Amo	oun	t	Beneficiary		
			2019		2018	-		
Seoul Guarantee Insurance and others	Performance guarantee and others	₩	128,369	₩	7,919	Korea Workers' Compensation & Welfare Service, Korea Electric Power Corporation, etc.		
Korea Credit Guarantee Fund	Guarantee for borrowings and others		2,410		2,393	Industrial Bank of Korea, etc.		
Shinhan Bank	Consumer protection under Act on Electronic Commerce		500		-	Customers		
TRAVIX TRAVEL USA INC	Performance guarantee		-		112	Customers		
		₩	131,279	₩	10,424			

In addition to the above, the Company has been received a payment guarantee from KB Kookmin Bank regarding the issuance of exchangeable bonds (Note 21).

² Debt guarantee provided for the customer's installment amount for financial institutions among the purchase amount. In relation to such debt guarantee, one promissory note (₩ 300 million) and financial instruments of ₩ 100 million of the Company are provided as collateral.

³ Financial instruments of ₩ 425 million of the Company are provided as collateral in relation to guarantees for housing loans to employees.

The Company's agreements with financial institutions and commitments as at December 31, 2019 and 2018, are as follows:

(in millions of Korean won)

		2019			
Financial Institution	Agreements	Maximum limit	Amount executed		
Industrial Bank of Korea	General loans	₩ 100	₩ -		
KEB Hana Bank	General loans	50	-		
KEB Hana Bank	Trade receivable secured loan	1,000	-		
KB Kookmin Bank	Purchasing loan	500	500		
Industrial Bank of Korea	Purchasing loan	1,380	1,380		
Shinhan Bank	Limit loans for operation capital	200,000	-		
KB Kookmin Bank	Facility loans	7,800	7,800		
THE KUMAMOTO DAI-ICHI SHINKIN BANK	Loans for operation capital	115	115		
THE KUMAMOTO DAI-ICHI SHINKIN BANK	Loans for investments	1,365	1,365		
Japan Finance Corporation	Loans for investments	16	16		
Woori Bank	General borrowings	1,000	1,000		
Shinhan Bank	General borrowings	1,500	1,500		
Woori Bank	Retail Banking loans	700	699		
KB Kookmin Bank	Loans for operation capital	200	200		
Woori Bank	Loans for operation capital	100			
Shinhan Bank	Limit loan	25,000	-		
Korea Development Bank	Limit loan	40,000			
KB Kookmin Bank	Limit loan	22,000			
		₩ 302,825	₩ 14,674		

(in millions of Korean won)

(iii iiiiiiiiiii)		2018			
Financial Institution	Agreements		ximum imit	Amount executed	
Industrial Bank of Korea	Loans for operation capital	₩	2,000	₩ -	
Industrial Bank of Korea	Loans for operation capital		200	-	
Woori Bank	Credit limit of borrowings		958	958	
Shinhan Bank	Credit limit of borrowings		500	500	
Woori Bank	General borrowings		5,000	5,000	
KB CAPITAL	General borrowings		22	22	
Shinhan Bank	General loans (limit)		2,500	-	
THE KUMAMOTO DAI-ICHI SHINKIN BANK	Loans for operation capital		172	172	
THE KUMAMOTO DAI-ICHI SHINKIN BANK	Loans for investments		1,401	1,401	
Japan Finance Corporation.	Loans for investments		26	26	
Orix	Loans for operation capital		157	157	
Woori Bank	General borrowings		916	916	

(in millions of Korean won)

		2018				
Financial Institution	Agreements		ximum Iimit		nount ecuted	
KB Kookmin Bank	General borrowings		20,000		20,000	
Shinhan Bank	General borrowings		770		770	
Shinhan Bank	Loans for operation capital		50		50	
Industrial Bank of Korea	Loans for operation capital		600		600	
		₩	35,273	₩	30,573	

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In 2016, the Parent Company has entered into a securities lending agreement with each of two underwriters of the exchangeable bonds, Citigroup Global Markets Limited and Morgan Stanley & Co. International plc for up to an aggregate 2,191,885 shares of exchange target shares, equivalent to 100% of the total exchangeable shares. According to the agreement, the shares will be lend up to the date specified such as the date of the 5th anniversary of the issuance of the bonds, the date on which all of the bonds are redeemed, or exchanged through the underwriters' agent, NH Investment & Securities Co., Ltd. However, shares subject to the agreement became treasury shares of the Company due to the merge with Kakao M Corp. occurred in 2018. As a result, the number of treasury shares subject to the agreement became 1,793,755 shares with the percentage of merger.

In the past, the Company granted a right to a customer for reselling equipment to the Company at 50% of a price when it sells to a customer after a certain period of time (selling price: ₩ 3,072 million).

In accordance with the shareholder agreements in relation to Kakaopay Corp., a subsidiary, the right to request Kakaopay Corp., a subsidiary, to issue new shares for 9.9% that does not affect the Company's control through a capital increase is provided to non-controlling interest investors within three years after the initial investment. If a subsidiary issues new shares with the approval of the Board of Directors, non-controlling interest investors may take over those shares at \$150,000,000. In addition, in accordance with the shareholder agreements, if there are difficulties in management and operation under the above agreements due to changes in governance structure, the non-controlling interest investors of a subsidiary may request the Company to purchase those shares for a period of time in the agreements at fair value. The management of the Company believes that the Company can control prerequisites for investors to claim the purchase and therefore, as at December 31, 2019, the Company determines that there is no possibility for investors to claim the purchase.

In accordance with the agreements with non-controlling interests of some subsidiaries including Kakao Page Corp., the Company is required to obtain a consent from investors, when the Company intends to dispose of the investments in subsidiaries within the period specified in the agreements through a transfer or other methods to third party other than stipulated manners in the agreements such as exercise of tag-along right (Note 1).

Financial instruments restricted as at December 31, 2019 and 2018:

(in millions of Korean won)

		2019		2018	Purpose of restriction
Short-term financial	₩	20,000	₩		Withdrawal restriction in relation to firm banking ¹ Related to legal procedure
instruments		1,350			Pledged as collateral for Shinhan Card and etc. ²
		5,466			Payment guarantee for employees' loan
		425			Pledged for housing loans to employees
		4,997			Payment guarantee for office lease
		1,700		1,150	Pledged as collateral for a franchise contract
		-		239,600	Pledged as collateral for overseas exchangeable bonds
		-		1,800	Performance guarantee
		-		1,000	Pledged as collateral for Shinhan Card
		100		250	Guarantee for instalment sales of a customer
		2		-	Deposit for checking account
Long-term		300		500	Payment guarantee for employee's loan
financial		701		_	Payment guarantee for office lease
instruments		10		-	Payment guarantee for vehicles lease
Investments in associates		-		42,000	Lock-up ³
	₩	35,052	₩	322,431	

¹The withdrawal is restricted in relation to the firm banking contract with DGB Daegu Bank.

The following assets are pledged as collateral in relation to guarantees for contract fulfilment and borrowings as at December 31, 2019:

(in millions of Korean won)

Asset	Book value		Collateralized amount		Type of Guarantee	Secured party
Promissory note	₩	-	₩	300	Collateral for fulfillment of repurchase obligation	Daehan Savings Bank
Time deposits and installment deposits		100		100	Collateral for payment guarantees	ORIX Capital Korea Corporation
Time deposits and installment deposits		400		440	Collateral for housing loans to employees	Shinhan Bank
Buildings		677		150	Leasehold rights	Killing Mario
Land, buildings		7,794		4,800	Collateral for facility loans Establishment of the right	KB Kookmin Bank
Land, buildings		2,843		3,360	to collateral security for land and buildings	KB Kookmin Bank
	₩	11,815	₩	9,150		

² Pledged as collateral in relation to covering expected loss incurred to credit card companies about business cooperation agreements with Shinhan Card and other credit card companies for 'Automated Payment via Kakao Pay'.

³ Lock-up of 10,421,421 ordinary shares for additional listing of UBCARE CO., LTD. was released during 2019.

Although short-term financial instruments of the Parent Company regarding the payment guarantee received from KB Kookmin Bank for the exchangeable bonds are provided as collateral until 2018, the collateral was changed to the stock return rights for treasury shares held by the Parent Company for the remaining shares subject to exchange during 2019 (Note 21).

The Company issued new shares through a capital increase by allotment to a third party to enter into a strategic partnership with SK TELECOM CO., LTD. during the year ended December 31, 2019. 2,177,401 new shares issued are subject to a deposit contract (prohibition of withdrawal or sale of relevant securities for one year from the deposit date) with the Korea Securities Depository and the Company executes the deposit contract.

As at December 31, 2019, other commitments of the Company are as follows:

- (1) The Company pledged shares held by some shareholders who have participated in the Company's paid-in capital increase as collateral.
- (2) In accordance with the agreements between shareholders of some subsidiaries and associates including STARSHIP ENTERTAINMENT CORP., the Company is required to obtain written consent from interested parties and investors when the Company intends to dispose of all or part of investments in subsidiaries or associates by transfer, sale, providing collateral, or other means before certain period or conditions are met.
- (3) In accordance with the agreements between shareholders of STARSHIP ENTERTAINMENT CORP., a subsidiary, if the listing of STARSHIP ENTERTAINMENT CORP. is not completed within five years from the date of the capital increase of STARSHIP ENTERTAINMENT CORP. in December 2019, the investors who participated in the capital increase can request the Company to purchase shares of STARSHIP ENTERTAINMENT CORP. In relation to this, the Company recognized the amount to purchase the additional shares as liabilities.
- (4) After lending money to subsidiary's CEO, the Company has pledged all of shares of moonlight film and Kakao M Corp. held by the CEO as collateral and has been comprehensively delegated the voting rights of moonlight film for three years.
- (5) For the shares of EDAM Entertainment, an associate, held by other shareholders, the Company can request to sell the number of shares to hold 51% of the total shares issued on a complete dilution basis to the Company or a third party designated by the Company through a written notice within one year after two years from the signed date of shareholders agreements.
- (6) SOOP ENTERTAINMENT CO., LTD a subsidiary of the company, has been sued by Fantagio Corp. for the non-existence of the extraordinary shareholders' meeting held in July 2016 and nullification/non-existence of the issuance of new shares. The Company's interests in the subsidiary may change depending on the outcome of the above litigation.
- (7) The Company has entered into an agreement between shareholders that grants put options in

relation to equity investments of STARSHIP ENTERTAINMENT CORP. and Kakao Page Corp., subsidiaries of the Company, and recognized the amount as financial liabilities.

- (8) The Company has entered into an agreement between shareholders that holds call options and grants put options in relation to equity investments of moonlight film, a subsidiary of the Company.
- (9) As at December 31, 2019, in relation to the acquisition of shares of SamyangCNC Co.,Ltd., Daon Creative inc, Soundist Entertainment.Co.,Ltd., NeoBazar Inc. and RS MEDIA Co., Ltd., the Company has an obligation to purchase shares held by the other parties for a price agreed at a certain point or a specified price when the other party expresses its intention to sell some of the shares. The Company recognizes the amount as financial liabilities.
- (10) As at December 31, 2019, the Company has entered into a payment agreement for production and development expenses related to drama production of two cultural industry specialty companies (Doctorbrain SPC Ltd., Dreamside SPC Ltd.) that have been invested in accordance with Framework Act on the Promotion of Cultural Industries. The final amount will be determined after being proposed to the SPC Steering Committee. Meanwhile, the expected net production cost for Doctorbrain SPC Ltd., is 10.5 billion, and the Company should raise funds by investing on the schedule agreed between the parties or by attracting third party investment.
- (11) The Company has entered into contracts with 23 companies to sell and exchange cryptocurrency in relation to its subsidiary's cryptocurrency business ("Klaytn").

39. Business Combinations

In 2019, the Company acquired the shares of 14 companies including AWESOMEENT CO. LTD.., which became its subsidiaries. Details of the percentage of ownership acquired, the consideration paid and goodwill recognized thereto are as follow:

(in millions of Korean won)	Percentage of ownership				
Company	acquired (%)	Cons	ideration	Go	odwill
AWESOMEENT CO. LTD	100.0	₩	10,000	₩	6,255
Moonlight Film ³	41.0		23,719		20,388
Sanai Pictures	81.0		18,630		16,943
VAST. CO., Ltd.	100.0		11,000		5,275
SHOWNOTE Inc.	100.0		26,767		16,516
Others ^{1,2}	52.5 ~ 100.0		37,886		25,185
		₩	128,003	₩	90,560

¹ Presented at a provisional amount for certain subsidiaries as purchase price allocation amount related to the business combination is not determined.

² Represent the consideration paid and goodwill of Soundist Entertainment.Co.,Ltd., RS MEDIA Co., Ltd., Mezondbaha Corp., KM Solution Corp., Jinhwa Corp., Donggo Taxi Corp., AWINS, INBYU and Partner Co.,Ltd., of which the Company acquired interests during 2019.

³ In accordance with call option provision on shareholder agreements of moonlight film, the Company is considered to have additional 40% interests substantially, and considering this, the Company measured and accounted for the consideration.

Details of the consideration transferred, fair value of the acquired identifiable assets and liabilities at the acquisition date, and non-controlling interests in relation to business combinations in 2019, are as follows:

(in millions of Korean won)	AWESOME ENT Co. Ltd.		moonlight Film		Sanai Pictures		VAST. CO., Ltd.		SHOWNOTE Inc.		Others	
Consideration transferred												
Cash and cash equivalents	₩	10,000	₩	8,200	₩	18,630	₩	11,000	₩	26,767	₩	37,886
Non-trade payables		-		15,519		-		-		-		-
Assets acquired and liabilities assumed												
Cash and cash equivalents		792		1,774		1,718		1,924		4,730		8,129
Trade receivables		173		20		1		230		1,144		1,615
Inventories		-		-		-		-		-		3,523
Property and equipment		1,049		5,844		124		558		1,681		2,391
Intangible assets		3,131		694		345		6,688		670		7,144
Other assets		6,878		1,658		572		3,256		6,337		4,741
Trade payables		(579)		(44)		(109)		(713)		(949)		(1,994)
Borrowings		-		-		-		-		-		(2,899)
Lease liabilities		-		-		-		-		-		(608)
Other liabilities		(7,698)		(5,834)		(568)		(6,218)		(3,361)		(7,671)
Net identifiable assets acquired		3,746		4,113		2,083		5,725		10,252		14,371
Non-controlling interest		-		(781)		(396)		_		-		(1,669)
Goodwill	₩	6,255	₩	20,388	₩	16,943	₩	5,275	₩	16,516	₩	25,185

In 2019, the Company took over the business of seven companies including Callmaner business of SN TECH CO., LTD. which became its subsidiaries. Details of the consideration transferred, fair value of the acquired identifiable assets and liabilities at the acquisition date, and non-controlling interests in relation to business combinations in 2019, are as follows:

(in millions of Korean won)	CMNP Corp.	Others ¹			
Consideration transferred					
Cash and cash equivalents	₩ 4,230	₩ 40,459			
Assets acquired and liabilities assumed					
Cash and cash equivalents	643	355			
Trade receivables	131	23			
Inventories	-	32			
Property and equipment	2	2,225			
Intangible assets	4,626	-			
Other assets	530	1,483			
Other liabilities	(4,078)	(2,399)			
Net identifiable assets acquired	1,853	1,718			
Non-controlling interest					
Goodwill	₩ 2,377	₩ 38,740			

¹ Represent the amount of the business transfer from KM One Corp., KM Two Corp., KM Three Corp., KM Four Corp., KM Five Corp., KM SIX Corp. and KM Seven Corp.

As at December 31, 2019, in relation to the purchasing of shares of two companies, including RS MEDIA Co., Ltd., the Company has an obligation to purchase certain shares held by the other party for a price agreed at a certain point when the other party expresses its intention to sell the shares, and the Company recognized the amount as financial liabilities.

40. Related Parties Transactions

The list of related parties as at December 31, 2019 and 2018, is as follows:

	2019
Relationship	Related parties ¹
	Addcredit Corp., DMS Network, Inc., Tapas Media, Inc., NBT Inc., NBT
	AMERICA INC., NBT BEIJING CO., LTD., DAUM Venture Fund, Dunamu Inc.,
	Futurewiz, Dunamu Investment Management Co., Ltd., Dunamu&Partners,
	ROOTONESOFT, IGIS Networks, LAMBDA256, Oscar Entertainment, CNT
	TECH CO.,LTD., Korea Credit Data, MannaCEA, Manna Town, Farmit,
	Farmit2, Left Right Co., Ltd., SCI VENTURE, INC., Rebittance Inc., SHOELAB
	CO., LTD, LUXROBO Co., Ltd., Deleo Korea Co., Ltd., Skelter Labs, Inc.,
	TOROOC Inc., Dreamcide SPC Ltd., DIGISONIC Co., Ltd., D&C MEDIA
	CO.,LTD., D&C OF STORM CO.,LTD., K Cube NEO Fund, BUNJANG Corp.,
	Supergene Inc., InnoSignal Co.,Ltd., PoteNit Co.,Ltd., Doctorbrain SPC Ltd.,
	CLAIR, Inc., KIF-Kakao Wooribank Technology Financing Fund,
Associates	13MILE.CO.LTD, ADSOTA CORP., CARDOC Inc., LUFTT KOREA Inc., Kakao
Associates	Kids, FOR YOUR KIDS CO.,LTD., Fixel Hub Co.,Ltd., NOWBUSKING
	COMPANY, LINEWALKS Inc., CHEQUER Inc., Hasys co., ltd, mycelebs, inc,
	DAIWAON. C. I. INC, Haksan Publinshing Co.Ltd., PEOPLEFUND COMPANY,
	Seoul Media Comics, UBCARE CO., LTD., LEEMITELEESYUN CULTURE
	INDUSTRIAL JEONMUNHOESA INC., GC SOCIAL MEDIA MARKETING,
	INC., Sixshop, Glohow Holdings PTE. LTD., Tide Square Co., Ltd., MOVILL
	Co.Ltd, EASYGO CO., LTD., Ltd., G&G Enterprise Co.Ltd., KakaoBank of
	Korea Corp., DXM CO.,LTD, DOZEN CO.,LTD, UNION K-Culture Contents
	Investment Fund, Daeyoung Chaevi CO., Ltd, 325E&C Co., Ltd., Ocean Drive
	Studio Co., Ltd., KW books, EDAM Entertainment, Un7qi3 Corp., Tangram
	Factory, KASA NETWORK PTE. LTD, Socialbean Co., Ltd, Allstay Co.,LTD
	and other 61 companies
	DAUMKAKAO PHILIPPINES CORP., AsanKakao Medical Data Co., Ltd.,
Joint venture	PINPLAY JAPAN Co., Ltd., PHI DIGITAL HEALTHCARE Inc., The Bridges of
	Madison County Co., Ltd.
	K Cube Holdings Co., Ltd., T for Invest, New learn English Inc., Onyx K., Golf &
Other related parties	Data System, PLUS 2 PERCENT, NPLUTO, GOLF&FRIEND CO.,LTD., LKMS
Otrici related parties	Limited, LKMS Re, Daeheung Co., Ltd., kakao Impact Foundation, GAMERS
	FOUNDATION

	2018
Relationship	Related parties ¹
Associates	Addcredit Corp., DMS Network, Inc., NBT Inc., Dunamu Inc., Futurewiz, IGIS Networks, Dunamu Investment Management Co., Ltd., Dunamu&Partners, ROOTONESOFT, Tapas Media, Inc., DAUM Venture Fund, NBT AMERICA INC., NBT BEIJING CO., Ltd., MannaCEA, Manna Town, Farmit, Farmit2, Oscar Entertainment., Left Right Co., Ltd., SCI VENTURE, INC., Tangram Factory, TANGRAMFACTORY AMERICA, INC., CNT TECH CO.,LTD., You Are the Designer, LUXROBO Co., Ltd., Leferi Inc., Deleo Korea Co.,Ltd., D&C MEDIA CO.,LTD., D&C OF STORM CO.,LTD., K Cube NEO Fund, Skelter Labs, Inc., TOROOC Inc., DIGISONIC Co., Ltd., Supergene Inc., BUNJANG Corp., (Dreamcide SPC Ltd., InnoSignal Co.,Ltd., PoteNit Co.,Ltd., Korea Credit Data, Doctorbrain SPC Ltd., CLAIR, Inc., KIF-Kakao Wooribank Technology Financing Fund, 13MILE.CO.LTD, ADSOTA CORP., CARDOC Inc., Kakao Kids (formerly, BLUEPIN Inc.), Fixel Hub Co.,Ltd., Hasys co.,ltd, FOR YOUR KIDS CO.,LTD., Action Square Co., Ltd., NOWBUSKING COMPANY, LINEWALKS Inc., CHEQUER Inc., LUFTT KOREA Inc., Rebittance Inc., mycelebs, inc, DAIWAON. C. I. INC, Haksan Publinshing Co.Ltd., PEOPLEFUND COMPANY, Seoul Media Comics, Allstay Co.,LTD, UBCARE
Joint venture	CO., LTD. and other 67 companies DAUM KAKAO PHILIPPINES CORP.
Joint venture	K Cube Holdings Co., Ltd., T for Invest, New learn English Inc., Onyx K.,
Other related parties	MODUDA, PLUS 2 PERCENT, NPLUTO, Daeheung Co., Ltd., kakao Impact Foundation, GAMERS FOUNDATION

¹ Include associates and other related parties of KaKao Corp. and the entities that are not the related party in accordance with Korean IFRS 1024 but belong to the Large Enterprise Group to which the Company also belongs in accordance with the Monopoly Regulation and Fair Trade Act.

Transactions with the related parties for the years ended December 31, 2019 and 2018 and the receivables from and payables to the related parties as at December 31, 2019 and 2018, are as follows:

Transactions

	2019											
(in millions of Korean won)		Re	evenue and	oth	ers		Operating expenses and others					
	Inter		Interest		Oth	er		Service	Adver	tising		
	Re	venue	income		inco	me		fee	expe	ense	Others	
Associates												
FOR YOUR KIDS CO.,LTD.	₩	1,083	₩	-	₩	-	₩	-	₩	-	₩	-
K Cube NEO Fund		481		_		-		-		_		-
KIF-Kakao Wooribank Technology Financing Fund		1,504		-		-		-		-		-
Kakao Kids		122		-		-		-		-		16
Fixel Hub Co.,Ltd.		16		-		-		15		_		-
Hasys co.,ltd		2,779		-		_		-		_		7
DAIWAON, C. I. INC		145		_		_		514		_		_

	2019											
(in millions of Korean won)	Re	evenue and oth	ers	Operatin	ıg expenses an	d others						
		Interest	Other	Service	Advertising							
	Revenue	income	income	fee	expense	Others						
Haksan Publinshing Co.Ltd.	-	-	-	2,088	-	-						
CLAIR, Inc.	1	-	-	-	-	-						
CARDOC Inc.	40	-	-	-	-	13						
BUNJANG Corp.	-	326	2	-	-	223						
SHOELAB CO., LTD.	1	-	-	-	-	-						
MannaCEA	152	-	-	196	-	1						
NBT Inc.	133	-	-	1,344	-	-						
Leferi Inc.	88	-	-	-	-	-						
Tangram Factory	1	-	-	-	-	-						
LUFTT KOREA Inc.	1	-	_	-	-	-						
G&G ENTERPRISE CO.,LTD.	16	-	-	-	-	-						
KakaoBank of Korea Corp.	3,703	-	1	1,685	-	-						
UBCARE CO., LTD.	· -	-	-	-	-	106						
MOVILL Co.Ltd	-	-	39	-	-	_						
PEOPLEFUND COMPANY	1,276	-	_	_	-	_						
13MILE.CO.LTD		_	21	5	_	_						
DOZEN CO.,LTD	12	_	_	179	_	_						
CNT TECH CO.,LTD.	803	-	_	653	-	_						
Dunamu Inc.	896	_	_	227	_	_						
Sixshop	26	_	_	18	_	_						
Deleo Korea Co.,Ltd.		_	_	1	_	_						
Seoul Media Comics	4	_	_	1.466	_	_						
Tapas Media,. Inc.	133	_	_	.,	_	_						
D&C MEDIA CO.,LTD.	120	_	_	17,653	4	_						
Doctorbrain SPC Ltd.		_	4	,	-	_						
mycelebs, inc	100	_		608	_	_						
KW Books, Inc.	-	_	_	-	_	_						
Tide Square Co., Ltd.	1	_	300	_	_	_						
NOWBUSKING COMPANY		_	-	4	_	1						
Futurewiz	_	_	_	-	_							
Korea Credit Data	2,021	_	_	_	_	_						
Socialbean Co., Ltd	2,021	-	23	_								
Godalbean Go., Eta	15,657	326	389	26,655	4	366						
Other valeted wanties	15,057	320	309	20,000	4							
Other related parties	400					0.000						
Kakao Impact Foundation	169	-	-	-	-	3,223						
GAMERS FOUNDATION			2									
	169	-	2	-	-	3,223						
	₩ 15,826	₩ 326	₩ 390	₩ 26,655	₩ 4	₩ 3,589						

 $^{^1}$ Received dividends of $\mbox{$W$}$ 5,329 million from Dunamu Inc., UBCARE CO., LTD. and K Cube NEO Fund in 2019, and the dividends amount is not included in the above table.

Transactions

	2018											
(in millions of Korean won)	R	evenue and oth			ng expenses an	d others						
		Interest	Other	Service	Advertising							
	Revenue	income	income	fee	expense	Others						
Associates												
MannaCEA	₩ 54	₩ -	₩ -	₩ 21	₩ -	₩ -						
Dunamu Inc. ²	1,454	-	-	134	-	-						
You Are the Designer	1	-	-	-	-	-						
CNT TECH CO.,LTD.	1,049	-	-	570	146	1						
Leferi Inc.	57	-	-	-	-	-						
CARDOC Inc.	39	-	-	-	-	-						
BUNJANG Corp.	-	330	-	-	-	40						
CLAIR, Inc.	-	-	-	-	-	507						
Korea Credit Data	42	-	-	150	-	-						
NOWBUSKING COMPANY	3	-	-	1	-	1						
Kakao Kids¹	499	-	-	63	-	17,666						
Futurewiz	45	-	-	-	-	-						
NBT Inc.	305	-	-	220	-	-						
Fixel Hub Co.,Ltd.	3	-	-	100	-	-						
Left Right Co., Ltd.	-	-	-	-	-	-						
D&C MEDIA CO.,LTD.	57	-	-	12,004	-	37						
Doctorbrain SPC Ltd.	4	-	-	-	-	-						
K Cube NEO Fund	-	-	385	-	_	-						
KIF-Kakao Wooribank Technology Financing Fund	-	-	1,368	-	-	-						
DAIWAON. C. I. INC	4	-	-	4	-	1						
Haksan Publinshing Co.Ltd.	-	-	-	9	-	-						
FOR YOUR KIDS CO.,LTD.	479	-	-	-	-	-						
LUFTT KOREA Inc.	-	-	-	-	-	-						
13MILE.CO.LTD	-	4	-	2	-	-						
PEOPLEFUND COMPANY	130	-	-	-	-	-						
Tapas Media, Inc.	144	-	-	-	_	-						
Hasys co.,ltd	2,054	-	-	-	_	-						
Pinplay	5	-	-	-	_	-						
WishLink	16	_	_	_	_	_						
	6,442	334	1,753	13,279	146	18,252						
Other related parties												
Kakao Impact Foundation	63	_	_	_	_	4,000						
NPLUTO	-	_	_	_	_	197						
Daeheung Co., Ltd.	_	42	_	_	_	.07						
2.55g 00., Etc.	63	-				4,197						
	₩ 6,505			-	- ₩ 146	4,197 ₩ 22,449						
	vv 0,505	370	1,700	10,213	** 140	vv 22,743						

¹ Includes purchases of investments in Pinplay from Kakao Kids (formerly, BLUEPIN Inc.) in 2018.

Receivables and Payables

(in millions of Korean won)	2019										
,		Receivables		Paya	bles						
	Trade receivables	Loans	Other receivables	Non-trade payables	Other payables						
Associates											
FOR YOUR KIDS CO.,LTD.	₩ 22	₩ -	₩ -	₩ 1	₩ 77						
K Cube NEO Fund	120	-	-	-	-						
KIF-Kakao Wooribank Technology Financing	374	_	_	_	_						
Fund		_	_	_							
Kakao Kids	8	-	-	-	-						
Fixel Hub Co.,Ltd.	-	-	1	3	-						
Hasys co.,ltd	234	-	669	790	-						
DAIWAON. C. I. INC	39	-	462	243	-						
Haksan Publinshing Co.Ltd.	-	-	2,326	399	-						
G&G Enterprise Co.Ltd.	3	-	-	52	-						
CLAIR, Inc.	-	-	-	35	-						
Tangram Factory	-	-	-	-	-						
KakaoBank of Korea Corp.	332	-	10,563	317	-						
MANNACEA	21	-	-	27	-						
BUNJANG Corp.	-	-	-	8	-						
UBCARE CO., LTD.	-	-	-	69	-						
MOVILL Co.Ltd	-	1,300	-	-	-						
PEOPLEFUND COMPANY	200	· -	-	-	-						
13MILE.CO.LTD	-	450	4	-	-						
DOZEN CO.,LTD	5	_	_	59	-						
Sixshop	-	_	_	4	-						
Deleo Korea Co.,Ltd.	_	_	_	_	_						
Tapas Media,. Inc.	36	_	_	_	11						
NBT Inc.	2	_	68	89	_						
D&C MEDIA CO.,LTD.	19	_	2,918	1,991	2						
Dreamcide SPC Ltd.	-	_	400	-	_						
Doctorbrain SPC Ltd.	1	_	400	_	_						
mycelebs, inc	110	_	899	93	_						
Seoul Media Comics	-	_	823	101	_						
KWbooks	_	_	1,397	539	_						
Dunamu Inc.	78	_	1,007	22	_						
NOWBUSKING COMPANY	-	_	_	0	_						
CNT TECH CO.,LTD.	39	_	_	326							
Tide Square Co., Ltd.	-	_	_	-	_						
CARDOC Inc.		_	_	6							
LUFTT KOREA Inc.		_	_	7							
Socialbean Co., Ltd	_	_	_	, 17	_						
325E&C Co., Ltd.	_	_	2,235	207	16						
EDAM Entertainment Corp	12	-	2,233	856	10						
SHOELAB CO., LTD.	12	-	-	630	-						
SHOLLAD CO., LID.	1.055	4.750	22.405		405						
Other related parties	1,655	1,750	23,165	6,263	105						
Other related parties											
kakao Impact Foundation	17	-	-	-	-						
LKMS INC.	-	-	2	28	116						
K Cube Holdings Co., Ltd.	-	-	-	-	2,500						
GAMERS FOUNDATION											
	17		2	28	2,616						
	₩ 1,671	₩ 1,750	₩ 23,168	₩ 6,290	₩ 2,721						

Receivables and Payables

(in millions of Korean won)					2	2018				
			Receiv	vables			Payables			
		ade vables	Lo	Loans		Other receivables		Non-trade payables		ner ibles
Associates							-	-		
MannaCEA	₩	-	₩	-	₩	-	₩	124	₩	-
CNT TECH CO.,LTD.		65		-		-		97		-
NOWBUSKING COMPANY		3		-		-		-		-
Dunamu Inc.		113		-		-		12		-
Kakao Kids		16		-		-		-		-
Fixel Hub Co.,Ltd.		1		-		2		7		-
Left Right Co., Ltd.		-		_		_		_		-
D&C MEDIA CO.,LTD.		11		_		2,316		634		_
Dreamcide SPC Ltd.		_		_		400		_		_
Doctorbrain SPC Ltd.		1		_		400		_		_
Haksan Publinshing Co.Ltd.		_		_		1,394		787		_
DAIWAON. C. I. INC		_		_		· -		254		_
Seoul Media Comics		_		_		785		143		_
CLAIR, Inc.		_		_		_		33		_
NBT Inc.		9		_		_		5		_
FOR YOUR KIDS CO.,LTD.		113		_		_		_		_
You Are the Designer.		-		_		_		_		_
CARDOC Inc.		_		_		_		_		_
LUFTT KOREA Inc.		_		_		_		_		_
BUNJANG Corp.		_		_		_		11		_
13MILE.CO.LTD		_		450		4		2		_
PEOPLEFUND COMPANY		82		-		-		_		_
Hasys co.,ltd		221		_		530		520		_
Allstay Co.,LTD				100		-		1		_
7 metay 66.,212	₩	635	₩	550	₩	5,832	₩	2,631	₩	
Other related parties	- V V	000	V V	000	<u> </u>	0,002	V V	2,001	V V	
kakao Impact Foundation	₩	28	₩	_	₩	_	₩	_	₩	
rarao impaci Foundation	₩	663	₩	550	₩	F 022	_	2 624	₩	
	₩	003	₩	550	₩	5,832	₩	2,631	<u>₩</u>	-

Loans arising from related parties for the years ended December 31, 2019 and 2018, are as follows:

(in millions of Korean won)	2019										
	•	inning lance		Loans	Rep	ayments	Changes in scope of consolidation		Ending balance		
Associates											
13MILE.CO.LTD	₩	450	₩	-	₩	-	₩	- \	<i>†</i> 450		
MOVILL Co.Ltd		-		1,300		-		_	1,300		
Others		100		200		(100)		(200)	-		
Other related parties											
Daeheung Co., Ltd.		4,000		-		-		-	4,000		
	₩	4,550	₩	1,500	₩	(100)	₩	(200) ₩	/ 5,750		

(in millions of						2	018					
Korean won)	Beginr balan	•	Lo	Acquisition Loans from bonds Re				Changes in scope of Repayments consolidation			Ending balance	
Associates												
3Points Inc.	₩	50	₩	-	₩	-	₩	ـ -	₩	(50)	₩	-
SONNORI CORP.		-		1,500		-		-		(1,500)		-
BUNJANG Corp.		-		150		-		(150)		-		-
Allstay Co.,LTD		-		300		-		(500)		300		100
13MILE.CO.LTD				450		-						450
		50		2,400				(650)		(1,250)		550
Other related parties												
Daeheung Co., Ltd.		<u>-</u>		2,000		4,000		(2,000)				4,000
	₩	50	₩	4,400	₩	4,000	₩	(2,650)	₩	(1,250)	₩	4,550

During 2019 and 2018, the Company made contribution in cash to certain related parties (Note 16).

Key management compensation

The compensation paid or payable to key management for the years ended December 31, 2019 and 2018 consists of:

(in millions of Korean won)	20)19	2018		
Salaries	₩	1,830	₩	2,159	
Retirement benefit expense		111		48	
Other long-term employee benefits		25		28	
Share-based payments		884		473	
	₩	2,850	₩	2,708	

41. Credit Risk

Credit risk arises from cash and cash equivalents, contractual cash flows of debt investments, favorable derivative financial instruments and deposits with banks and financial institutions, as well as credit exposures to corporate and individual customers, including outstanding receivables.

(a) Risk management

Credit risk is managed on a group basis. For banks and financial institutions, only independently rated parties with a minimum rating of 'A' are accepted.

If corporate customers are independently rated, these ratings are used. Otherwise, if there is no independent rating, risk control assesses the credit quality of the customer, taking into account its financial position, past experience and other factors.

There are no significant concentrations of credit risk, whether through exposure to individual customers, specific industry sectors and/or regions.

The Company's investments in debt instruments are considered to be low risk investments.

(b) Security

For some trade receivables, the Company may obtain security in the form of guarantees or letters of credit, etc. which can be called upon if the counterparty is in default under the terms of the agreement.

(c) Impairment of financial assets

The Company has following financial assets that are subject to the expected credit loss model:

- · trade receivables for sales of goods and provision of services,
- · other financial assets carried at amortized cost.

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

A. Trade receivables

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

To measure the expected credit losses, trade receivables have been grouped based on shared credit risk characteristics and the days past due. Allowance for doubtful accounts as at December 31, 2019, is as follows. The expected credit losses include forward looking information.

(in millions of Korean won)		2019											
	Current	Less than 3 months past ent due			Less than 6 months past due		Less than 9 months past due		Over 9 months		Total		
Trade receivables													
Expected loss rate	0.23%		2.68%		19.82%		5.99%		88.18%				
Gross carrying amount	₩ 143,751	₩	11,839	₩	1,105	₩	882	₩	4,827	₩	162,404		
Allowance for doubtful accounts	337		317		219		53		4,257		5,184		

Movements in the loss allowance provision for trade receivables and contract assets for the years ended December 31, 2019 and 2018, are as follows:

(in millions of Korean won)	2019			2018
Beginning balance	₩	7,568	₩	7,762
Amounts restated through beginning balance		-		567
Loss allowance as at January 1, 2019 – after adjustment		7,568		8,329
Changes in scope of consolidation		(91)		887
Increase in loss allowance recognized in profit or loss during the year		9		2,793
Unused amounts reversed		(404)		-
Receivables written off during the year as uncollectible		(1,669)		(4,441)
Transfer (reclassification of accounts)		(201)		-
Others (currency translation effects)		(28)		-
Ending balance	₩	5,184	₩	7,568
,	₩	 .	₩	7,568

The maximum exposure to credit risk at the reporting date is the carrying amount of trade receivables.

Amounts recognized as 'bad debt expense' in profit or loss in relation to impairment for the years ended December 31, 2019 and 2018, are as follows:

(in millions of Korean won)		2019		2018
Trade receivables Changes in loss allowance provision for trade receivables	₩	(395)	₩	2,793
Other financial assets Changes in loss allowance provision for other financial assets		2,327		292
Other current assets Changes in loss allowance provision for other current assets		(121)		_
	₩	1,811	₩	3,084

B. Other financial assets measured at amortized cost

Other financial assets at amortized cost include non-trade receivables, loans and other receivables.

Movements in loss allowance provision for other financial assets at amortized cost for the year ended December 31, 2019 and 2018, are as follows:

(in millions of Korean won)		2019		2018		
Beginning balance	₩	41,774	₩	36,720		
Increase in loss allowance recognized in profit or loss as operating expenses during the year		2,327		292		
Others (changes in scope of consolidation, currency translation effects and others)		(444)		4,763		
Ending balance	₩	43,657	₩	41,774		

42. Changes in Accounting Policies

The Company has adopted Korean IFRS 1116, retrospectively, from January 1, 2019, but has not restated comparatives for the 2018 reporting period, as permitted under the specific transitional provisions in the standard. The reclassifications and the adjustments arising from the new leasing rules are, therefore, recognized in the consolidated statement of financial position on January 1, 2019.

42.1 Adjustments recognized on adoption of Korean IFRS 1116 Lease

On adoption of Korean IFRS 1116, the Company recognized lease liabilities in relation to leases which had previously been classified as 'operating leases' under the principles of Korean IFRS 1017. These liabilities were measured at the present value of the remaining lease payments, discounted using the lessee's incremental borrowing rate as at January 1, 2019. The lessee's weighted average incremental borrowing rate applied to the lease liabilities on January 1, 2019 was $1.45\% \sim 5.92\%$.

(in millions of Korean won)	Janua	ary 1, 2019
Operating lease commitments disclosed as at December 31, 2018	₩	222,020
Discounted using the lessee's incremental borrowing rate of at the date of initial application		206,143
Less: short-term leases not recognized as a liability		(6,224)
Less: low-value leases not recognized as a liability		(1,054)
others		(90)
Lease liability recognized as at January 1, 2019		198,775
Of which are:		
Current lease liabilities		42,514
Non-current lease liabilities		156,261
	₩	198,775

Right-of use assets were measured at the amount equal to the lease liability, adjusted by the amount of any prepaid or accrued lease payments relating to that lease recognized in the consolidated statement of financial position as at December 31, 2018. There were no onerous lease contracts that would have required an adjustment to the right-of-use assets at the date of initial application.

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

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

Decemi	ber 31, 2019	Janua	ary 1, 2019
₩	179,781	₩	176,750
	42,242		18,910
	5,436		4,132
₩	227,458	₩	199,792
Decem	ber31,2019	Janu	ary1,2019
			40.544
₩	68,077	₩	42,514
₩	68,077 164,989	₩	42,514 156,261
	₩	42,242 5,436	₩ 179,781 ₩ 42,242 5,436 ₩ 227,458 ₩

Additions to the right-of-use assets during the 2019 financial year were ₩ 83,598 million.

(b) Amounts recognized in the consolidated statement of profit or loss

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

(in millions of Korean won)		2019
Depreciation of right-of-use assets		
Properties	₩	37,994
Machinery		15,492
Vehicles		2,643
	₩	56,129
Interest expense relating to lease liabilities (included in finance cost)	₩	6,370
Expense relating to short-term leases (included in operating expenses)		11,142
Expense relating to leases of low-value assets that are not short-term leases (included in operating expenses)		927
Expense relating to variable lease payments not included in lease liabilities (included in operating expenses)		22,957
Income from subleases of right-of-use assets		69

The total cash outflow for leases in 2019 was ₩ 78,071 million.

The change in accounting policy affected the following items in the consolidated statement of financial position on January 1, 2019:

- right-of-use assets: increase by ₩ 199,792 million
- lease liabilities: increase by ₩ 198,775 million
- prepaid expenses: decrease by ₩ 1,017 million

(c) Practical expedients applied

In applying Korean IFRS 1116 for the first time, the Company has used the following practical expedients permitted by the standard:

- the use of a single discount rate to a portfolio of leases with reasonably similar characteristics
- reliance on previous assessments on whether leases are onerous
- the accounting for operating leases with a remaining lease term of less than 12 months as at January 1, 2019, as short-term leases

- the exclusion of initial direct costs for the measurement of the right-of-use asset at the date of initial application, and
- the use of hindsight in determining the lease term where the contract contains options to extend or terminate the lease

The Company has also elected not to reassess whether a contract is, or contains a lease at the date of initial application. Instead, for contracts entered into before the transition date, the Company relied on its assessment made applying Korean IFRS 1017 and Interpretation 2104 Determining whether an Arrangement contains a Lease.

42.2 The Company's leasing activities and how these are accounted for

The Company leases various offices and machinery. Lease contracts are typically made for fixed periods of 1 to 9 years, but may have extension options as described in (b) below. 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.

Until the 2018 financial year, leases of property and equipment were classified as operating leases. Payments made under operating leases (net of any incentives received from the lessor) were charged to profit or loss on a straight-line basis over the period of the lease.

From January 1, 2019, leases are recognized as a right-of-use asset and a corresponding liability at the date at which the leased asset is available for use by the Company. 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. 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.

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
- Amounts expected to be payable by the lessee under residual value guarantees
- The exercise price of a purchase option if the lessee is reasonably certain to exercise that option, and
- Payments of penalties for terminating the lease, if the lease term reflects 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.

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

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 small items of office furniture.

(a) Variable lease payments

Some machinery leases contain variable payment terms that are linked to usage. Some property leases contain variable payment terms that are linked to sales generated from a store. Variable payment terms are used for a variety of reasons, including minimizing the fixed costs base for machinery and newly established stores. Variable lease payments that depend on usage are recognized in profit or loss when the machinery is used and when the usage is determined by the settlement. Variable lease payments that depend on sales are recognized in profit or loss in the period in which the condition that triggers those payments occurs.

(b) Extension and termination options

Extension and termination options are included in a number of property and infra leases across the Company. These terms are used to maximize operational flexibility in terms of managing contracts. The majority of extension and termination options held are exercisable by mutual consent between the respective lessor and the Company.

43. Information for Non-controlling Interests

(in millions of Korean

43.1 Changes in Accumulated Non-controlling Interests

The profit or loss allocated to non-controlling interests and accumulated non-controlling interests of subsidiaries that are material to the Company for the years ended December 31, 2019 and 2018, is as follows:

won)	Non- controlling interest rate (%)	Accumulated non-controlling interests at the beginning of the year	Profit or loss allocated to non- controlling interests	Dividends paid to non-controlling interests	Investment by non- controlling interests and disposal of shares	Others	Accumulated non-controlling interests at the end of the year
Kakao Games Corp.	39.5	₩ 159,822	₩ (1,127)	₩ -	₩ -	₩ 3,549	₩ 162,244
Kakaopay Corp.	39.1	43,318	(25,424)	-	-	890	18,784
Kakao Page Corp.	36.4	82,723	2,595	-	36,272	6,683	128,273
Kakao Mobility Corp.	30.7	75,831	(7,792)	-	-	1,429	69,468
Kakao M Corp.	10.2	(11)	639	-	54,174	9,845	64,646
(in millions of Korean won)				2018			
	Non- controlling interest rate (%)	Accumulated non-controlling interests at the beginning of the year	Profit or loss allocated to non- controlling interests	Dividends paid to non- controlling interests	Investment by non- controlling interests and disposal of shares	Others	Accumulated non-controlling interests at the end of the year
Kakao Games Corp. Kakaopay Corp. Kakao Page Corp. Kakao Mobility Corp. Kakao M Corp.	39.6 39.1 36.2 30.7 0.0	₩ 47,265 79,941 71,820 71,603	₩ 5,388 (36,552) 1,896 (5,637) (11)	₩ - - - - -	₩ 99,077 - - 14,089 -	₩ 8,093 (70) 9,007 (4,224)	₩ 159,822 43,318 82,723 75,831 (11)

43.2 Summarized Financial Information on Subsidiaries

Set out below is summarized financial information for each subsidiary that has non-controlling interests that are material to the Company. The amounts disclosed for each subsidiary are before inter-company eliminations.

Summarized consolidated statements of financial position

(in millions of	2019											
Korean won)	Kaka	ao Games	K	akaopay	Ka	Kakao Page		cao Mobility				
		Corp.		Corp.		Corp.		Corp.	Kaka	o M Corp.		
Current assets	₩	333,592	₩	475,300	₩	159,369	₩	47,168	₩	294,776		
Non-current assets		258,160		49,326		218,203		227,761		528,784		
Current liabilities		143,266		457,130		36,993		44,966		218,057		
Non-current liabilities		31,105		20,883		24,722		14,364		64,613		
Equity	₩	417,380	₩	46,614	₩	315,857	₩	215,600	₩	540,889		
(in millions of						2018						

(in millions of	2018											
Korean won)	Kakao Games		Ka	akaopay	Ka	kao Page	Kal	ao Mobility				
		Corp.	Corp.		Corp.			Corp.	Kaka	ao M Corp.		
Current assets	₩	309,691	₩	369,495	₩	65,357	₩	115,850	₩	304,314		
Non-current assets		236,002		17,836		186,787		145,458		355,795		
Current liabilities		114,391		271,501		53,134		19,028		221,292		
Non-current liabilities		14,697		4,963		971		2,548		3,136		
Equity	₩	416,606	₩	110,867	₩	198,039	₩	239,732	₩	435,681		

Summarized consolidated statements of comprehensive income

(in millions of	2019											
Korean won)	Kak	ao Games Corp.	Kakaopay Corp.		Kakao Page Corp.		Kakao Mobility Corp.		Kakao M Corp.			
Revenue Profit (loss) for the year Other comprehensive	₩	391,040 8,866	₩	141,103 (65,011)	₩	257,062 6,095	₩	104,852 (25,547)	₩	353,008 8,910		
income		(10,401)		(210)		610		(422)		(365)		
Total comprehensive income	₩	(1,535)	₩	(65,221)	₩	6,705	₩	(25,969)	₩	8,545		

2018											
Kakao Games Corp.		Kakaopay Corp.		Kakao Page Corp.		Kak	ao Mobility Corp.	Kakao M Corp			
₩	420,805	₩	69,526	₩	187,578	₩	53,634	₩	53,987		
	18,897		(93,483)		(4,205)		(18,531)		59		
	(8,723)		(51)		1,353		(274)		558		
₩	10,174	₩	(93,534)	₩	(2,852)	₩	(18,805)	₩	617		
	₩	₩ 420,805 18,897 (8,723)	Corp. ₩ 420,805 ₩ 18,897 (8,723)	Corp. Corp. ₩ 420,805 ₩ 69,526 18,897 (93,483) (8,723) (51)	Corp. Corp. ₩ 420,805 ₩ 69,526 ₩ 18,897 (8,723) (51)	Kakao Games Corp. Kakaopay Corp. Kakao Page Corp. ₩ 420,805 ₩ 69,526 ₩ 187,578 18,897 (93,483) (4,205) (8,723) (51) 1,353	Kakao Games Corp. Kakaopay Corp. Kakao Page Corp. Kakao Page Corp. ₩ 420,805 ₩ 69,526 ₩ 187,578 ₩ 18,897 (93,483) (4,205) (8,723) (51) 1,353	Kakao Games Corp. Kakaopay Corp. Kakao Page Corp. Kakao Mobility Corp. ₩ 420,805	Kakao Games Corp. Kakaopay Corp. Kakao Page Corp. Kakao Mobility Corp.<		

Summarized consolidated statements of cash flows

(in millions of	2019											
Korean won)	Kak	cao Games Corp.	K	(akaopay Corp.	Ka	akao Page Corp.	Kal	kao Mobility Corp.	Kak	ao M Corp.		
Cash flows from operating activities	₩	73,289	₩	108,871	₩	29,671	₩	(9,089)	₩	26,410		
Cash flows from investing activities		73,572		10,771		(55,837)		1,756		(113,356)		
Cash flows from financing activities		(5,036)		(2,325)		79,353		(1,490)		77,745		
Net increase (decrease) in cash and cash equivalents		141,825		117,317		53,187		(8,823)		(9,201)		
Cash and cash equivalents at beginning of year Effects of exchange		104,822		261,372		14,645		35,410		135,547		
rate changes on cash and cash equivalents		457		-		(33)		-		-		
Cash and cash equivalents at end of year	₩	247,105	₩	378,689	₩	67,799	₩	26,586	₩	126,346		
(in millions of						2018						
Korean won)	Kak	cao Games Corp.	Kakaopay Corp.		Kakao Page Corp.		Kakao Mobility Corp.		Kakao M Corp			
Cash flows from operating activities	₩	73,399	₩	81,007	₩	(1,396)	₩	(7,624)	₩	2,294		
Cash flows from investing activities		(191,173)		4,710		(30,451)		(156,227)		(23,414)		
Cash flows from financing activities		162,105				17,850		(119)		156,666		
Net increase (decrease) in cash and cash equivalents		44,330		85,717		(13,997)		(163,970)		135,547		
Cash and cash equivalents at beginning of year		60,502		175,655		28,640		199,380		-		
Effects of exchange rate changes on cash and cash equivalents		(11)		-		3		-				
Cash and cash												

43.3 Transactions with Non-controlling Interests

Effects of transactions with non-controlling interests on the equity attributable to owners of the Parent Company for the years ended December 31, 2019 and 2018, are as follows:

(in millions of Korean won)		2019		2018
Capital increase of a subsidiary 1,2	₩	42,395	₩	55,430
Disposal of interests in a subsidiary ⁴		-		35,911
Business combination of entities under a common control ³		-		(118,811)
Others		3,665		33,324
Net effect on equity	₩	46,060	₩	5,854

¹ During 2019, Kakao M Corp., a subsidiary, decided to increase capital through allotment to a third party. Total amount of the capital increase is ₩ 96,569 million. As a result, the Company's interests in Kakao M Corp. decreased from 100% to 89.8%. Due to the above transaction, the non-controlling interest increased by ₩ 54,174 million as at the date of capital increase and the share capital attributed to the owners of the Parent Company increased by ₩ 42,395 million.

 $^{^2}$ During 2018, Kakao Games Corp., a subsidiary, decided to increase capital through allotment to a third party. Total amount of the capital increase is $\mbox{$\mathbb{H}$}$ 139,996 million. As a result, the Company's interests in Kakao Games Corp. decreased from 74.9% to 60.4%. Due to the above transaction, the non-controlling interest increased by $\mbox{$\mathbb{H}$}$ 93,143 million as at the date of capital increase and the share capital attributed to the owners of the Parent Company increased by $\mbox{$\mathbb{H}$}$ 46,853 million.

³ During 2018, the Company acquired treasury shares through merger with Kakao M Corp. (formerly, LOEN ENTERTAINMENT, INC.), a subsidiary. The acquisition amount of ₩ 222,672 million was deducted from the equity attributable to the owner. In addition, as the Company acquired additional non-controlling interests through the merger, share capital attributed to the owner increased by ₩ 103,861 million.

⁴ During 2018, the Company disposed of 735,000 shares of Kakao Mobility Corp., a subdiairy, for ₩ 50,000 million to a third party. Due to the above transaction, the non-controlling interest increased by ₩ 35,911 million as at the disposal date and the share capital attributed to the owners of the Parent Company increased by ₩ 14,089 million.

44. Events After the Reporting Period

In October 2018, Kakaopay Corp., a subsidiary, has entered into a contract to acquire 60% interests of BARO Investment & Securities and applied for a major shareholder qualification examination to Financial Services Commission in April 2019. After the approval of the examination on February 5, 2020, the acquisition of shares was completed on February 6, 2020.

In accordance with the resolution of the Board of Directors on February 11, 2020, Kakao Games Corp., a subsidiary, decided to increase capital by allotment to a third party. The number of new shares allocated is 1,375,661 shares and the amount is ₩ 24,641 million.

In accordance with the resolution of the Board of Directors on February 11, 2020, Kakao Games Corp., a subsidiary, acquired an additional 4,238,481 shares of XLGAMES Inc. on March 11, 2020. The investment amount is ₩ 118,092 million and the interests after the additional acquisition is 52.97%, and accordingly, it was newly included in subsidiaries.

In accordance with the resolution of the Board of Directors on March 16, 2020, Kakao M Corp., a subsidiary, decided to a third-party capital increase. The number of new shares allocated is 1,147,974 shares and the amount is $\frac{1}{2}$ 209,816 million.